

# LIFE

DRAFT

Ricardo Godoy

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Chapter 12

**Life**

**Summary:** *Aims:* For adults  $\geq 16$ y, *i/* identify reasons of happiness and sadness, *ii/* assess satisfaction with material, social, and psychological dimensions of quality of life (QOL), *iii/* analyze parental expectations of their children, and *iv/* assess sex differences and time trends. *Methods:* Self-reported answers are analyzed using descriptive statistics and graphs. *Data:* Panel data (2002-10) is supplemented with data from 2 randomized-controlled trials. Material QOL=food, clothing, health. Social QOL=visits received, *chicha*, leisure time, trust. Psychological QOL=gossip, regret + 9 stress signs (e.g., nervousness). Parents were asked what their children (as adults) will prefer for residence, healthcare, language, schooling, occupation. *Findings:* *i/ Happiness and sadness.* Materialities (e.g., food) and non-materialities (e.g., visits) accounted for 44% and 47% of the reasons for happiness. Poor health was the main reason of sadness. The sexes did not differ in reasons. Leading reasons changed in time. Reasons for each emotion differed, but some affected both, suggesting that a wholistic measure of well-being requires attention to the distinct reasons for the two emotion. *ii/ QOL. Material.* Besides clothing, Tsimane' were satisfied with material conditions. 96% ate well or reasonably well, only 10% had poor health, and a third thought their health had improved in the past year, but 70% felt they had insufficient apparel. Men were slightly more satisfied than women. The share of adults satisfied with meals, enjoying good health, and disgruntled with clothing rose in time. *Social.* Traditional forms of sociality look frail. 40% had received no visitors, 20% had no leisure time, 12% enjoyed free time. Two-thirds had not drunk *chicha* because villages had none (31%) or too little (61%) and 53% did not trust villagers. The fraction of villagers who had no visitors or free time, and the chances of drinking *chicha* got smaller during the study while the share of adults who felt the village had insufficient *chicha* rose. Except for *chicha* drinking, the sexes were alike in sociality. *Psychological.* Tsimane' are not given to remorse; only 22% had a lifetime regret and 9% rued acquiring durable assets, but 48% of moneylenders lamented having lent. Half the adults showed stress as nervousness (44%), trouble sleeping (47%), worry (49%), losing control (67%), inability to do all chores (52%), or being the target of gossip (41%). Few sex differences appeared. *iii/ Parental expectations.* Other than a preference for Western healthcare, parents thought their offspring would want a traditional lifestyle (e.g., drink *chicha* instead of beer). In sum, Tsimane' do better in material than social or psychological QOL indicators. Emotionally complex, content with the basics, unburden by the past, Tsimane' see a future akin to the present.

Ricardo Godoy

Heller School for Social Policy and Management

Brandeis University

Waltham, MA

USA

Email: [rgodoy@brandeis.edu](mailto:rgodoy@brandeis.edu); telephone: 1-781-736-2784

Most of the book has dealt with the palpable side of Tsimane' life — horticulture, foraging, earnings, assets, food, purchases, barter — leaving aside much of what happens inside them. Sometimes I detoured to speak about feelings, as in the previous chapter, but the detour did not last long. As I start to seal up the book, I examine hand-picked aspects of Tsimane' incorporeal life. The chief aim is to round out the anfractuous reportage of their lifestyle provided so far.

The chapter unfolds in three logical, sequential steps. The emprise begins by first asking Tsimane' about anything that had recently made them happy or sad and, in this way, obtain an unedited fresco of these two keystone emotions. With the fresco in front, I analyze year by year how Tsimane' do in aspects of quality of life they or us, the researchers, identified as meaningful. Do they think they have enough food and how do they rate the frequency of convivial drinking? What do they feel about villagers' tort of slander and libel? How about regrets or trust? As a third step I examine what adults believed the future would hold for their children. Will youngsters, as adults, follow their parent's footsteps in the village, speak Spanish, drink beer rather than *chicha*, and all the rest that go with blending into the world beyond the local folk culture?

Besides rounding out the story, why do we care what makes Tsimane' jocund or despondent and about how do they rate their quality of life? One reason is to assess the overlap between the material and the spiritual, between the economy and the mind, between infrastructure and superstructure. The overlap has long preoccupied philosophers, academics, the public, and, most recently, international organizations, but who should define and measure quality of life and how to measure it remains elusive. Should insiders or outsiders define quality of life for a group, and should they use objective or subjective criteria? A thorough assessment of quality of life should rely on both viewpoints and both criteria. Among Tsimane', we want to know how *they* feel about emotions they eschew, like anger (insider-subjective/incorporeal) and about material or social events *they* value, like eating well and having visitors (insider-objective/material). One could stop there. Problem is that if the rest of the world wants to learn the lessons Tsimane' have to offer them, the public would want to assess Tsimane' quality of life through subjective and objective criteria meaningful to the rest of the world, like regret (outsider-subjective/incorporeal) or cholesterol levels (outsider-objective/material), criteria irrelevant to Tsimane'. The distinction between insider and outsider honors a long-established dichotomy in cultural anthropology about how to report lifeways; the distinction between the material and incorporeal honors a long-established tradition in Western philosophy. The hurdle I cannot solve is how to combine it all into one digestible summary statement, or whether we should give up and be content to live with parallel stories for insider and outsider, material and incorporeal life viewpoints in describing the quality of life of a people<sup>i</sup>.

These concerns leave aside the deeper question of why, besides intellectual curiosity, we should measure quality of life in a small-scale, secluded society, most likely on its way out. I have no good answer, other than to say the endeavor could point to areas where public policy could play a role. Unhappy poor people could be made better off by improving their economic condition while unhappy rich ones could be made better off by lowering their stress, for instance. But where do Tsimane' fall, income poor but happy or income poor but unhappy, and what could one fain do once we have answers?

We followed a nearly irrefragable approach to measure goodness of life. As noted, we started by first asking adults what made them happy or sad. From the lists and our ethnographic understanding of Tsimane', we identified dimensions of well-being Tsimane' thought mattered

to them<sup>ii</sup>. The dimensions included obvious things like having food and clothing and enjoying good health, to more social dimensions like having visitors or convivial drinking, to psychological dimensions like being the butt of gossip. All these dimensions they identified, we measured. Anger they mentioned but I don't discuss in this chapter since it was covered in the previous chapter. Although villagers did not mention them as causes of sadness or happiness, we enquired about trust, stress, and regret. Stress and trust are straightforward signposts of well-being, but regret is not and needs justification.

There is a large literature on aspirations and psychological astigmatism, a slim one on improvidence's complement, regret. I delve into regret because it is a shortcut into meaningfulness. The passage of time allows anyone to look back into life's dizzying battery of events and scalpel out the blunders one would have done differently. Of course, aspirations also matter because, like regret, they shape what we do. To gain a whole view of well-being I examine regret and aspirations, palpable (e.g., food) and incorporeal (e.g., visits) traits Tsimane' singled out as important, and traits we researchers decided should be brought in, like trust. A few signature indicators of well-being I leave out for reasons explained later. My aim is to provide a dry empirical inquiry. I have no hypotheses to test, no quarrels to settle, no axes to grind.

In Table 12.1 I lay out the datasets used for the chapter to quickly spot dimensions of well-being we can trace over time and those we cannot. For example, we asked parents about expectations of their children mostly in 2010, and we asked adults about regret only in 2011-2012 and 2005-2006, but for other topics, like *chicha* drinking or having visitors we asked every year or almost every year. Information for 2004-2010 comes from yearly surveys. Information for 2002-2003 comes from quarterly surveys. Sometimes, as when examining the reasons for happiness or sadness, I leave quarterly information intact so we have multiple observations for the same person, but when I compare responses from 2002-2003 with yearly responses from other years, I select one yearly record per person from the four quarters for 2002 and 2003. As done in [Chapter 11](#), in this one I include an appendix, written mostly for myself, painstakingly describing the measurement of outcomes, construction of datasets, and mistakes made along the way (Appendix A).

Insert Table 12.1

### **Causes of happiness and sadness: Methods to collect information and data quality**

*Methods.* During the first two years of the longitudinal study (September 2002-August 2003), we asked all adults every quarter to tell us what made them happy *this week*, followed by the question of what made them sad *this week*. Respondents understood the script because Tsimane' have distinct words for happiness (*ma'joi*) and sadness (*facoi*). During the yearly survey of 2004, we changed slightly the question wording by asking villagers to tell us, first, all the good things and, second, all the bad things they had experienced *the past seven days*. Villagers could list as many items as they wished, surveyors followed by writing answers word for word. The argosy of textual answers from so many people over so many years made it necessary to combine conceptually similar responses into categories. For instance, in answer to what made them happy, the villager who said "kin from the village visiting me" and the one who said "kin from another village visiting me" meant the same thing: They appreciated people

dropping by. In the original dataset we left the exact wording, but in the analysis, I put the two answers in a pail called “Social” for sociality.

I grouped the panoply of answers about happiness into eight categories which seemed sensible — Health, work, social, food, market, home, feelings, and the remaining answers I put in the category “other.” Examples of textual answer about reasons for happiness and how I categorized them are shown next:

- Health: Enjoy good health, have medicines, recover from illness
- Work: Work well, farm plots produce well, bring firewood
- Social: Drink *chicha*, receive visitors, village festivities
- Food: Good fishing, eat meat, harvest of wild fruits
- Market: Sell, buy, repay loan
- Home: Stay at home, birthdays, rest
- Feelings: internal states (e.g., gossip, dreams, thinking), villagers did not cheat respondent, not in anger
- Other: Good weather, attend classes or workshops, development project

Packaging textual answers in categories required judgment. Most times, answers were easy to catalog, but some were not. For instance, the response of a villager who said bringing wild thatch palm from the forest brought them happiness one could put under “Work” because of the plodding needed to forage for feral plants, or under “Market” since villagers trade thatch palm. Or the answer from a woman who said weaving a cotton bag made her happy one could place under “Work” since Tsimane’ use bags to carry goods, or one could put under “Social” if the woman wove the bag in the comfort of home whiling away time. The answer “buying meat” I put under “Market” because the act of buying caught my eye, but others could have justifiably put it under “Food.” And so on.

Reasons for sadness overlapped with reasons for happiness, with one exception: the fate of physical assets. Having plentiful food and many visitors brought joy while a dearth of them caused some sadness. Same with health or market endeavors. Nevertheless, the loss, absence, or breakage of durable assets like a canoe appeared as a cause of sadness, but having an asset almost never caused happiness<sup>iii</sup>. And while home-based (domestic) activities brought happiness, their absence did not cause sadness. Here are examples of how villagers phrased reasons for lugubrious states:

- Health: Poor health, a spider bite, accidents
- Work: Crop losses, too much work, children do not help with work
- Social: Drunkenness, no visitors came, family member left
- Food: Insufficient meat from wild animals
- Market: Not enough cash, debtor had not repaid subject, not enough material things
- Feelings: Lies, anger, tired, bad dreams
- Assets: Loss or death of livestock, broken tools, article stolen
- Other: Bad weather, encroachers on lands, children crying

Doubts resurfaced as I tried to lump answers, like people saying “Drunkenness” had made them sad, leaving one wondering if it was the respondent’s hangover and indigestion from toping that sadden them, in which case I would place drunkenness under “Health.” If their plaintive answer

“Drunkenness” came with rue, I would place it under “Feelings.” If drunkards’ wanton rowdiness saddened the respondent, “Drunkenness” would fall under “Social.”

To gain a better sense of what laid inside the categories and the breath of verbatim answers, in Appendix B I list the top reasons respondents gave for feeling happy and sad. The reasons listed in the appendix comprised around 85% of all answers for either happiness or sadness, yielding an embracive view of what set off the two emotions.

Data quality. Insufficiently sharp questions in the survey produced noisy answers. Shortcomings of the surveys included question order, question wording, and lack of forking question.

[a] Question order. Villagers gave fewer reasons for feeling sad than for feeling happy. On average, a villager mentioned 1.9 reasons for feeling happy (standard deviation [SD] = 1.1) and 1.6 reasons for feeling sad (SD = 1)<sup>iv</sup>. One could read the finding as showing cheerfulness is slightly more widespread than unhappiness, a conclusion consonant with the discussion of Figure 11.23 in [Chapter 11](#). Yet the order in which surveyors asked the two questions could explain the results. Asking villagers to first say what made them happy anchored them to think about joyful events; the list of reasons for feeling sad was shorter perhaps because villagers had just itemized recently experienced happy events. Having taken the time to document what made them happy, villagers perhaps unknowingly felt compelled to adjust the number of reasons that had made them in order to fit with what they had just said about the many reasons for having felt happy. The length of the first list constrained the length of the second. In retrospect, to lower the noise we should have switched the order of questions between surveys, with questions about happiness asked first in half of the surveys and questions about sadness asked first in the other half.

[b] Wording of questions. Slight changes in the wording of questions between 2002-2003 and 2004 could have affected the number of reasons mentioned for feeling happy or sad — but did not. Using happiness as an example, during 2002-2003, when asked why they felt happy this week, villagers thought broadly about all the occurrences that had “made them happy”, whereas in 2004, when asked more narrowly about what “had gone well” the past seven days they could have fixed their minds on particulars and named fewer items. In theory possible, the bias did not show up in the data. In fact, respondents in 2004 mentioned slightly more reasons for feeling happy or sad than respondents in 2003<sup>v</sup>.

[c] Forking questions. I was surprised by how many respondents said nothing had made them happy or sad the past week (Figure 12.1). The numbers shock. Forty percent of the sample (women = 48%; men = 33%;) said nothing had made them happy; 43% had nothing to report when asked what had sadden them (women = 43%; men = 42%). It is tough to make sense of the zeros. Could it mean respondents were sad or happy when interviewed, and that nothing in the past week had changed their current state? When asked what had recently made them happy, chronically dour adults and inveterate mirthful ones could have both said “nothing”, the first because nothing had taken them out of the slump, the second because nothing had brought them down. Two other explanations cross the mind. We did not enjoin surveyors from rushing when asking about the reasons for happiness or sadness. Our failure to superintend surveyors means they could have hurried to finish the survey without allowing villagers enough time to collect their thoughts; after waiting a short time, surveyors jotted “nothing” and moved on. There is as well the possibility, alluded to in the previous chapter, that in a study where interviewers survey the same person again and again, respondents learn from early surveys that saying “nothing” saved them time from having to itemize reasons for their feelings. Indirect evidence shows this

happened. From one quarter to the next during 2002-2003, the chances of saying nothing had made a villager happy or sad rose by 1.5 or by 1.9 percentage points<sup>vi</sup>.

Insert Figure 12.1

The riddle of zeros we could have cleared up by asking two branching questions. For happiness (or sadness), we should have first asked, “Are you currently happy?” Then we should have asked, “Did anything make you happy the past seven days?” and coded answers as yes or no. Only if respondents answered yes to the second branching question, should we have asked about the reasons for their happiness. Had we done so, the zeros would have become interpretable. Because I cannot explain zeros, I leave them out when analyzing the reasons for happiness or sadness.

### Causes of happiness and sadness: Results

*Sample size.* Table 12.2, part I, shows the total number of observations and unique reasons for having felt happy or sad the past week. By observation I mean a reason; a respondent in a survey could have as many observations as reasons. A villager who said having visitors, drinking *chicha*, and eating game meat had made happy would have three observations for that survey. A villager who said nothing had made them happy would have one observation, as would someone who gave one reason.

Insert Table 12.2

The dataset on the reasons for being happy had a total of 3870 observations, including people who said nothing had brought them joy. If we exclude the nothings, we are left with 2831 observations. For sadness, the dataset had a total of 3468 observations and 2379 observations with a reason for sadness. Table 12.2, part II, shows that, after dropping those who said nothing, respondents listed a total of 74 and 72 distinct textual reasons for happiness and sadness. As documented in Appendix B, 24-25 reasons accounted for 85% of all reasons for either happiness or sadness. Compared with women, men listed more distinct reasons for feeling happy (men = 70; women = 61) or sad (men = 67; women = 58).

*Reasons for happiness.* Figure 12.2 shows that, for the total sample of women and men combined, most reasons for feeling happy related to sociality (30.80%), which included things like having visitors drop by and drinking *chicha*. Appendix B has other examples. Next came food (23.24%), followed by items bearing on work (15.26%) and home or the domestic sphere (12.36%). Market activities like buying and selling (6.68%), feelings (5.16%), and enjoying good health (4.46%) ranked much lower.

Insert Figure 12.2

The same reasons made women and men happy, but some reasons brought more joy to one sex (Figure 12.2). For both sexes, sociality and food topped the list (sociality: women = 29.54%, men = 31.69%; food: women = 24.83%, men = 22.13%). Among both sexes, feelings and good health ranked near the bottom, each accounting for about five percent of observations for women or men. Nevertheless, the sexes differed in some of the things that made them happy.



Among women, events related to the domestic sphere, such as having a clean house, accounted for 16.01% of the reasons for feeling happy, among men 9.80%. Men got more joy from work (16.78%) and market activities (8.0%) than women (work = 13.10%; market = 4.79%).

Over time, the drivers of mirth did not change much. The histogram in Figure 12.2 joining observations across all years resembled the histograms for years 2002, 2003, and 2004 viewed separately, meaning the relative size and ranking of bins stayed the same from one year to the next. The whole in Figure 12.2 mirrored what happened in separate years, with two significant exceptions. In the pooled sample across all years (Figure 12.2), work appears as the third reason of happiness among men (16%), after food (22%). In 2002, the two categories switched rank. Work brought happiness to 23% of the men, food to 18%. The omnibus Figure 12.2 shows women cared about sociality the most (29%), followed by food (24%). The two bins changed ranks in 2004. For women, in 2004, the leading cause of happiness had to do with food (36%) more than with sociality (25%). I call the findings significant not in the statistical sense of confidence, but in the real-world sense of showing that some of the reasons for happiness stay the same while some vary in time and that, in consequence, one should be chary when using a single label to indicate what lies behind the happiness of a population<sup>vii</sup>.

We think remote, small-scale, non-industrial societies in snuggery care more about sociality and the spiritual than about materialities. Possibly. Despite its flaws, Figure 12.2 allows one to weigh in on the belief. Of all responses, 47% had to do with sociality, home, and feelings, which seems like a lot until one adds the share of pedestrian responses dealing with the market economy, work, and food; together, the last three total 44%. The two percentages are similar, demonstrating Tsimane' care equally about the intangible and the tangible. As a reason for happiness, the asphalt materialism of the market was mentioned infrequently (6.68%) but so was enjoying good health (4.66%) and the joy from such things as finding a lost object (5.16%).

*Reasons for sadness.* Although they could have listed many reasons for sadness the past week, most adults mentioned 1.6 reasons (Figure 12.1). In the combined sample of women and men, by far, far the chief reason for sadness was the poor health of respondents or their family (29.59%)(Figure 12.3). Next came a tie between negative emotions or feelings (18.28%) and not enough food (17.86%), and far below came ties between a dearth of sociality (8.28%), work (7.73%), asset shortage (7.31%), and miscellany (6.81%). At the bottom were market interactions, like abject earnings (4.12%). Except for poor health, the reasons triggering sadness were the same for women and men. Nevertheless, a third of the reasons for sadness cited by women had to do with poor health; with men the figure reached 26.35%.

### Insert Figure 12.3

The relative ranking of categories causing sadness remained stable from year to year, quarter to quarter, with the exception of food. In 2002-2003, food shortfalls account for 18% of the reasons for unhappiness, much higher than sociality (7%). By 2004, the two categories switched ranks ending with virtually the same percentage of responses (social = 14%; food = 12%). Quarterly data from 2002-2003 shows that food scarcity and negative feelings vied for second and third place as reasons for unhappiness. During January-March and September-December, food shortage came second, negative feelings came third; from April to September food came third, feelings second<sup>viii</sup>. I would like to think the importance of food dropped during the seasons of plenty (rice harvest, rainless months) and gained prominence during the planting and rainy season as tillers waited for the harvest of the chief annual staples.

When placed next to each other, Figures 12.2-12.3 tell a coherent and disjointed story about the reasons for happiness and unhappiness. Coherent because some events caused sadness and happiness, or neither. Food and work behaved as expected, sparking happiness and sadness. A well-stocked kitchen and fruitful fields brought delight while a lean table and hard toil brought sorrow. At the other extreme, buying, selling, earnings, and all the things associated with the market economy produced no joy, no sadness. Disjointed because some events triggered happiness or sadness, but not both. Take negative emotions and health. Negative emotions (e.g., anger) and poor health were the most frequent reasons for sadness, but their antipodes were the most infrequent reasons for rejoicing. It is as though villagers, when answering questions about the causes of their happiness, put aside things they took for granted. Having reasonable health or being emotionally balanced villagers saw as normal and were not worth mentioning as causing happiness. However, the loss of either good health or emotional balance jolted and were proffered as reasons for sadness. Abundance is to indifference as scarcity is to worth. Consider next sociality, the leading reason for happiness (30.80%), a rarer reason for low spirits (8.28%). In conclusion, we should not assume what predicts happiness predicts sadness. A catholic appraisal of well-being requires paying equal attention to the distinct causes of each feeling.

### **Perceived quality of life: Methods to collect information and data quality**

This section deals with adults' self-assessment of their material, social, and psychological condition. Most of the information comes from a part of the survey in which enumerators asked villagers to use a three-point scale to rate how respondents felt about some of the reasons that made them happy and sad. For instance, during 2002-2004, when initially exploring motives for sadness and happiness, respondent said poor health made them sad, having visitors made them happy; we used these findings to write a section in the survey in which we asked subjects to judge their current health and how pleased they were with the number of visitors who had stopped by. I expand the analysis by examining trust, regret, and stress, three topics we did not ask about in the survey section on self-perceived quality of life, but which we thought was worthy investigating and which we asked about elsewhere in the survey.

With few exceptions, most topics discussed in this chapter have not been broached in the book, and some topics bearing on self-assessed quality of life I leave out because I covered them in earlier chapters. Regret was mentioned in [Chapter 8](#) when analyzing expenditures, but here I identify any regrets and the type of imprudent purchases causing lament. Gossip I discussed in [Chapter 11](#) as a type of adverse shock; here I draw on a different dataset on gossip to highlight its role in unhappiness. In the survey module on quality of life we asked about consumption of game meat and fish, amount of cash holdings, and frequency of purchases but those themes, having been dealt with in chapters [7](#) (earnings), [8](#) (expenditures), and [10](#) (food), I omit in this chapter. The module on quality of life had questions about how often subjects had felt happy or unhappy the past week; I don't discuss the frequency of these or other feelings because [Chapter 11](#) dealt with emotions.

To put order into the array of questions and improve understanding, I broke down dimensions of quality of life into three categories: Material (Table 12.3), social (Table 12.4), and psychological (Table 12.5). Under material I placed villagers' judgments about the food they ate, the amount of clothing they owned, their current health, and changes in their health from a year ago. Social comprised respondents' satisfaction with the number of visitors who had stopped at their home, amount of leisure time, *chicha* availability in the village, and respondent's *chicha*

consumption. In the category psychological I put a subject's perception of how often they thought villagers were gossiping about them, regrets, and markers of stress, such as uhtceare. As always, disagreements could arise about where responses should have gone. There is no reason why perception about the amount of leisure time belongs in the category Social instead of the category Psychological; leisure time could go in either. Where responses ended up affects my summary judgment of how well Tsimane' do in the overall category of material, social, or psychological aspects of life, but does not affect how I interpret the stand-alone tabulation of answers to a question. Tables 12.3-12.5 contain the questions or dimensions in a category and summary statistics by year and for all years for each question. I use graphs to summarize statistics and see trends.

#### Insert Tables 12.3-12.5

*Methods.* For all questions about material dimensions and for all but one question about social dimensions of quality of life (e.g., Trust), we asked adults to rate themselves with a three-point scale, shown in the first column of Tables 12.3-12.4. Depending on the question, villagers could answer by saying "Poorly", "OK", "Well" (e.g., Food; Table 12.3) or "None", "Some", "Many" (e.g., Visits; Table 12.4).

The methods to collect information on gossip, regret, and stress differed from the methods to collect information on most aspects of quality of life. To find out about gossip we asked villagers how many times they had been the target of rumors the past week; answers ranged from zero (never) to 20, mentioned by one villager. Regret I study in three ways. [i] In 2005 we asked an open-ended question whether the respondent had any regrets in life and wrote answers word for word. [ii] In 2006, 2011, and 2012, as we compiled answers about a subject's purchase or barter of durable goods the past year, we asked, for each article acquired, if they regretted the decision<sup>ix</sup>. [iii] During the surveys of 2006, 2011, and 2012 we asked adults for all outstanding monetary loans they regretted having made. When exploring stress, I leaned on answers to nine questions that semaphore stress<sup>x</sup>. For instance, we asked how often subjects had been unable to sleep well because of worries, or had envied others' goods.

*Data quality.* We did not gather information about a topic every year. Table 12.1 shows that, other than questions about the frequency of convivial drinking and respondents' perceived change in health from a year ago, questions about other topics were asked irregularly. Trust, gossip, regret, stress, or leisure time we asked about during two or three years. Even bedrock queries, such as how often visitors had stopped by or how satisfied villagers were with their meals, we missed in two years (2007-2008). Some gaps I understand. For instance, the randomized-controlled trials centered on well-defined outcomes and hypotheses, making it unnecessary to ask about topics covered in the longitudinal study, like quality of life. The holes nonetheless are annoying. Without data for some years one cannot draw a trend line covering all years to tell an unbroken tale of annual change. Damaging as they are, holes matter less if one combines answers from all studies and years into one summary snapshot, like an average. When faced with several empty years, I trust more one number carefully scrimshawed from data of scattered years than a syncopated tale of change.

The question about regret needs a commentary because the word does not map gracefully into Tsimane' and, thus, caused confusion in 2005 when we asked villagers to disclose their rues. The problem starts with the many meanings of regret in English. In English, regret denotes having second thoughts about a past irreversible weighty decision. The term comes laden with

negative connotations of sadness, disappointment, worry, smarts, guilt, penitence, un-mindfulness. The kaleidoscopic term doesn't travel easily from English to Tsimane'. The Tsimane' word *otejyeban* translates as being sorry, reconsidering a past deed, or missing an opportunity. For example, the villager who did not prepare official documents on time for a visiting dignitary might say *otejyeban*, meaning "what a shame, I lost the chance" or "I should have done it on time." Although the term doesn't overlap exactly with the word regret in English, it captures letdown at one's judgement. Even so, respondents, when asked what they regretted in life, misunderstood the question. Nine villagers (1.72%) confessed they did not comprehend what we were getting at and three (0.57%) did not answer, possibly because they did not understand the question. Some replied by telling us about what made them sad, like villagers who said they regretted their mother's or their son's death, valid answers if respondents implied they regretted the passing because they could have done something to prevent the deaths. Others told us about ephemerals, like not planting manioc, which again is acceptable, but is an easily remediable deed, so not regretful strictly. Sometimes they thought we were asking about "what worries you", like the woman who said she regretted not making a *marico*, a cotton bag a woman can weave in one to two months, or like the person who said they regretted "not being visited by relatives", which doesn't make sense because you can't regret someone else's decision (e.g., ghosting). Even with the muddle translation, the question educed the many things Tsimane' thought they should have done differently. The lexical noise affects how much we can trust what villagers said about general regrets in life, but does not affect the narrower analyses of buyer's or lender's remorse because in those instances we care only if the buyer had second thoughts about the purchase and the lender about the loans. The blunt question and the yes/no answers we got produced what we were after; the unease, sadness, guilt, and worry that engage second thoughts at the acquisitions or the loans are of no concern<sup>xi</sup>.

Stress next. I have three patent misgivings about the stress questions. First, someone might say we are doing unneeded work by analyzing separately the nine questions about stress if answers take us back to one shared unseen trait beneath the myriad manifestations of stress. The hidden lever could explain the anger, hopelessness, irritation, frustration, sadness, sweat, and worry enveloping the stressed person. Finding the trait would allow for a tauter storyline. With that concern in mind, I examined the data to find the hidden trait, but could not so I leave the nine questions alone unable to say if answers to them instantiate one deeper unifying factor<sup>xii</sup>. Second, we asked villagers to report the frequency of experiences, sometimes for the past month, sometimes for the past week. For instance, we used envy as a telltale or cause of stress, but I doubt respondents knew how many times they had envied their neighbors' possessions. To circumvent mistakes from respondents misremembering frequencies, I changed their answers to yes/no, equivalent to having experienced the feeling at least once (yes) or never (no). The third and last misgiving is whether questions about envy or embarrassment say anything about stress. Doubts can be laid to rest by ignoring answers to these or other problematic questions and turning one's attention to those questions one thinks are more valid.

## Perceived quality of life: Results

### Material dimensions

*Sample size.* For food, clothing, and current health the total sample size reached 4,120 observations, with missing years for 2007-2008. The question on health changes over the past

year had a larger sample (6,212 observations) because I hauled in answers from the baseline survey of the trial on village income inequality (2008) as it had that question (Table 12.3). The sample size swung between years, with harsh attrition during 2002-2003 (21%) and between 2006 and 2009 (12%), offset by big gains during 2003-2004 (37%) and modest ones from 2009 to 2010 (10%).

Outcomes: Food, clothing, current health, and changes in health - levels, trends, sex differences.

Levels. Tsimane' thought of themselves as well-fed and fit, but poorly clad. Forty-eight percent said they ate well, an additional 48% said they ate reasonably well. Ten percent felt unwell; the rest acknowledged having good enough health (45%) or were hale individuals (46%) while 71% thought their health was the same (38%) or better (33%) than the year before. The one dimension where things fell apart was vesture; 70% averred they had too little clothing.

The above findings fit with objective measures of well-being examined earlier in the book and with the observation of others. In **Chapter 10** I showed Tsimane' enjoyed a well-balanced diet. A century earlier the patrician ethnographer Erland Nordenskiöld wrote how well his posse had eaten while travelling through the homeland of Tsimane' (**Chapter 10**), and in their epistolary trail starting in the mid-twentieth century, Protestant missionaries repeatedly remarked how well they had eaten while stationed with Tsimane' (Kempf & Kempf, 2017, pp. 50-51, 79, 100). Health the same. In **Chapter 11** we saw that 78% of adults had not been bed-ridden the week before the interview; elsewhere in the survey when asked about their current health, 91% asserted they had fine health. In this chapter we found many villagers (70%) complained about insufficient clothing; in **Chapter 8** we found apparel was the most frequently bought durable good. Clothing expenditures went to fill a large void.

Trends. Figures 12.4-12.7 show time trends for each dimension of quality of life summarized in Table 12.3. Other than clothing, Tsimane' felt things were getting better. Figure 12.4 shows that the yearly share of respondents who felt they ate poorly shrank from an average of seven percent during 2002-2004 to two percent during the last two years of the longitudinal study (2009-2010). The mean annual percentage of adults who said they had poor health fell from 18% during 2002-2004 to six percent during 2009-2010 (Figure 12. 6). Figure 12.7 shows the percentage of villagers admitting they enjoyed better health now than a year ago improved from 28-31%/year in 2002-2004 to 32-38%/year in 2008-2010. The gain came from a decline in the percentage of respondents who felt their health had not changed (from 39-54% [2002-2004] to 35-42% [2008-2010]). The sour note once again came from feelings about garments. In the first three years of the study, 65% of adults felt they owned too little clothing; by 2005-2010, 72% felt that way. Why the growing disgruntlement with apparel? Recall from **Chapter 8** that dressing up in industrial clothing allows Tsimane' to display status to neighbors while blending with townfolk. As dealings with outsiders increase, the wish to show off rises as does gulosity for apparel. Or perhaps Tsimane' need to replace their wardrobe oftener because new clothing turn to rags faster from greater use and look dirty fast from frequent washing in the muddy waters of the rivers (Kempf & Kempf, 2017, p. 50).

Insert Figures 12.4-12.7

Sex differences. Men were more pleased than women with their food, clothing, and health. Fifty-two percent of men said they ate well and half said they enjoyed good health; 44% and 40% of women asserted they ate well or had good health. Seventy-two percent of women

lamented having too little clothing, compared with 67% of men. Whereas 35% of men reported having better health than a year ago, 30% of women said the same<sup>xiii</sup>.

### Social dimensions

*Sample size.* Sample sizes varied from 1,932 observations for perceptions of leisure time to 8,308 for frequency of *chicha* drinking (Table 12.4). Large samples happened when the randomized-controlled trials included one of the dimensions in Table 12.4. The overall sample size for *chicha* drinking swelled to 8,308 observations because the trials on village income inequality (2008) and savings (2011-2012) had questions about *chicha* consumption. The trials also had questions on trust, which means the total number of observations to examine trust (3,721) was larger than it would have been had we relied on data only from the longitudinal study.

#### *Outcomes: Visits, leisure time, chicha, and trust – levels, trends, sex differences.*

*Levels.* In their social life villagers did worse than in their material life (Table 12.4). Forty percent had received no visitors the month before the interview, striking given the weight Tsimane' attach to dropping by. Twenty percent were so tied up they had no leisure time. During the week before the interview, 92% thought there had been too little (61%) or no (31%) *chicha* in their village while 66% had not drunk it, again astonishing because Tsimane' sociality pivots on drinking *chicha* and prestige flows from preparing and sharing vats of it (Kempf & Kempf, 2017, pp. 49-50). More than half the adults (53%) did not trust villagers (Table 12.4).

*Trends.* Smooth trends in time are hard to see because some years lacked data, yet the numbers and figures, patchy as they are, show decay. The yearly percentage of villagers who received no visitors the month before the interview rose from 38% during 2002-2004 to 47% during the last two years of the longitudinal study (2009-2010) (Figure 12.8). The share of people who reported having no free time went up from 15% in 2006 to 23%/year during 2009-2010 (Figure 12.9). From 2002 until 2012, *chicha* consumption contracted by an average of 1.3 percentage points/year<sup>xiv</sup> (Figure 12.11). The likelihood a community was perceived as lacking *chicha* fell from 37%/year during 2002-2004 to 28%/year during 2009-2010, but the share of people who felt there had been too little *chicha* in the community went up from 56%/year in 2002-2004 to 63%/year in 2009-2010 (Figure 12.10). Trends in trust are harder to nail down because of spotty data and differences in how we asked about trust between years. The caveat notwithstanding, the figures show, grosso modo, an increase in trust from the early years of the study (2005 and 2008; mean = 35%/year) to the last two years of the study (2011 and 2012; mean = 60%) (Figure 12.12).

*Sex differences.* Women and men showed no glaring differences in social dimensions of quality of life. The shares of men who received no visitors, had no free time, or thought their village lacked *chicha* were 39%, 22%, and 30%. The corresponding percentages for women were 41%, 19%, and 32%. Virtually the same. Thirty-nine percent of men and 37% of women trusted neighbors. No difference. However, women and men went separate ways in *chicha* drinking. Forty-four percent of men while 25% of women had drunk *chicha* the week before the interview<sup>xv</sup>. Women of the household concoct the potation and though they sip *chicha*, most of it they share publicly with guests and their spouse, especially after the men of the household return from hunting.

## Psychological dimensions

*Sample size.* The unit of observation differed between psychological dimensions (Table 12.5). For gossip, general regret, and stress, the unit of observation and analysis was the individual interviewed. Each person was asked about general regrets, instances in which they had been the target of rumors, and symptoms of stress. We asked each adult villager about these topics in selected years. The yearly sample ranged from about 600 people for questions about gossip to 500 people for the question on general regret in 2005. The unit of observation for questions about buyers' remorse was different. For that question we asked villagers in 2006, 2011, and 2012 to list all durable goods obtained through purchases or swaps the past year and, for each article, to say if they rued the acquisition. Here the unit of observation was the item fetched; it ranged from 1,738 in 2006 to an average of 4820/year during 2011-2012. To study money lenders' remorse, we used loans as the unit of observation. Unsurprisingly for a cash-starved economy, the sample size of loans was small, only 87 observations in 2006 rising to an annual mean of 195 observations by 2011-2012. All the loans came from 433 lenders, 390 of whom gave one loan, most of the rest gave two loans. For the analysis of stress, sample sizes went from 679 adults in 2006 to around 1,360 adults in the randomized-controlled trial of 2008 in 40 villages.

### *Outcomes: Gossip, regret, and stress.*

To analyze psychological outcomes, I concentrate on levels and provide a commentary on sex differences. I sidestep discussing time trends because the information is much too scattered across years.

[i] Gossip. Gossip has multiple roles in a small-scale, kin-based grouping. It regulates what people do, making deviants fall back in line. Gossip about the churl who does not share game meat from the hunt and before long he rectifies his manners. Or use it to blame people out of sight for the sorcery that brought illness and death to those near you. Sometimes gossip fuels misinformation, beginning and spreading without a motive, like a made-up story about someone's death<sup>xvi</sup>. Whatever its role, gossip hurts. Remember from the earlier discussion that villagers mentioned having been the object of gossip as a reason for feeling sad and, as we shall see shortly, people regretted having started rumors (Figure 12.14). Table 12.5 and Figure 12.13 show that 41% of adults felt someone had gossiped about them the past week. Seems like a large number. We know rumors circulated but we don't know the content, damage, or effectiveness of the hearsays.

Insert Figure 12.13

[ii] Regret. Whereas Tsimane' seem prone to gossip, they are not prone to regret. In 2005, 78% of the 524 villagers interviewed had no regrets to disclose. Figure 12.14 displays the decisions regretted by the minority who had something to regret (n = 114). Villagers regretted correctable and not-so-easily remediable decisions. The leading cause of regret had to do with short-term choices about farming, like not putting in plantains or having returned to the village too late in the dry season to slaughter forests for the next farming cycle. Next came rues about offspring, such as having or not having had children, or not taking care of them. Anger ranked third, most likely associated with fights following heavy drinking. Nine percent regretted not having studied more or having dropped out of school while another nine percent had remorse about their marriage, such as having married or having separated. The sliver in Figure 12.14

called Work included employment decisions (e.g., joining a logging firm or a cattle ranch), again something that most likely caused short-term but not irreparable harm. The bin called Drinking comprised many items. Protestant zealots could have regretted drinking alcoholic beverages and slipping out of line from the Gospel of missionaries. Others could have regretted the altercations *in vino veritas* while inebriated or the hangover. The category Livelihood included neglecting a house that burned, or not having enough thatch palms, fish, or cotton bags. With these answers we are getting more at frustration or worry than about regret proper. The five percent who mentioned visits, I assume, lamented not having been more proactive about paying a call, but one doesn't know if they mistakenly lamented that others had not visited them. The bin called Miscellaneous included a passel of answers like "live longer", sadness, and wanting to be like a young person. I debated whether to delete the answers, but kept them to remain faithful to what respondents said. Three respondents mentioned health, another three mentioned village of residence, and still another three said encroachment caused them regret. Health captured lamentations about not having lead a healthy lifestyle or not having taken care of an illness. Some regretted their village of residence. In a society with preferential, matrilocal post-marital residence ([Chapter 5](#)), regretting one's domicile could be a way of mumbling marital displeasure. Again, we don't know because we swallowed answers as they came. Encroachment stands for Whites or highlanders beleaguering village lands. Here I guess subjects regretted not having halted interlopers. Two people, representing 1.7% of the sample, mentioned gossip; I presume they regretted starting rumors. The categories Confused, Missing, and Deaths can be skipped because I discussed them under methodological shortcomings.

#### Insert Figure 12.14

Figure 12.14 has three take-home messages. We shouldn't make too much of the reasons for remorse because so few adults admitted regrets. Second, answers are acceptable as a warm-up for the study of regret, but inadequate as a burnished study because we didn't peel away at answers. For instance, saying one regretted the village of residence could allude to a frayed marriage, living in a settlement with insufficient wildlife, or dwelling far from a town or parents. We should have pressed harder, we didn't. Last, many of the events Tsimane' regretted should sound familiar. Bet most adults anywhere would regret some aspect of one or more of the following items mentioned by our respondents: Progeny, marriage, occupation, anger mismanagement, schooling. In most parts of the world these are life's arresting events.

Unlike the analysis of general regret, the analysis of buyers' regret leaves no room for misunderstanding. Whether we call answers regret or something else, answers told us if villagers had qualms about the goods they had bought or trucked. Villagers regretted a mere nine percent of their 11,378 acquisitions (Table 12.5). The share did not vary much between years, going from 12% in 2006 to 8% six years later, 2011-2012 (Figure 12.15). The percentages are reasonable and agree with what we found about general regrets in Table 12.5. If, as Table 12.5 shows, 22% of respondents expressed any regrets, it follows that a smaller proportion would show remorse at something narrower, like a purchase or a swap.

#### Insert Figure 12.15

What type of purchase fueled rue? Table 12.6 breaks down the durable goods acquired into categories defined in [Chapter 8 \(Table 8.2\)](#). For each category, Table 12.6 shows the share



of items villagers regretted acquiring. The total number of regretted acquisitions, 1040 (~9% of all acquisitions, 11,378), was small, and smaller when split by categories. Because sample sizes were small for the purchase of school supplies, household items, animals, and transport goods, we cannot be too sure if villagers were truly more regretful at having obtained these items. Take school supplies. In two of all the occasions ( $n = 14$ ) when villagers acquired school supplies they regretted the decision. With 14% (2/14) of transactions to obtain school supplies regretted, buying school supplies would appear as the acquisition most likely to cause lament, compared to the rest of the figures under the column “Yes.” While technically true, the conclusion leads one astray as it stands on very few transactions. Owing to small samples, I focus on categories with a reasonable number of regrets. Done this way, I find that buyers’ remorse was more likely to happen when acquiring deluxe goods (12%) (e.g., radio speakers, TV) or hygiene products (10%) (e.g., comb, mosquito bed net). In Appendix C I carry out additional analysis to find out what else predicted buyer’s rue. The analysis confirms the conclusion that acquiring frills increased the chances of feeling regret and lends support to the faint finding of Figure 12.15 that the likelihood of regret shrank from 2006 until 2012, by five percentage points<sup>xvii</sup>.

#### Insert Table 12.6

I examine remorse from one other angle. For the small number of money lenders ( $n = 433$ ) who had outstanding loans they had given, we asked them if they regretted having supplied the loan. Close to half (48%) the lenders wished they had not lent. The percentage of money lenders expressing regret is higher than what we have seen before perhaps because higher values were at stake. With money lenders we might be seeing real anguish from the possibility of real large losses actually happening, not imaginary lament from what could have been.

[iii] Stress. Results from the survey of the randomized-controlled trial (2008) and from the regular yearly survey of the longitudinal study (2006) are discussed separately because the surveys had different questions about stress (Figure 12.16 and Table 12.5).

#### Insert Figure 12.16

The 2008 survey shows that half the sample had stress. During the week before the interview, 44% of adults had been nervous, 47% had trouble sleeping, 49% had been worried at least once the past week, and 52% felt they had been unable to do all they had to. The 2008 survey also shows few villagers felt envy (9%) or embarrassment (26%). Depending on what one thinks about the question on envy or embarrassment, one could conclude the numbers say little about stress; rather, they show a thick-skinned population unconcerned about others’ derisions or keeping up with the Joneses. The 2006 survey illustrates Tsimane’ are a relatively empowered, self-assured people. Asked about the month before the interview, 33% of adults asseverated they had always been in control of events in their life and 46% said they had successfully managed all problems coming their way.

Women and men did not differ in seven of the 12 psychological dimensions of quality of life assessed (Appendix D). For instance, they were equally likely to feel envy, nervous, or embarrassed. For the other traits, men did worse in some dimensions, women in other dimensions. Men were more likely than women to say they had fallen short on all they had to do (men = 59%, women = 46%), to worry (men = 52%, women = 47%), and to have lifetime regrets (men = 26%; women = 18%) whereas women were more likely to rue having acquired durable

goods (women = 12%, men 8%) and less likely to say things were going well the past week (women = 67%, men = 76%).

### **Parents' expectations of their children: Methods to collect information and data quality**

From the time we began with the earliest studies (around the mid-1990s) until the end-line survey (2012) of the randomized controlled trial on savings, Tsimane' society underwent deep changes. Cell telephones, televisions, small outboard motors, motorcycles, and watches started to blanket villages. Roundtrip travel to towns got easier and cheaper and became more common. The tentacles of the government and the outside world, always latent, got stronger, reaching farther into the backlands. These seeable changes inspired us in 2010 to include questions about parents' expectations of their children. We did so to explore how far parents felt their children would become unmoored from the dead hand of custom, it was a way, as well, of telling whether adults saw a future in their own way of life. The randomized-controlled trial of 2008 had one question about parents' expectations of their children, a question which I bring into this section.

*Methods.* In 2010, surveyors in the longitudinal study queried parents about what they expected of their youngest progeny under 16 years of age. Inquiries had the following tone: "When your youngest child under 16 years of age becomes an adult, where do you expect them to live?" Parents had the choice of saying city, town, or village. Besides asking them about domicile, we asked parents what they anticipated their children would prefer in medical treatment (physician vs traditional healer), beverage (beer vs *chicha*), and language (Spanish vs Tsimane'). To the four questions I add a fifth one from the 2008 trial. In 2008 we happened to ask parents whether they would move to another village with a better school for their children. For the analysis, I recoded answers to all these questions as Modern or Traditional, aware the distinction grates on some ears. Modern I equate with the choice of physician, beer, Spanish, metropole, and willingness to emigrate; Traditional I equate with the choice of healer, *chicha*, Tsimane' language, village, and unwillingness to emigrate.

From the 2010 survey I pulled out two other questions whose answers, albeit not fitting into the Modern-Traditional dichotomy, concerned parents' hope for their children: "What is the highest schooling level you foresee your child will attain?" and "When your child becomes an adult, what do you think will be their principal source of income?" For the question on schooling, parents mentioned the maximum grade (e.g., third grade) and for the question on occupation we wrote verbatim what parents said (e.g., "Grow plantains"). The notes to Table 12.7 have the wording for all the questions of this section and explanations of how I recoded answers for the analysis.

#### Insert Table 12.7

*Data quality.* I don't see flagrant shortcoming with the probes, but here are a few minor ones to keep in mind.

[i] Forcing parents to select between alternative pairs. For most questions, we gave parents a binary choice to respond. Would the child, as an adult, choose beer over *chicha*; would parents emigrate for their children's schooling, yes or no. The question format pushed parents to take a stance and reveal their expectation without allowing them to fall back on lame answers, such as "I don't know" for those who had no clue about the future, or needed more time to

decide, or “both” for parents who thought their children would be indifferent between the choices. I am somewhat glad we omitted the extra options because, had we included them, we would have been flooded with gray answers. Turns out that for the question on anticipated occupation of their offspring when parents gave textual answers and surveyors jotted responses word for word, 24% of parents said they did not know, an unenlightening response as no one knows what a child will do as an adult, for a job or for almost anything else.

[ii] Identity of the youngest child. We should have asked for the sex of the youngest child parents had in mind when answering because the information would have helped tightened the analysis. An example. If women do not ordinarily drink beer and we find most parents thought their children would eventually like beer instead of *chicha*, we won't know if this is because parents expected their daughters and sons to eventually prefer beer or because they had in mind what sons would drink as grown-ups. Had we known the child's sex, we would have been able to split the analysis by the child's sex and tell if parents thought their daughters would preferred *chicha* and their sons beer. We can't do this with our data. Not knowing the child's sex does not upset much the analysis of preferences for language or healthcare, but causes trouble when analyzing preferences for potatoes, schooling, or jobs because in those cases gender has a heavy hand in prescribing choice. There is one more problem with the identity of the child which affects only the 2008 question on parental willingness to emigrate. In 2010 surveyors told parents the questions about what they expected referred to the youngest child under 16 years of age. In 2008, we were remiss in the instructions and did not tell subjects that the question on whether they would move for a better school pertained to their youngest child under 16 years of age. For 2008, the yes and no answers are murky because young and old adults with or without progeny responded. The “no” of an aged, childless person differs from the “no” of a young couple with children; in the former case, the answer is hypothetical and meaningless.

[iii] Job classification. When asked what they thought their child's main source of income would be as an adult, the 502 parents in the survey mentioned 95 unique *ad verbum* answers. I had to fathom the original, sometimes unwieldy response before I could place the response into an occupational category. Did the interviewee who said “Wood” as an occupation mean they expected their child to be a carpenter, a chainsaw operator, a logger? Below I give examples of the jobs I placed in different occupational categories:

- Farming = slash and burn horticulture, vernacularly referred to as *chaco* (farm plot)
- Unknown = parent said they didn't know what occupation their child would have. See earlier discussion on this point. The answers in this category “Unknown” differ from the answers in the bin called “Study”; in the latter, parents said they did not know what their children would do for a job, but hoped their children would study more before finding a job
- *Napo* = work for a *napo*, a White mestizo lowlander or, more generally during the study period, a person who was not Tsimane'. The respondent stressed the racial-ethnic identity of the employer but nothing else. A *napo* could be a rancher, a river merchant, or a town dweller. In the study's setting, the word refers to an unskilled rural wage laborer who works for a non-Tsimane' employer.
- Domestic = husband provide or the woman would devoted herself to female chores (e.g., prepare *chicha*)
- Sale = sale of local products like plantains, thatch palms, or timber

- Other = parents mentioned “Work” and in five of these cases they mentioned “Town”, implying the offspring would find a job in town, but did not specify the type of job
- Study = parents expected their child would study more as a stepping stone to an occupation, but did not say what occupation
- Project = generic development project; no respondent specified the project type (e.g., health, agriculture)
- Blue other = other blue-collar occupations besides farming, foraging, and working for *napos*. These included working as a cook, a person paid to wash clothes, chainsaw operator, cattle rancher, and a rural unskilled wage laborer who didn’t work for a *napo*.
- Foraging = fishing or hunting
- Government = work for the municipal government (town hall)
- White other = other white-collar occupation (nurse, agronomist) besides working in a project, for the government, or working as a teacher

[iv] Preference for cross-cousin marriage. In light of the traditional weight given to cross-cousin marriage ([Chapter 5](#)), we should have asked parents if they expected their children to marry a cousin.

### Parents’ expectations of their children: Results

Sample size. Compared with the sample size for the other topics in the chapter, the sample size to assess parents’ expectations was small, in total about 500 observations or parents. The sample size of respondents for the question on whether parents would resettle in another village was almost three times larger (1,330) than the sample from 2010 because in 2008 the study included more villages ( $n = 40$ ) and any adult, not just adults with children under 16 years of age (Table 12.7).

#### Outcomes: Binary outcomes (Curer, Drink, Language, Education), Schooling, and Occupation.

The graphs and tables point to a pellucid conclusion. Other than healthcare, parents expected offspring to eschew a modern or Western lifestyle. Take Figure 12.17 and Table 12.7 (part A). About a quarter of parents thought their offspring would drink beer (28%), speak Spanish at home (28%), and live in a town or city (8%). A small percentage of parents (21%) would relocate for their child’s schooling. On the other hand, 80% of parents foresaw their children seeking a physician instead of a village healer. More than half the parents (55%) expected their children to remain unschooled and 27% thought their children would, at best, finish primary school. I found it surprising how low were parents’ expectations for their children's school attainment because Protestant missionaries promoted literacy and schooling from the first time they arrived to the Maniqui basin in the 1950s (Kempf & Kempf, 2017) and the government pays households for sending children to school ([Chapter 7](#)). Regardless, the answers about schooling agree with the other responses, which show a penchant for a rural lifestyle.

Insert Figure 12.17

Figure 12.18 shows the main types of income-generating jobs parents expected their children to follow as grown-ups. Answers about expected occupations coincide with what we just learned about expecting their children to follow a rural lifestyle. Parents saw their children

continuing as tillers (40%), rural wage laborers for *napos* (8%), domestic workers (6%), vendors (5%), foragers (0.8%), and working in miscellaneous white-collar occupations (0.4 %). Together, these rural-based jobs represented nearly 60% of all jobs mentioned, 80% if we drop parents who did not know what their children would do. The leading role of horticulture as a source of income for the next generations jibes with the historic importance of horticulture in the economy of Tsimane' (Chapter 6). If parents view the future as a mirror of the past, they would naturally see their adult offspring moiling as farmers. At first blush it is disconcerting to find so few parents expecting their offspring to rely on fishing, plant gathering, or hunting because Tsimane' are commonly depicted as an avatar of a foraging way of living long gone. The figure is less unsettling if we remember the question was about the main source of cash and that foraging does not add much to monetary earnings (Chapter 7)<sup>xviii</sup>.

#### Insert Figure 12.18

Among white-collar occupations, teaching ranked highest (6%), followed far below by employment in development projects (1.7%), the government (0.6%), and a miscellany of jobs (0.4%). Leaving out parents who said "I don't know", 15% of the remaining parents viewed their offspring in a white-collar job. Thus, with employment, as with the other topics, elders saw the future as an extension of the past. Their children, they thought, would stay in the countryside without leaping into the Western world.

Except for expectations about their children's schooling, mothers and fathers did not differ in what they foresaw offspring doing as adults. Mothers forecasted their children would not go too far in school. More mothers (63%) than fathers (44%) thought their children would be unschooled adults and, among parents who thought their children would attain some schooling, mothers anticipated their children would finish an average of five grades (SD = 3.6 years), fathers six (SD = 3.7). Women were six percentage points less likely than men to resettle in another village for their children's schooling<sup>xix</sup>.

## Discussion and conclusions

### I. Methods

[a] Shortcomings. I see few mistakes in what we did, a couple of them grave, though. Causes of sadness and happiness. Chief among the flaws was insufficient care asking about the reasons for sorrow or joy . The question, "What made you happy (or sad) the past week?", works, but should have come after asking whether the subject had been happy. If they said "no", we should have asked "why"; if "yes", we should have prompted them for what had brought them joy. The absence of a forking question produced inscrutable zeros. In our dataset, the entrenched dour or mirthful person who had nothing good or bad to say both end up with zeros signifying "nothing." Peeling away at shorthand answers. Writing word for word what respondents stated has value because the unredacted text shows like an x-ray what respondents thought, garbled as the testimony might be. Nevertheless, some textual answers came in stenographic notation and should have been peeled to make them scrutable. When villagers responded laconically we ought to have pressed them about what they meant. The shortcoming begot messy answers. When a women answered by saying she regretted not having a bag, one wonders what there is to regret about a bag. Saying "Drinking" caused sadness is unenlightening as one doesn't know if the respondent felt sad about their own drinking or the drinking of neighbors, or whether they meant that the quarrel and hangover from quaffing caused

unhappiness. Hoping one's child would grow up to "Study" as an occupation is a fitting answer among Orthodox Jews, but not among Tsimane'. Regret. The method to study regret writ small is unexceptional, the method to study it writ large hasn't been drafted by us or by anyone else, as far as I know. Asking buyers or money lenders if they rued their decision to acquire a good or lend is harmless, for one is simply asking them to admit if they had enduring qualms about a precise choice that likely left no deep footprint. In contrast, asking about life's regrets is touchier because respondents must acknowledge eventful failures in judgment. Translating the word regret to another language sans an exact equivalent adds complexity to the task. In hindsight, the best way would have been to pose adults with a branching question, "Are there things you wish you had done differently in your life? (yes/no)" and, if yes, ask for laments. Besides producing understandable zeros, the approach has the advantage of making a subject the protagonist, concentrating on landmark choices, and avoiding the agony of having to squeeze a complex concept into one word.

[b] Strengths. Sample sizes were reasonable though sometimes small or saltatory. The inquiries about motives for joy and unhappiness were apt as a first crawl to find out what lay behind the two emotions. Questions about parental expectations of their children had ethnographic acumen because they built on years of research among Tsimane'. Inquiries about material, social, and psychological dimensions of quality of life addressed topics Tsimane' saw as meaningful, topics which I supplemented by examining stress, regret, and trust.

## **II. Happiness and sadness, quality of life, and parental expectations of children: Surprises and non-surprises**

By way of conclusion, I first reprise briefly the findings of the chapter's three main headings – reasons for happiness and sadness, quality of life, and parental expectations – noting surprises and non-surprises, then return to the opening queries of the prolegomenon to assess if we answered them and end by taking a short stab at the implications of what we found for public policy.

### [a] Reasons for happiness and sadness

[i] Happiness. How one clumps answers about self-perceived reasons for happiness colors the conclusions drawn. Disaggregated into the small bins of Figure 12.2, sociality ranked first, followed by food, work, and aspects of domestic life, all of which, together, eclipsed a bundle of seldomly mentioned reasons related to market interactions, health, and a hodgepodge of other reasons. When these categories are repackaged into the supra categories of Material and Non-material a different story appears. Prosaic materialities like food, work, and market dealings jointly brought as much joy as the second large bundle of social plus psychological events, such as visiting and merry drinking. The bundle of Material motives accounted for 44% of responses, the second bundle of social plus psychological motives accounted for 47%. Neither bundle enjoyed clear supremacy, a disappointing conclusion for believers in the hegemony of the material, of infrastructure over superstructure in the argot of vulgar Marxists. Frustrating also for believers in the dominance of social relations and the mind in human affairs. The sparks that made women happy made men happy as well, though events related to the domestic sphere brought more delight to women, while work and market transaction brought more delight to men. A platitudinous finding, nothing startling in this, some might say. The biggest surprise was the possible effect of time on happiness. Some, but only some, of what made people happy hinged on when surveys took place. The leading reasons for happiness could

switch from one year to the next. In 2004, for instance, the chief reason for joy among women was food (36%), not sociality (25%), as it had been in 2002 and 2003.

*[ii] Sadness.* Among women and men, year after year, quarter after quarter, poor health always took first place as reason for sadness. It surpassed negative feelings, food shortfalls, sociality, and any other cause. Women were a bit more likely to cite poor health (33%), but men were right behind (26%)(Figure 12.3). The hierarchy of motives for dejection was usually fixed in time, but, as with happiness, the relative standing of categories in the hierarchy sometimes changed between years, to wit, the share of people complaining about food dropped from 18% in 2002-2003 to 12% in 2004, while the share of respondents grizzling about social life rose by seven percentage points, from 7% in 2002-2003 to 14% in 2004. Change also happened between seasons. During 2002-2003 when we carried out quarterly surveys we found that, in the causal ladder of events producing sadness, food and negative feelings alternated runner-up and third place positions between seasons.

Two cross-cutting conclusions about the reasons for happiness and sadness emanate from the analysis. First, over the brief time we studied the two emotions, most of what brought sadness or joy remained steadfast between years or quarters. Suggestive evidence, however, shows food's prominence as a reason for either emotion hinged on timing. The study was not meant to uncover why people responded as they did so we cannot tell what laid behind changes in answers, why most respondents would single out food as a reason for happiness one year or quarter, but not the next. I would truckle to opinion and venture the explanation that real-world seasonal or yearly scarcity, whether of food or visitors, had something to do with how villagers responded. Second, a thorough appraisal of well-being requires separate attention to the reasons of sadness and happiness because the reasons behind each emotion differed, though some reasons correlated with both emotions. An abundance of food or visitors brought joy, a scarcity sadness. Here, the predictors behaved as expected; they had a positive effect on one emotion and a negative effect on the other emotion. That said, some predictors behaved oddly. Health is the exemplar. Almost no one mentioned sound health as a reason for happiness, but illness headed the reasons for sadness. Which raises question of why people take things for granted. I am not qualified to answer the question, but can discern its implications for well-being studies. If we only ask about current reasons for happiness, then commonly accepted conditions, endowments, and entitlements we take as given will not show up, but will once we ask what made us sad.

#### [b] Quality of life

*[i] Material dimensions.* Other than clothing, Tsimane' were satisfied with the material conditions we measured. Almost everyone (96%) admitted eating well or reasonably well, only 10% experienced (self-perceived) poor health, and a third thought their health had improved in the past year. On the downside, 70% of respondents declared they had an impoverished wardrobe. From the first survey in 2002 to the last survey in 2010, conditions got. During that period, the share of people who reported eating poorly or being unwell shrank, while the percentage of respondents who felt their health had improved rose, but so did the proportion of villagers disgruntle at their garments.

Intrigued by the unexpected good news about food, I analyzed what villagers thought of their planted grounds. Of the 4,018 adults surveyed yearly from 2002 until 2010 who had planted farm crops, 80% were content with their farm. Most respondents (43%) were pleased with their plots, 37% thought their fields looked OK, and a small group (18%) said their plots did not look promising. The share of respondents satisfied with their plot (80%) concurs with the

share of Tsimane' who said they ate well (96%) because, remember, most food Tsimane' eat comes from what they put in their plots and harvest ([Chapter 10](#)). Among self-reliant horticulturists, answers about satisfaction with food and farm plots should move in the same direction. They do here<sup>xx</sup>.

Returning to the main findings of Table 12.3, we see men were slightly more satisfied than women. Men were five percentage points more likely than women to think they had enough or a lot of clothing, or to enjoy better health than a year ago. They were eight percentage points more likely to be pleased with meals and ten percentage points more likely to think they had good health. Could the gender gap in perceptions of well-being reflect real differences in deprivation between women and men? Probably, but we lack data to give an assuring answer. We measured food consumption at the household level and neglected to ask about personal ownership of apparel in the asset survey so we cannot say anything about sex differences in actual food consumption or clothes owned. Which leaves us with objective current health, a complex topic examined sporadically in our studies. The best I can do is use bed-ridden days as a surrogate for objective current health and compute sex differences for this health marker. Turns out that, for the week before the interview, females were around two percentage points more likely to have been sick in bed than males, hinting that sex differences in satisfaction with current health correlate with sex differences in objective measures of current health<sup>xxi</sup>.

I did not expect clothing to be the dissonant chord but now, as I look back on the daily life of Tsimane', I can grasp why they would have rated so poorly the amount of clothing they owned. Sometime in the twentieth century, Tsimane' lost the skills to make clothing by pounding bast or weaving tunics from cotton fiber. In tandem, they began to rely on commercial garments, which do not last long or sparkle given the heat, humidity, sweat, and rough wear they endure in farms and wilderness, and the muddy river waters in which they are washed. What makes garments *sui generis* is their visibility as a popular status symbol inside and outside the village, and what makes them so useful is the warmth they provide during cool evenings and the frigid spells of the dry season ([Chapter 5](#)). Nor did I expect adults to be so gratified with their health and with their carbohydrate laden diet. In sum, I see perhaps not a grateful group, but certainly a content one, generally happy with the basics<sup>xxii</sup>.

*[ii] Social dimensions.* Traditional forms of Tsimane' sociality look frail. Almost half (40%) had received no visitors the past month. Like wearied Westerners, Tsimane' said they had no leisure time (20%) and a mere 12% often enjoyed free time. They do not qualify for the appellation of an Original Affluent Society of hunter-gatherers awash with surplus time, unsurprising since Tsimane' have excelled as horticulturists for the past century while doubling as foragers, and, as cultural anthropologists learn, graduates from a foraging lifestyle put in longer hours at work. Our sample of adults did not sit around drinking *chicha*, the lynchpin of Tsimane' conviviality. Two-thirds of respondents had not imbibed *chicha* the past week because villages had none (31%) or too little of it (61%), or because they were too busy working, or because they had embraced Protestantism. A slight majority (53%) did not trust villagers. Low-intensity, barely visible quiet animosities between extended families tear at villages. The Paches don't trust the Caris, the Caris don't care for the Paches, and neither likes the Guarecos, the Mosestén who married into the village. Each blames the other for sorcery and gossip.

These bleak snapshots were escorted by bleak time trends. The fraction of villagers who had no visitors or free time, and the likelihood of drinking *chicha* got smaller during the study period while the percentage of villagers who felt their village had insufficient *chicha* rose. There



was one bright spot, though. Trust rose noticeably, from 35% of respondents saying they trusted others during 2005 and 2008 to 60% saying likewise in 2011 and 2012. The finding has to be swallowed with the proverbial pinch of salt because of inconsistencies in the measurement of trust.

Except for *chicha* consumption, women and men were matched in scores of sociality. Women were about 20 percentage points less likely to have drunk *chicha* the week before the interview (men = 44%, women = 25%), which doesn't mean they partook less in social drinking. As they relax quaffing *chicha* in a circle, men guffaw loudly, but, behind the scene, women had spent days preparing the concoction and, during the get-together, sip it quietly and unobtrusively on the side with their guests. Each participates in their own way.

I had no strong priors about trust, but I somewhat expected Tsimane' to visit and drink more. An unexceptional explanation for why they visit less would say Tsimane' are too busy working. The flaw with this reasoning is that in [Chapter 7](#) — e.g., Tables 7.6-7.7 and discussion surrounding those tables — we saw Tsimane' were less likely to work for wages or sell goods, implying they had more time to huddle. Perhaps they use the extra free time to shop in town or enlarge their fields ([Chapter 6](#)) instead of visiting neighbors. As for the modest frequency of *chicha* consumption, several explanations spring to mind. Why bother with *chicha* if you can show largesse by offering commercial liquor? In addition, Protestant missionaries' repeated philippic against alcohol might have made a dent and turned villagers into abstainers. One could also invoke crops. If manioc cultivation falls out of favor, as seems to be the case ([Chapter 6](#), [Table 6.3](#)), then the traditional staple to ferment *chicha* would become rarer. As input falls, so would output. Last, if women face an enormity of workload because they have to take care of more children and manage the farm while the men of the household work away for wages, they would have less time to make *chicha*.

Quite aside from what we have learned about levels, trends, and sex differences in social dimensions of quality of life, we have learned as well Tsimane' are doing worse with the social than with the material aspects of their lifestyle.

*[iii] Psychological dimensions.* From the modest information gleaned about the psychological makeup of Tsimane', I conclude they are an impenitent, unstressed group. A mere 22% of adults queried had a lifetime remorse — about farming, offspring, schooling, or anger mismanagement, to name the top four rues. Other than farming, these and many of the other regrets of Figure 12.14 sound universal, the sort of decisions most of us would have some unease in middle or old age. Of all the durable goods acquired through the market or swaps in three years ( $n = 11,378$ ), only nine percent engendered remorse. The frequency of remorse was higher among money lenders; nearly half (48%) the members of this prime club wished they had not lent cash.

Our early experiments with Tsimane' adults showed they were impulsive, on a par with heroin addicts in the state of Vermont; they wanted their marshmallows now, not later (Godoy et al., 2004). One naturally asks if regret and impulsivity speak to each other, and the answer is “they do, but not as expected.” You would think much impulsivity would go along with much regret, but apparently not. If there is a semblance of truth in any of this, it is telling us Tsimane' enjoy the best of both times: Unburden by the past, they live for the moment and the remains of the day.

Half the adults showed signs of stress in the form of nervousness (44%), trouble sleeping (47%), worry (49%), losing control (67%), feeling they were unable to do all they had to do

(52%), or felt they had been targeted by gossip (41%). These negative traits were counterbalanced by positive ones. Referring to the past month, 53% said they had successfully confronted problems. In the past week, 74% had never been embarrassed, 91% had not envied others' possessions, and 71% felt things had gone well. The positive and negative traits combined remind me of what we found in the previous chapter, a complex people, at once impulsive and remorseless, stressed and content.

I was surprised by the absence of a sex cleavage in the psychological variables measured. I would have thought women were harsher on themselves, but this did not turn out to be the case. Women and men were alike. In fact, men were more likely to worry, to feel they were falling short on their duties, and to own big regrets. The one trait where women did worse is when asked how often they thought everything had gone well the past week. A third of them said things had never gone well, a quarter of men said likewise.

Two final points in wrapping up this section. It is wrong to depict an entire people with one label. Since Herodotus' time ([Chapter 2](#)), observers have used the epithets gentle, brave, Apollonian, Dionysian, fierce, stingy to describe those dwelling on the other side of civilization's fence. I purposefully slid into this venerable tradition because a label can efficiently summarize, in part, a truth, the general tendency, at the expense of overlooking diversity. We label every day. We say John is kind, Mary sagacious, Larry smart even if each of them has a bundle of other traits we ignore in stressing the gestalt. Why can't we use one handle to refer to a group after culling empirical observations from the group?

The second point has to do with shyness and how it relates to decisions to partake in the market economy. We never studied shyness, but I wish we had, not for its own sake, but as a runway to better understand why people move toward or away from the market economy. I have been struck by the repeated references to shyness in portraits of Tsimane'. In 1950, Wanda Banman, one of the earliest Protestant missionaries to arrive in the Maniqui basin, noted Tsimane' "closer to town did not seem to be afraid of us, but the ones farther up river were. We saw the women and children fleeing into the woods as we got near" (Kempf & Kempf, 2017, p. 19). A decade later, the Protestant missionary couple Dean and Elaine Kempf wrote that Tsimane' "left houses and fields and moved about twenty miles downriver to escape the schools" missionaries were trying to set up (Kempf & Kempf, 2017, p. 57). After three decades of living with Tsimane', Dean Kempf in 1987 summed up his impression by saying Tsimane' were "by nature ... a very timid and fearful people. Their only defense has been to flee" (Kempf & Kempf, 2017, p. 157), a customary practice they had used in past centuries ([Chapter 3](#)). Even Jorge Añez, the charismatic national leader of the Tsimane', petition the Bolivian government in the late 1980s to grant Tsimane' a well-demarcated territory along the Maniqui basin without other ethnic groups inside it because:

The other tribal groups will dominate the Chimanes if this area becomes multi-ethnic and the Chimanes will become tired of being their servants and will leave. Then they will become nomads, *because they are a timid, passive people* and their only defense is to flee [Quoted in (Kempf & Kempf, 2017, pp. 197, my emphasis)]<sup>xxiii</sup>.

If shyness has biological roots and a society historically practices preferential cross-cousin marriage, a significant share of the inbred population would eventually become shy. The observation is pedestrian, but, if true, could explain why Tsimane' as a group have tried to judiciously keep the market economy and Westerners at arm's length while more outgoing

villagers have jumped into the modern world. Presently, Tsimane' can no longer move away as easily as they could in the past due to encroachment by loggers, ranchers, and highland homesteaders, but until recently they retreated into unreachable wilderness to avoid invaders.

[c] Parental expectations of children. Three questions need answers: (1) Why do parents think their offspring's future will resemble the present? (2) Why do parents put so little stress on schooling children? and (3) Why is it that with healthcare, parents see their children opting for Western treatments instead of traditional cures?

For most of us, today colors how we see tomorrow. However, schooling and patience seem to enhance the ability to fantasize a pointillistic future different from what we see and feel now<sup>xxiv</sup>. An unschooled population of parents with sporadic access to healthcare, meager income, modest life expectancy, facing outsiders' encroachment could be too tied to the present to imagine how their children could have a different lifestyle from their own. In their minds, the future will resemble the present.

Constraints in the ability to form mental images about fundamentally different futures could also explain why parents had such low expectations for their offspring's schooling. Little or no schooling served parents well in their traditional farming life, so why would parents hope for anything different for their children? There is a mismatch here between current parental hopes of schooling for their children and current real payoffs to schooling. Among Tsimane', more schooling is associated with better economic outcomes (e.g., cash income)([Chapter 7](#)), yet most parents did not see or want to acknowledge the connection for their children. They probably had other reasons for ignoring the evidence about the benefits of schooling, or downgrading school's importance. Primary schooling, though ubiquitous in the territory, leads nowhere since most villages have no high schools. If a school with higher grades serves as a hook to induce children to complete lower grades, the absence of nearby rural high schools would dampen parents' aspirations for their children's education since nothing would follow from finishing lower grades. There is another explanation for the mismatch. Parents hoped their children would attain more schooling in the long run because they saw current evidence of schooling's benefits, but in the short run they preferred to keep children at home since a child attending school means one less household helper.

The one area where adults unmistakably saw their children opting for a Western way of life was healthcare. Most parents (80%) thought their children, as grown-ups, would rely on modern healthcare instead of traditional healers. I do not know when the traditional-to-modern switch happened. History hints that lowland native groups in Bolivia during Colonial times went to Catholic missions for healthcare ([Chapter 3](#)). Certainly, by the 1950s when Protestant missionaries arrived, Tsimane' went to them to treat illnesses and injuries. Along with useful appliances for daily living (e.g., fishhooks), modern medicines like penicillin missionaries brought to communities to facilitate conversion. They realized such medicines lured even unfriendly, shy, hesitant villagers<sup>xxv</sup>. After decades of exposure to Western medicines, at first from missionaries, later from the government and private organizations, Tsimane' have grown accustomed to rely on them, perhaps because modern medicines are cheaper and more effective than traditional cures. Having embraced Western healthcare long ago, parents expected their children to follow suit.

### **III. The initial questions and policy**

At the chapter's outset we asked how far self-reported and objective measures of well-being correlated. We are not well placed to answer the question because we lack objective measures for many subjective signposts of well-being. For instance, we asked villagers how they felt about the volume of visitors stopping by their home but we did not observe and tally the number of visitors. Same with psychological variables. We asked about nervousness and trouble sleeping, reasonable surrogates for stress, but gathered no information on biological markers of stress. Only with food can we say gingerly if self-reported and objective measures correlated. We asked adults how pleased they were with their meals and we also asked one household head (generally the wife) what the household ate the past week. In **Chapter 10** we established Tsimane' had a carbohydrate-rich diet, albeit thin on animal proteins and essential micronutrients, and in this chapter, we found adults were generally pleased with their meals. Thus, with food, opinion and reality moved in tandem.

We also wanted to compare self-reported satisfaction with material, social, and psychological aspects of life. Tsimane' did not fare well across the board. They did better with material — to wit, food and health — than with social or psychological dimensions of well-being. They have adaptively dragged their horticultural-cum-foraging lifestyle into the present while switching to Western healthcare. In this regard, they have selectively and pragmatically merged the best of the local and the extra local world. In sociality they did worse. Bubbles of extended families that keep to themselves in a community, fearful of sorcery and witchcraft from neighbors, have little to show for fellowship. Recall how infrequently helping hands came to the bedside of sick villagers (**Chapter 11**). Perhaps as the prevalence of cross-cousin marriage weakens and Tsimane' expand their social network, the forms and intensity of social life will change. Right now, though, Tsimane' seem to be stuck in a splintered society. In psychological makeup Tsimane' are a paragon to be envied. For good or for bad and for understandable reasons, they live with a cheerful disposition in the present. In sum, as a group, Tsimane' scored high in material and psychological aspects of well-being, not so well in social aspects.

Which brings us to public policy. How do villagers' answers described in this chapter inform public policy? Figure 12.3 provides an answer. The figure shows food and health stood out as the leading culprits in sadness. Addressing the two would be a respectful way of addressing needs identified by stakeholders. In almost any low-income society wouldn't you expect food and health to be of paramount concern? What has one gained with the analysis? Answer: It so happens Tsimane' themselves agree with outsiders' diagnosis. Although food and health go together, food should come first because the government, church groups, and private organizations already provide Tsimane' with healthcare but none pay attention to farm productivity. Farming lacks the cachet of fashionable topics like microcredit, governance, empowerment, conservation, or human rights. All are tangled and matter, but if one had to sequence what to do with little money, improving crop and livestock productivity would be a very good place to start. How to do it is not in my wheelhouse, but can be done.

Table 12.1. Summary of datasets used in Chapter 12 to measure perceived quality of life: By study, year, and survey module

Dimension	Study and survey year /a/:											
	RCT-savings		TAPS			RCT-inequality	TAPS				TAPS; 5-Q	
	2012	2011	2010	2009	2008	2008	2007	2006	2005	2004	2003	2002
	<b>[I] Self-reported causes of happiness and sadness:</b>											
Happy, sad										•/b/	▪	▪
	<b>[II] Quality of life:</b>											
<b>Material:</b>												
Food			√	√				√	√	√	√	√
Clothing			√	√				√	√	√	√	√
Health-current			√	√		√		√	√	√	√	√
Health-change			A	A	A	A	A	A	A	A	A	A
<b>Social:</b>												
Visits			√	√				√	√	√	√	√
Leisure time			√	√				√				
Chicha-village/b/			√	√				√	√	√	√	√
Chicha-drink	A	A	A	A	A	A	A	A	A	A	A	A
Trust	+	+				+			+			
<b>Psychological:</b>												
Gossip			√	√				√				
Regret	*	*						*	*			
Stress						^		^				
	<b>[III] Expectations of offspring:</b>											
Expectations			#			#						

Table 12.1. Summary of datasets used in Chapter 12 to measure quality of life: By study, year, and survey module - continued

Notes:

/a/ Most of the information comes from the Tsimane' Amazonian Panel Study (TAPS). Information for years in italics (2008, 2011-2012) comes from two randomized-controlled trials (RCT). Data for 2002-2003 comes from a five-quarter panel study of the same sample used in TAPS. Surveys for questions about quality of life in the five-quarter panel study spanned from September 2002 until August 2003. When comparing 2002-2003 data with other years, I selected one record for a person per year. See Appendix A for a discussion of which quarterly record was kept. For the statistics on causes of happiness or sadness I used all the quarterly information, meaning one person could have repeated measures in a year.

/b/ Names of survey module have been edited slightly for this table from how they appeared in the ACCESS datasets. The symbols and names of survey modules where data can be found are:

▪ = Causes of happiness or sadness

√ = Happiness (In 2008 RCT, data on health change is in file ACCESS file 27a\_tbl\_health)

A = Addiction

+ = Social capital

\* = 2006, 2011-2012 data in file on acquisition of durable items. For 2005, data on regret is in ACCESS file on social capital (23b\_tbl\_KS). Information on remorse at money lent is in ACCESS files called "credit given."

^ = 2006 data comes from an ACCESS file called Stress "27c\_tbl\_stress", 2008 data comes from ACCESS file called happiness (26\_tbl\_happiness)

# = Information comes from ACCESS file Aspirations. For 2008, information on education comes from ACCESS file on credit (21\_tbl\_social\_capital\_credit).

Table 12.2. Sample size of observations and unique textual reasons for feeling happy or sad the week before the interview, 2002-2004

	Happy	Sad
[I] Observations /a/:		
[A] All (including zeros)	3870	3468
[B] At least one reason (no zeros)	2831	2379
 [II] Unique textual reasons /b/:		
[A] Women	61	58
[B] Men	70	67
[C] Both	74	72

Notes:

/a/ Observations refer to any reason for feeling happy or sad; a respondent could list several reasons for happiness, sadness, or both. For happiness, some respondents listed a maximum of nine reasons and for sadness eight. Row [IA] includes people who said nothing had made them happy or sad the previous week, whereas row [IB] includes participants who mentioned at least one reason for having felt sad or happy. Section I includes repeats; for example, answers from two people who said lack of visitors had made them sad would end up as two observations, one for each participant. Likewise, answers from the same person interviewed more than once would show up as different observations.

/b/ The sample here includes unique number of textual reasons without repeats provided by all women, men, and both. For example, all women interviewed listed a total of 61 different textual reasons for feeling happy, all men listed 70. See Appendix B for examples of the top reasons for feeling happy or sad.

Table 12.3. Self-rated *material* dimensions of quality of life among Tsimane' adults from longitudinal study of 13 villages (Tsimane' Amazonian Panel Study) and baseline of randomized-controlled trial of village income inequality (2008)

	Survey year:									
	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
<i>Percent</i>	<b>FOOD</b>									
Poorly	8	9	5	2	2			2	2	4
OK	41	43	55	39	54			53	50	48
Well	51	48	39	59	44			45	48	48
Total	100	100	100	100	100			100	100	100
<i>N</i>	526	414	570	678	679			596	657	4,120
<i>Percent</i>	<b>CLOTHING</b>									
Little	67	64	65	73	80			55	80	70
Enough	28	32	33	25	19			41	18	27
A lot	5	3	2	2	1			4	2	3
Total	100	100	100	100	100			100	100	100
<i>N</i>	526	414	570	678	679			596	657	4,120
<i>Percent</i>	<b>HEALTH – Current</b>									
Poor	20	23	11	4	4			9	4	10
OK	40	31	49	46	44			46	53	45
Good	40	46	41	51	52			45	43	46
Total	100	100	100	100	100			100	100	100
<i>N</i>	525	414	570	678	679			596	657	4,119
<i>Percent</i>	<b>HEALTH – Change</b>									
Better	28	28	31	26	43	32	32	38	37	33
Same	45	54	39	36	23	31	42	35	35	38
Worse	27	19	30	38	35	38	26	26	29	30
Total	100	100	100	100	100	100	100	100	100	100
<i>N</i>	560	538	570	676	679	608	1,328	596	657	6,212



Table 12.3. Self-rated *material* dimensions of quality of life among Tsimane' adults from longitudinal study of 13 villages (Tsimane' Amazonian Panel Study) and baseline of randomized-controlled trial of village income inequality (2008) - continued

Notes:

/a/ Data for 2008 for self-rated health change combines data from the longitudinal study (TAPS) + data from the baseline (2008) of the randomized-controlled trial of village income inequality.

[b] Adult interviewed is the unit of observation and analysis for all dimensions.

Questions were:

[1] Food: In general, how well have you eaten in the past seven days?

[2] Clothing: How much clothing do you have?

[3] Health-current: How would you rate your current health?

[4] Health-change: Are you in better health this year or last year?

Table 12.4. Self-rated *social* dimensions of quality of life among Tsimane' adults from longitudinal study of 13 villages (Tsimane' Amazonian Panel Study) and two randomized-controlled trials (RCT; village inequality [2008] and savings [2011-2012])

	Survey year											Total
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
<i>Percent</i>	<b>VISITS</b>											
None	41	37	36	34	34			45	49			40
Some	49	49	54	51	59			49	47			51
Many	10	14	10	15	7			6	4			9
Total	100	100	100	100	100			100	100			100
<i>N</i>	526	414	570	678	679			596	657			4,120
<i>Percent</i>	<b>LEISURE TIME</b>											
Often					11			11	13			12
Sometimes					74			62	66			68
Never					15			26	21			20
Total					100			100	100			100
<i>N</i>					679			596	657			1,932
<i>Percent</i>	<b>CHICHA - Village</b>											
None	39	31	41	24	29			30	27			31
Little	56	60	52	64	63			63	63			61
A lot	5	9	7	12	8			7	10			8
Total	100	100	100	100	100			100	100			100
<i>N</i>	526	414	570	678	679			596	657			4,120

Table 12.4. Self-rated *social* dimensions of quality of life among Tsimane' adults from longitudinal study of 13 villages (Tsimane' Amazonian Panel Study) and two randomized-controlled trials (RCT; village inequality [2008] and savings [2011-2012]) - continued

	Survey year											
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
<i>Percent</i>	<b>CHICHA - Drink</b>											
No	66	58	65	62	64	61	67	73	74	64	66	66
Yes	34	42	35	38	36	39	33	27	26	36	34	34
Total	100	100	100	100	100	100	100	100	100	100	100	100
<i>N</i>	561	538	570	677	679	608	1,361	597	657	1,115	945	8,308
<i>Percent</i>	<b>TRUST</b>											
No				81			49			58	21	53
Yes				19			51			42	79	47
Total				100			100			100	100	100
<i>N</i>				678			1,333			1,114	596	3,721

Table 12.4. Self-rated *social* dimensions of quality of life among Tsimane' adults from longitudinal study of 13 villages (Tsimane' Amazonian Panel Study) and two randomized-controlled trials (RCT; village inequality [2008] and savings [2011-2012]) - continued

Notes:

/a/ Data for 2008 combines longitudinal study (TAPS) + baseline of the randomized-controlled trial of village income inequality (2008).

[b] Adult interviewed is the unit of observation and analysis for all dimensions.

Questions were:

[1] Visits: How many Tsimane' visited you the past month?

[2] Leisure time: How often did you have leisure time the past week?

[3] *Chicha* village: How much *chicha* was there in the village the past seven days?

[4] *Chicha* drink: Did respondent drink *chicha* the past seven days?

[5] Trust: Do you trust villagers?

Table 12.5. Self-rated *psychological* dimensions of quality of life among Tsimane' adults from longitudinal study of 13 villages (Tsimane' Amazonian Panel Study) and two randomized-controlled trials (RCT; village inequality [2008] and savings [2011-2012])

	Survey year								
	2005	2006	2007	2008	2009	2010	2011	2012	Total
<b>GOSSIP</b>									
<i>Percent</i>									
Never		57			66	55			59
At least once		43			34	45			41
Total		100			100	100			100
<i>N</i>		679			596	657			1,932
<b>REGRET - General</b>									
<i>Percent</i>									
None	78								78
Some	22								22
Total	100								100
<i>N</i>	524								524
<b>REGRET – Acquisitions</b>									
<i>Percent</i>									
No		88					91	93	91
Yes		12					9	7	9
Total		100					100	100	100
<i>N</i>		1,738					5,681	3,959	11,378
<b>REGRET - Credit</b>									
<i>Percent</i>									
No		44.83					49.79	59.73	51.99
Yes		55.17					50.21	40.27	48.01
Total		100					100	100	100
<i>N</i>		87					241	149	477

Table 12.5. Self-rated *psychological* dimensions of quality of life among Tsimane' adults from longitudinal study of 13 villages (Tsimane' Amazonian Panel Study) and two randomized-controlled trials (RCT; village inequality [2008] and savings [2011-2012]) - continued

	2005	2006	2007	2008	Survey year				Total
					2009	2010	2011	2012	
<b>STRESS - Control</b>									
<i>Percent</i>									
Always		67							67
Sometimes		33							33
Total		100							100
<i>N</i>		679							679
<b>STRESS - Problem</b>									
<i>Percent</i>									
Always		53							53
Sometimes		47							47
Total		100							100
<i>N</i>		679							679
<b>STRESS – Embarrassed</b>									
<i>Percent</i>									
Never				74					74
Sometimes				26					26
Total				100					100
<i>N</i>				1,359					1,359
<b>STRESS – Envy</b>									
<i>Percent</i>									
Never				91					91
Sometimes				9					9
Total				100					100
<i>N</i>				1,360					1,360
<b>STRESS - Nervous</b>									
<i>Percent</i>									
Never				56					56
Sometimes				44					44
Total				100					100
<i>N</i>				1,360					1,360

Table 12.5. Self-rated *psychological* dimensions of quality of life among Tsimane' adults from longitudinal study of 13 villages (Tsimane' Amazonian Panel Study) and two randomized-controlled trials (RCT; village inequality [2008] and savings [2011-2012]) - continued

	Survey year								
	2005	2006	2007	2008	2009	2010	2011	2012	Total
<b>STRESS - Shortfall</b>									
<i>Percent</i>									
Never				48					48
Sometimes				52					52
Total				100					100
<i>N</i>				1,353					1,353
<b>STRESS – Sleep</b>									
<i>Percent</i>									
Never				53					53
Sometimes				47					47
Total				100					100
<i>N</i>				1,360					1,360
<b>STRESS – Well</b>									
<i>Percent</i>									
Never		17		35					29
Sometimes		83		65					71
Total		100		100					100
<i>N</i>		679		1,358					2,037
<b>STRESS - Worried</b>									
<i>Percent</i>									
No				51					51
Yes				49					49
Total				100					100
<i>N</i>				1,360					1,360

Table 12.5. Self-rated *psychological* dimensions of quality of life among Tsimane' adults from longitudinal study of 13 villages (Tsimane' Amazonian Panel Study) and two randomized-controlled trials (RCT; village inequality [2008] and savings [2011-2012]) - continued

Notes:

[a] For gossip and general regret the adult interviewed is the unit of observation and analysis. For regrets at acquisitions, the unit of observation and analysis is the item obtained through barter or purchase. For lenders' regret (credit), the unit of observation and analysis is the outstanding loan owed to the subject, the lender. The dataset on credit given had a total of 433 individuals, of whom 390 had given one loan, 42 had supplied two loans, and one had three outstanding loans, for a grand total of 477 observations ( $477 = 390*1 + 42*2 + 1*3$ ).

[b] Information for 2008 and 2011-2012 comes from the two randomized-controlled trials.

Questions were:

[1] Gossip: Have Tsimane' gossiped about you in the past 7 days?

[2] Regret general: What do you regret in life?

[3] Regret acquisitions: For each good acquired through purchase or barter, subjects indicated if they regretted the acquisition

[4] Regret credit: For each outstanding money loan supplied by the subject did the subject regret having supplied the loan?

[5] Stress. To measure stress, I used answers to nine questions listed below. Villagers reported frequencies, but I converted them into binary variables, with values described in the first column of the table. The questions capture positive and negative psychological states.

**Positive states:**

Control – In the past month how many times did you feel you couldn't control things in life? 1 (Yes) = always in control; 0 (No) = sometimes wasn't in control.

Problem – In the past month how many times did you feel you couldn't solve your problems? 1 (Yes) = always could solve problems; 0 (No) = sometimes couldn't solve problem.

Well – In the past seven days how often did you think everything was going OK in your life? 1 (Yes) = at least once (sometimes); 0 (No) = never.

**Negative states:**

Embarrassed – In the past seven days how often did you feel embarrassed? 1 (Yes) = at least once (sometimes); 0 (No) = never.

Envy – In the past seven days how often were you envious of things villagers had? 1 (Yes) = at least once (sometimes); 0 (No) = never.

Nervous – In the past seven days how often did you feel nervous? 1 (Yes) = at least once (sometimes); 0 (No) = never.

Shortfall – In the past seven days how often did you think you couldn't do all you had to do? 1 (Yes) = at least once (sometimes); 0 (No) = never.

Sleep – In the past seven days how often couldn't you sleep because you were worried? 1 (Yes) = at least once (sometimes); 0 (No) = never.

Worried – In the past seven days how often were you worried? 1 (Yes) = at least once (sometimes); 0 (No) = never.



Table 12.6. Regret at acquiring durable goods the past year by category of good acquired, 2006, 2011, 2012

Category of durable good:	Regretted acquisition? (%)			N
	No	Yes	Total	
Tools	91	9	100	1,376
Household	95	5	100	184
Transport	89	11	100	114
Hygiene	90	10	100	387
Kitchen	92	8	100	3,047
Luxuries	88	12	100	1,014
Animals	93	7	100	61
Clothing	91	9	100	5,104
Unidentified	92	8	100	77
School	86	14	100	14
Total	91	9	100	11,378

Note: The unit of observation is the article acquired through purchase or barter the past year. Only durable items and livestock are included. Subjects were asked to list all durable items acquired and, for each, to indicate if they felt remorse at the acquisition. [Table 8.2 in Chapter 8](#) lists the goods included in a category. N = total number of items in the category irrespective of regret.

Table 12.7. Tsimane' parental expectations of children under 16 years of age from the 2010 survey of study in 13 villages (Tsimane' Amazonian Panel Study) and baseline of the randomized-controlled trial (RCT; village income inequality [2008])

Part A. Summary statistics of binary variables. Under *Percent*, the top row represents the traditional choice and the bottom row represent the modern or Western choice

	Curer		Drink		Language		Residence		Schooling	
<i>Percent</i>	Healer	20	Chicha	72	Tsimane'	72	Village	92	No	79
	Doctor	80	Beer	28	Spanish	28	Metropole	8	Yes	21
<i>Total</i>		100		100		100		100		100
<i>N</i>		487		487		496		476		1,330

Part B. Summary statistics for maximum school grade youngest child was expected to finish

Level:	<i>Percent</i>	<i>N</i>
None	55	272
Primary	27	137
Middle	7	37
High School	6	32
University	4	21
Total	100	499

Table 12.7. Tsimane' parental expectations of children under 16 years of age from the 2010 survey of study in 13 villages (Tsimane' Amazonian Panel Study) and baseline of the randomized-controlled trial (RCT; village income inequality [2008]) - continued

Notes:

[a] All but one of the questions come from the 2010 survey of TAPS. Information for the variable *Schooling* comes from the 2008 trial on village income inequality.

[b] In 2010 surveyors addressed questions to each parent about their youngest child under 16 years of age.

Questions for part A:

[1] Curer: When your youngest child becomes an adult will they prefer a physician or a traditional healer? 1 = physician, 0 = traditional healer.

[2] Drink: When your youngest child becomes an adult will they prefer *chicha* or beer? 1 = beer, 0 = *chicha*.

[3] Language: When your youngest child becomes an adult what language do you think they will speak most frequently at home? 1 = Spanish, 0 = Tsimane'.

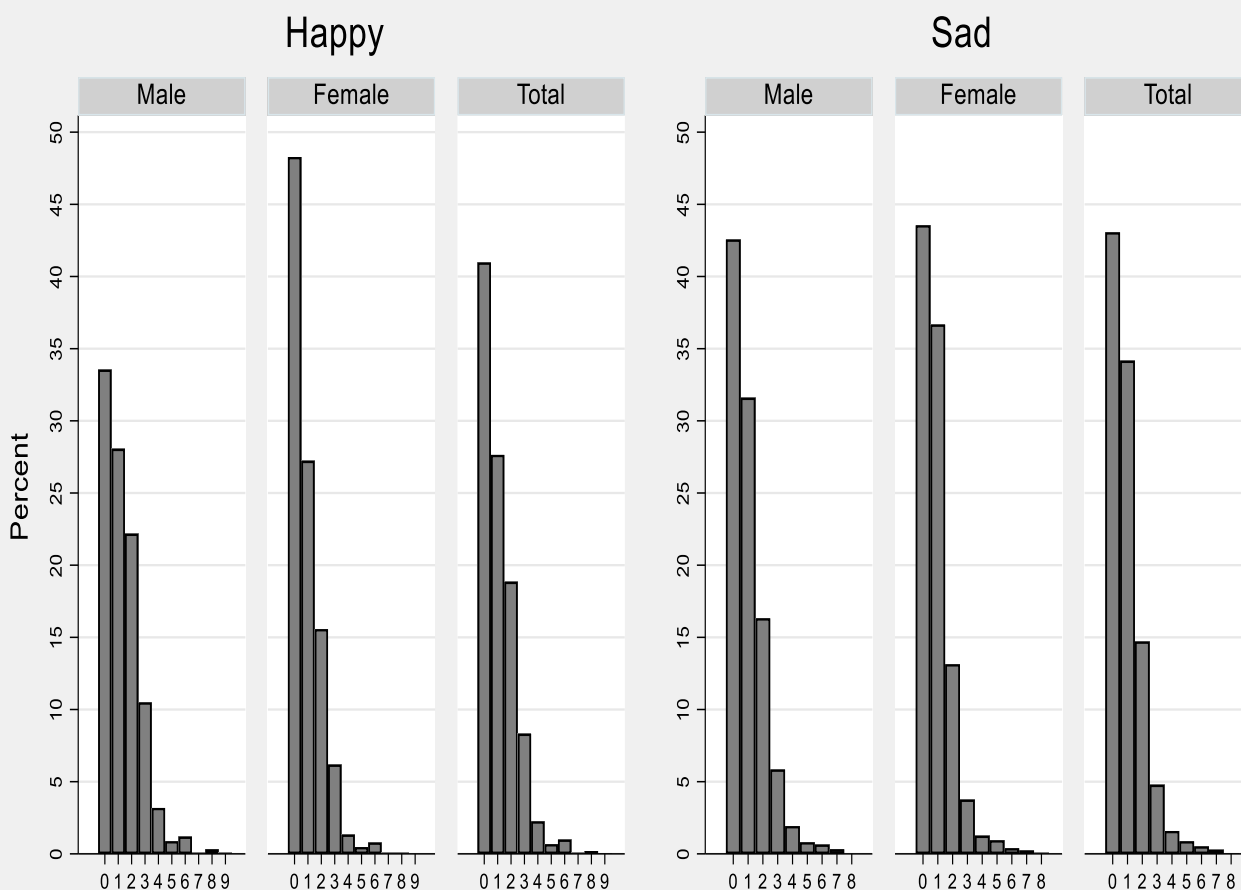
[4] Residence: When your youngest child becomes an adult, where do you think they would like to live? Options were: 1 = city, 2 = town, 3 = village. These were recoded into a binary form: 1 = city or town, 0 = village.

[5] Schooling: Would you move to another village so your children have better schooling? 1 = yes; 0 = no.

Question for part B:

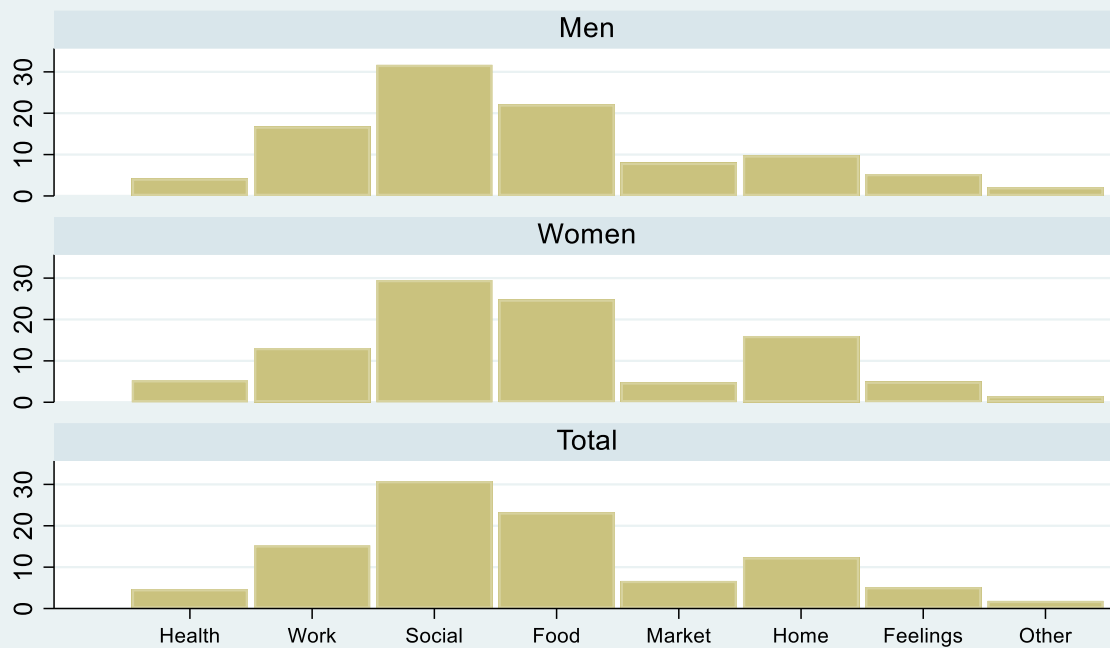
[6] Education: Maximum schooling level you think your youngest child will attain. Parents provided the exact grade (e.g., fourth grade). The original answers were recoded following standard grouping of school grades in Bolivia at the time of the study: Primary = grades 1-5, Intermediate = 6-8, Secondary = 9-12, Higher = 13+. Higher refers to students who, after high school, train to be school teachers, pursue technical training or attend university.

Fig. 12.1. Number of reasons adults (age>16y) felt happy or sad in past week



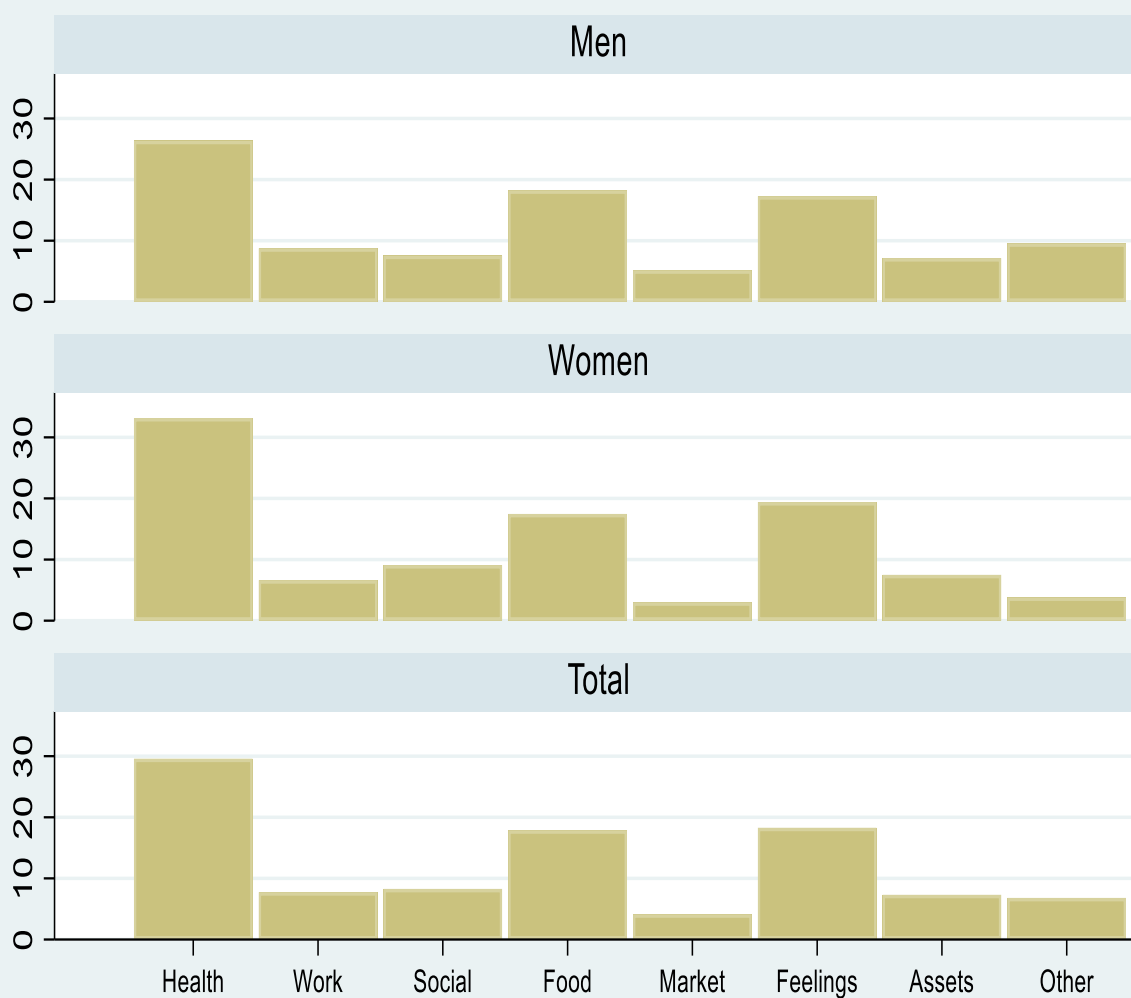
Data comes from a five-quarter panel study (9/2002-8/2003) + yearly survey of 2004. Unit of observation is person answering in 2004 and person answering each quarter during 2002-2003. SAD: sample women=1279, men=1250, total=2529; mean women=1.6, men=1.7, total=1.6; SD women=1, men=1.1, total=1. HAPPY: sample women=1278, men=1258, total=2536; mean women=1.7, men=2, total=1.9; SD women=1.1, men=1.2, total=1.1. Mean and SD exclude zeros (i.e., observations  $\geq 1$ ).

Fig. 12.2. Causes of happiness in %, by categories and sex, 2002-2004



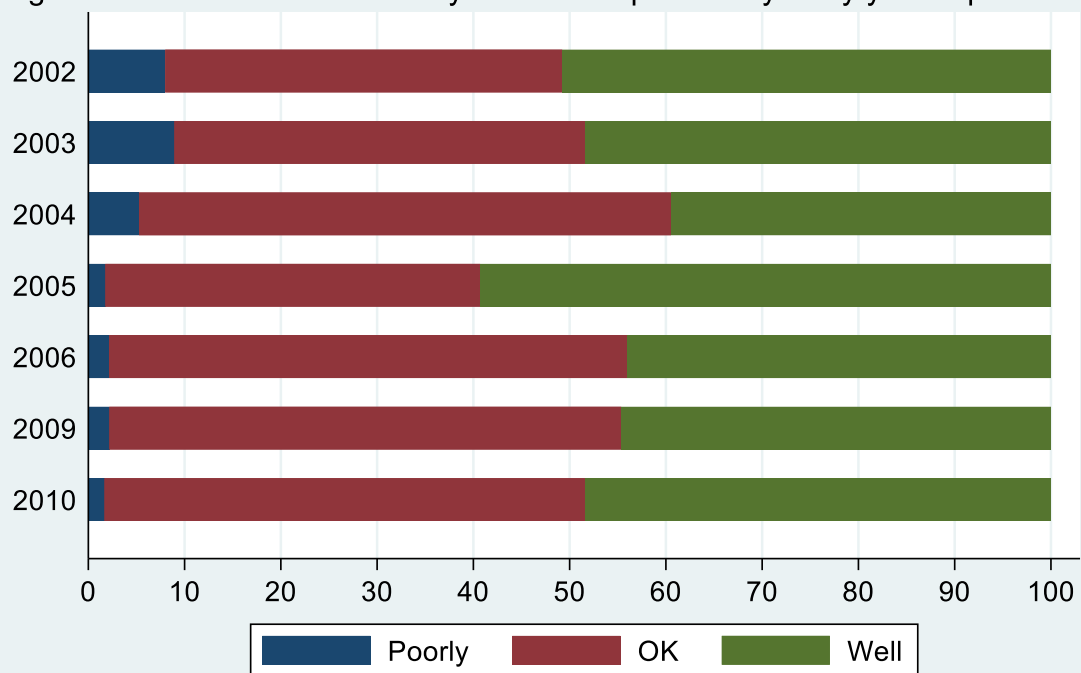
See main text for definition and example of categories. Data comes from a five-quarter panel study (9/2002-8/2003) + yearly survey of 2004. Unit of observation is person answering in 2004 and person answering each quarter in 2002-2003. Sample size of observations for women = 1168, men = 1663, total = 2831. Answers by a person in a survey could fall in different bins if they listed different reasons for feeling happy.

Fig. 12.3. Causes of sadness in %, by categories and sex, 2002-2004



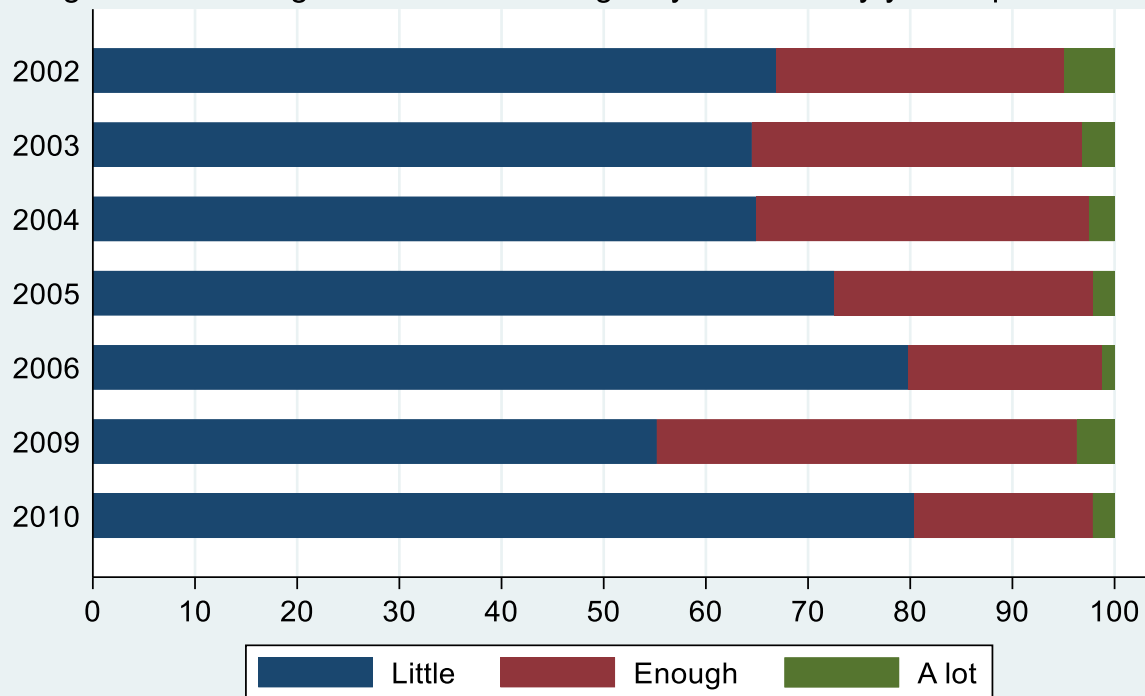
See main text for definition and example of categories. Data comes from a five-quarter panel study (9/2002-8/2003) + yearly survey of 2004. Unit of observation is person answering in 2004 and person answering each quarter in 2002-2003. Sample size of observations for women = 1134, men = 1245, total = 2379. Answers by a person in a survey could fall in different bins if they listed different reasons for feeling sad.

Fig. 12.4. Food: How well have you eaten in past 7 days? By year &amp; percent



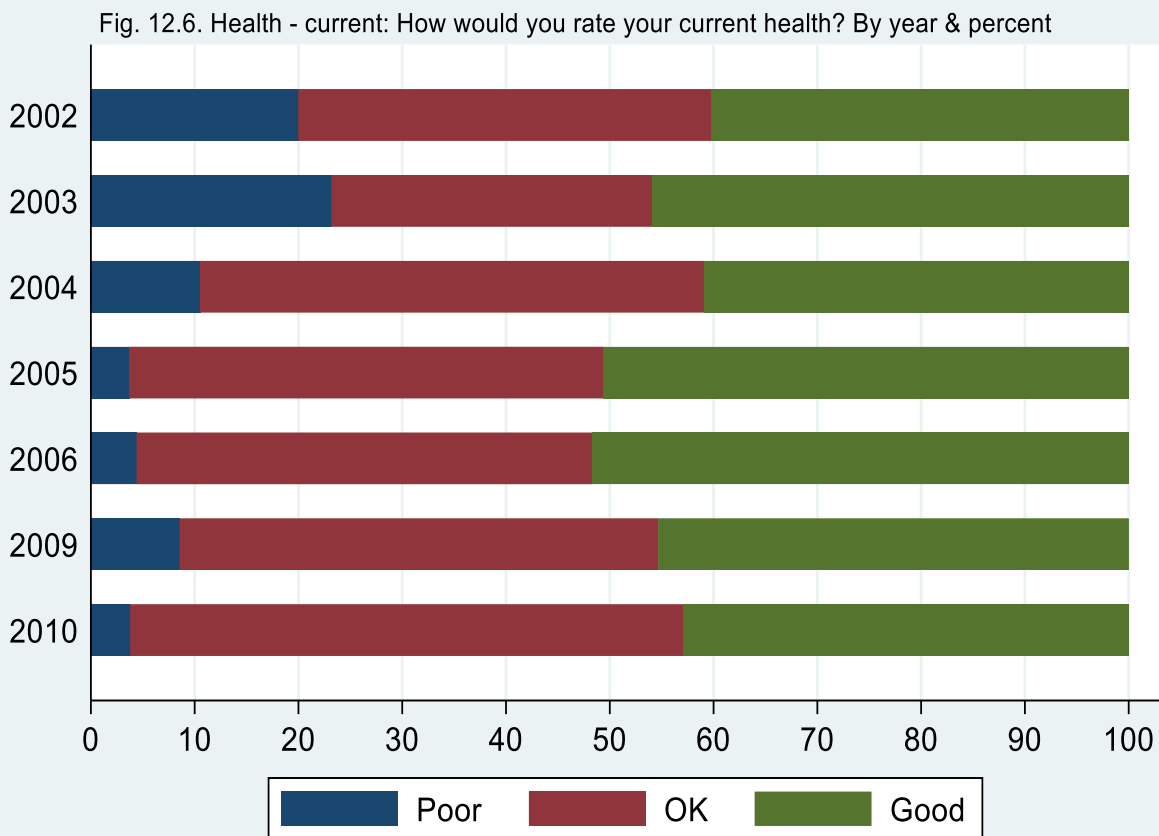
Data from TAPS, one record/person/year. Table 12.3 has sample size/year and total & % per category/year.

Fig. 12.5. Clothing: How much clothing do you have? By year &amp; percent



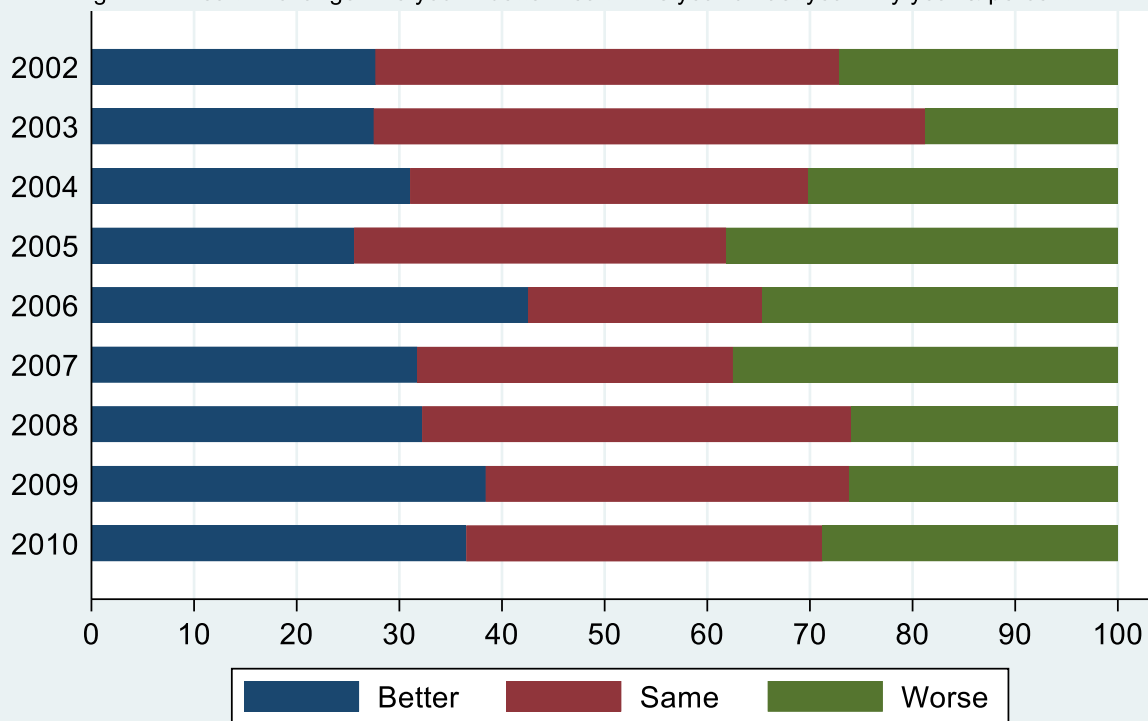
Data from TAPS, one record/person/year. Table 12.3 has sample size/year and total & % per category/year.





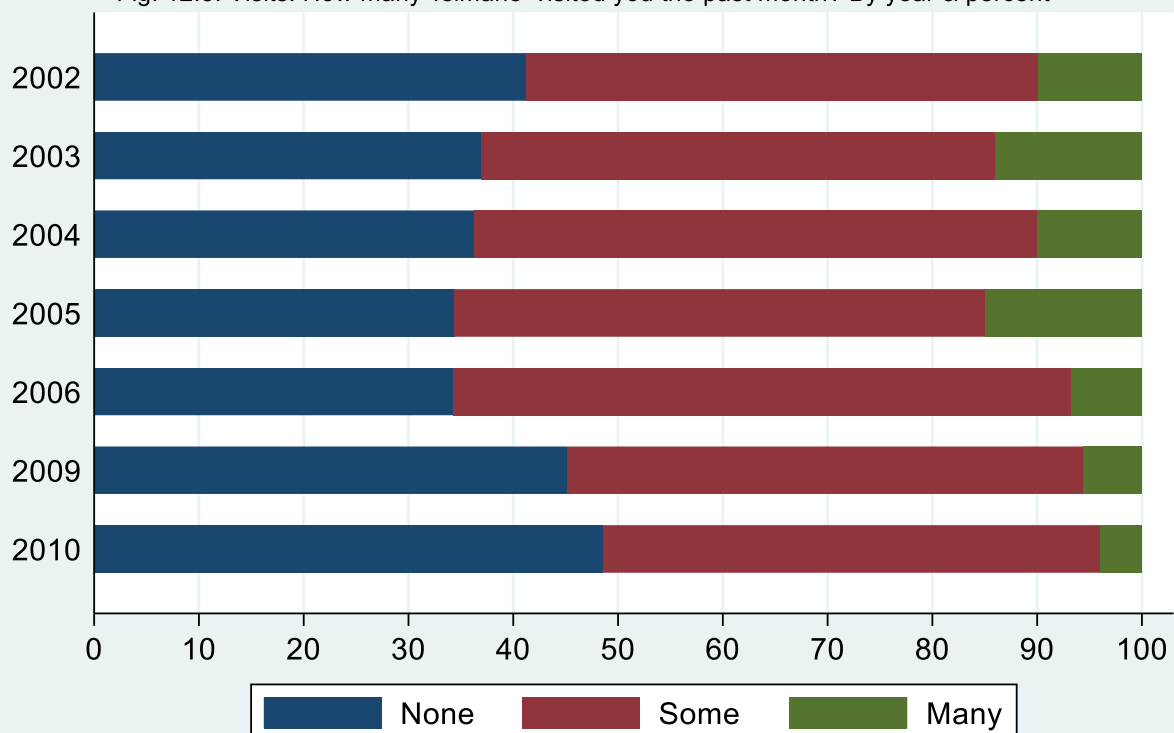
Data from TAPS, one record/person/year. Table 12.3 has sample size/year and total & % per category/year.

Fig. 12.7. Health - change: Are you in better health this year or last year? By year & percent



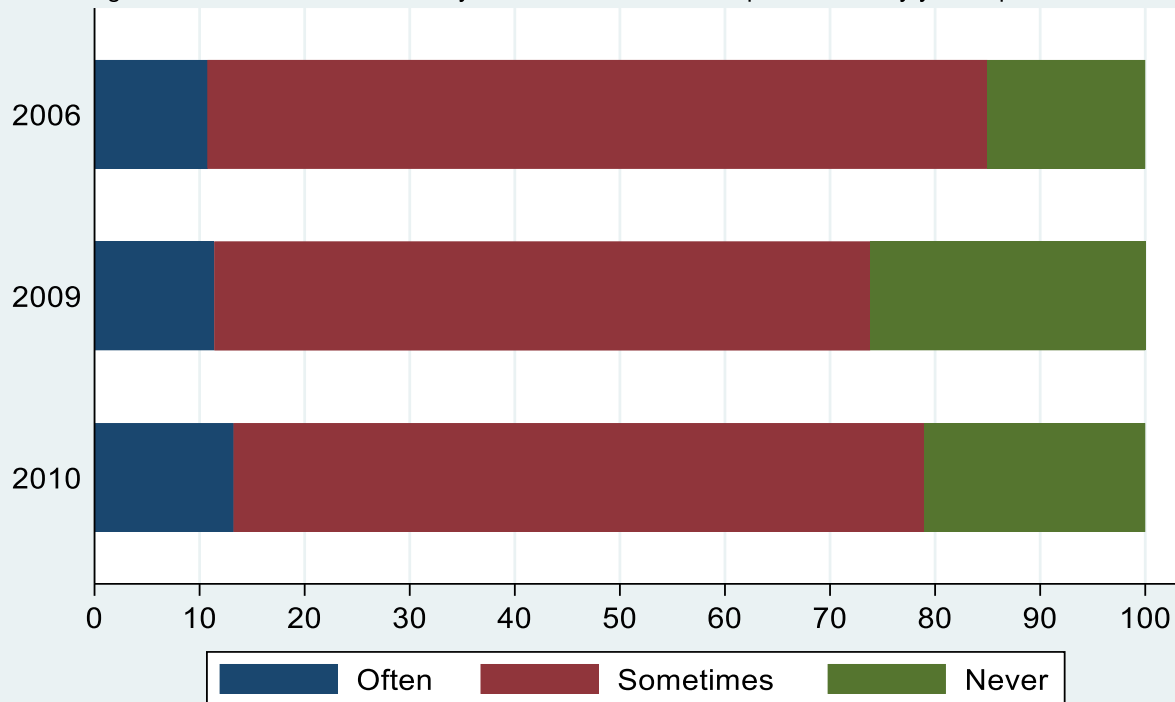
Data from TAPS and trials on inequality (2008), one record/person/year. Table 12.3 has sample size/year and total and percentage per category/year.

Fig. 12.8. Visits: How many Tsimane' visited you the past month? By year & percent



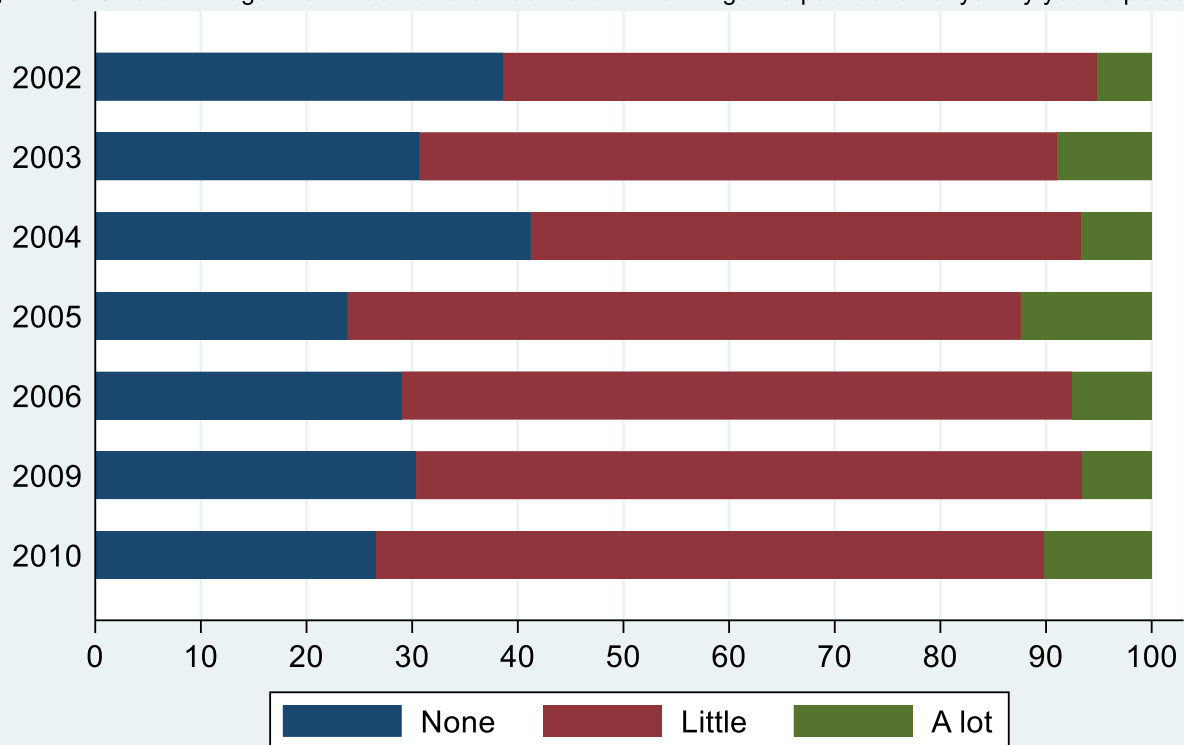
Data from TAPS, one record/person/year. Table 12.4 has sample size/year and total & % per category/year.

Fig. 12.9. Leisure: How often did you have leisure time the past week? By year &amp; percent



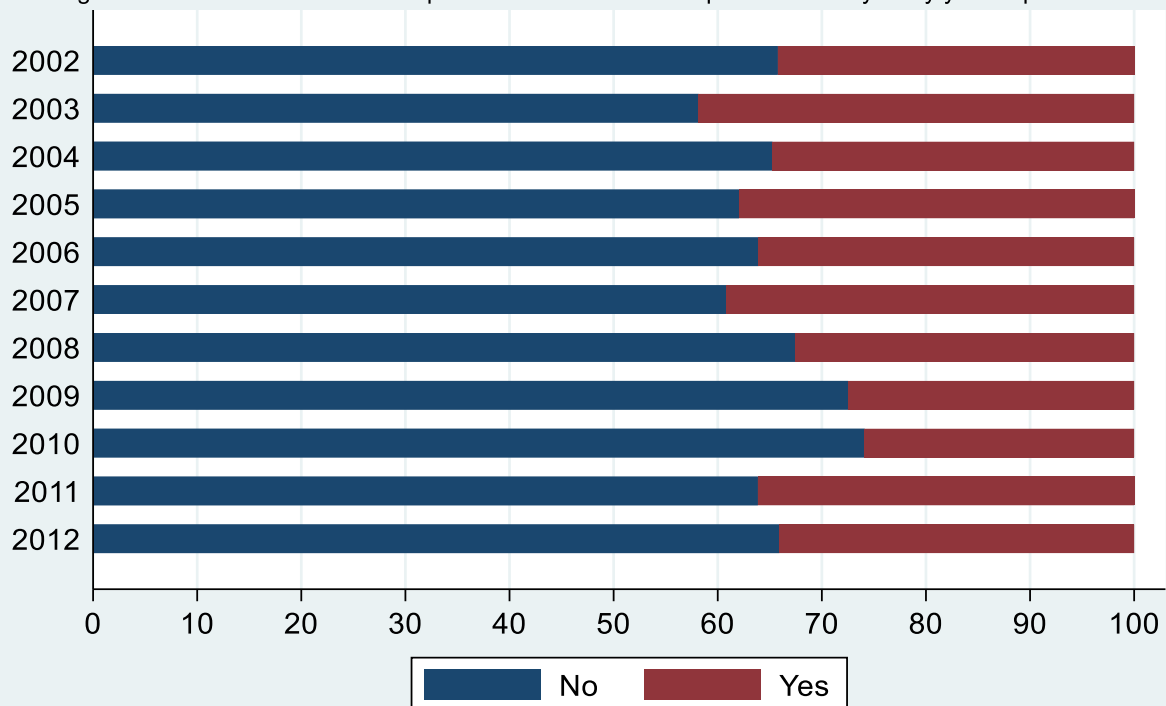
Data from TAPS, one record/person/year. Table 12.4 has sample size/year and total & % per category/year.

Fig. 12.10. Chicha - village: How much chicha was there in the village the past seven days? By year &amp; percent



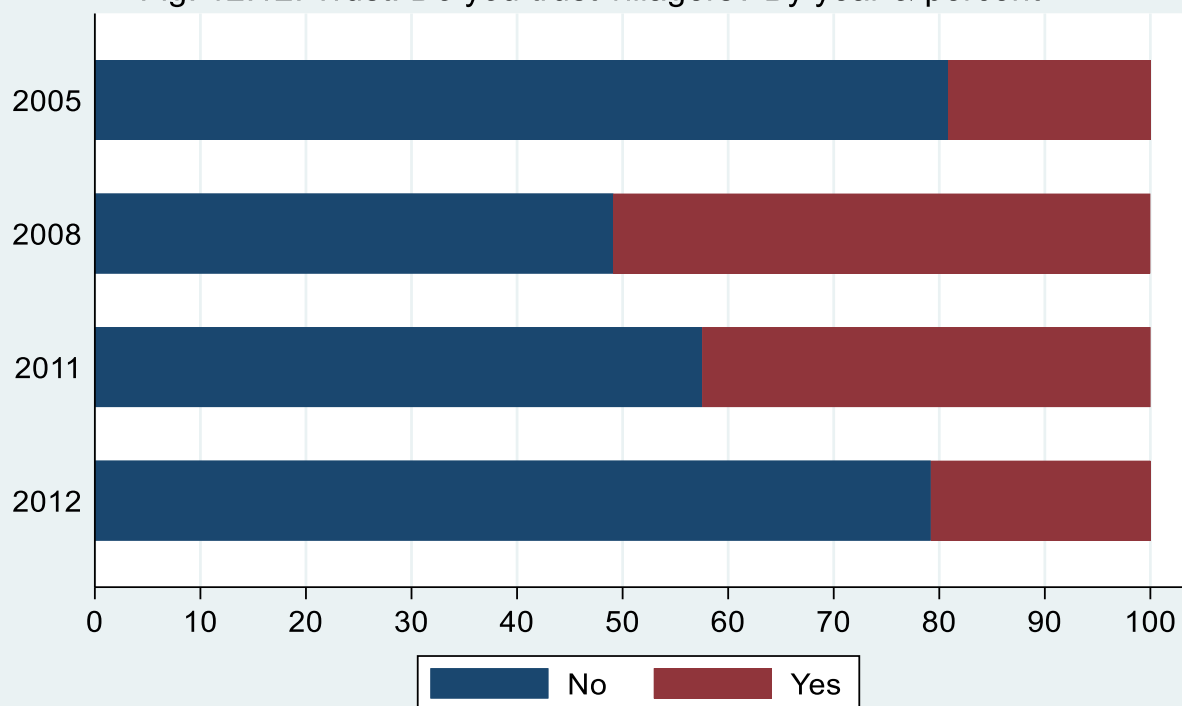
Data from TAPS, one record/person/year. Table 12.4 has sample size/year and total & % per category/year.

Fig. 12.11. Chicha - drink: Did respondent drink chicha the past seven days? By year &amp; percent



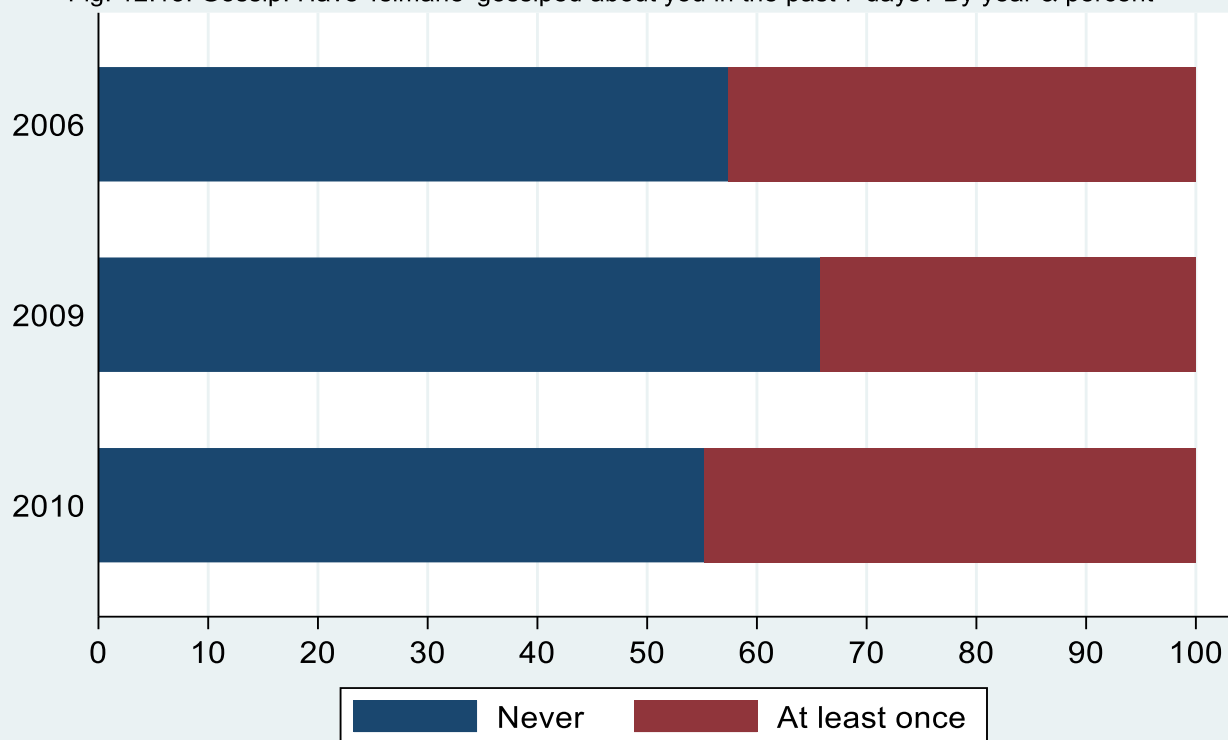
Data from TAPS and trials on inequality (2008) and savings (2011-2012), one record/person/year. Table 12.4 has sample size/year and total and percentage per category/year.

Fig. 12.12. Trust: Do you trust villagers? By year &amp; percent



Data from TAPS and trials on inequality (2008) and savings (2011-2012), one record/person/year. Table 12.4 has sample size/year and total and percentage per category/year.

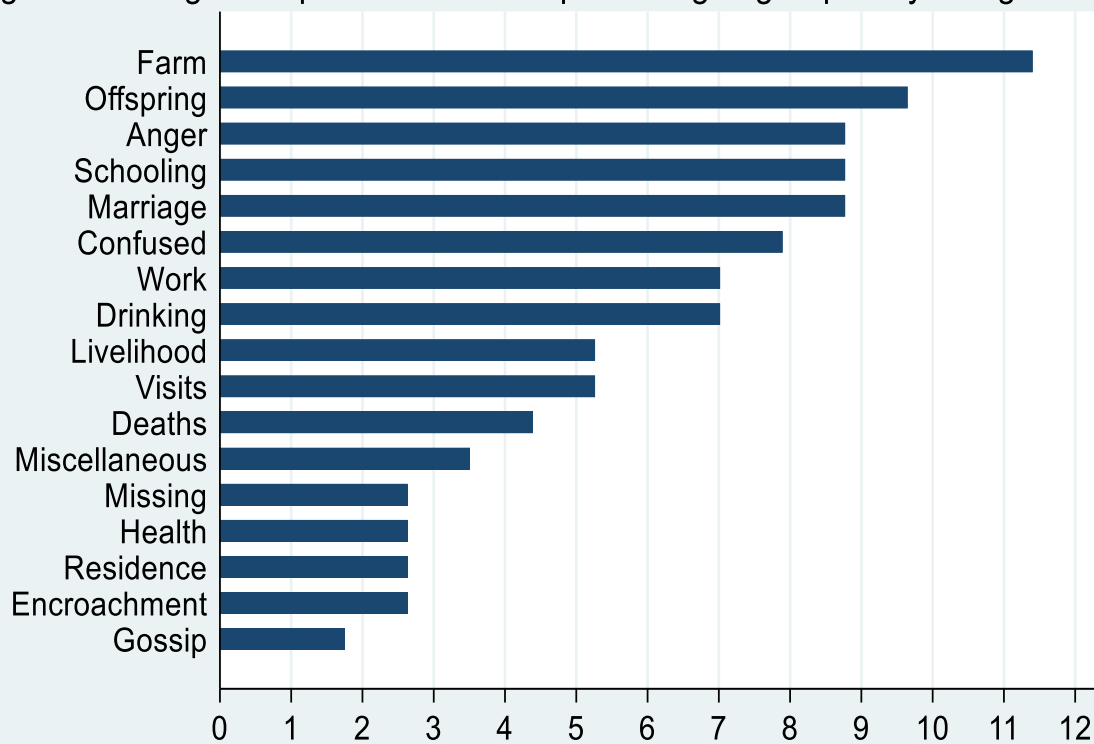
Fig. 12.13. Gossip: Have Tsimane' gossiped about you in the past 7 days? By year &amp; percent



Data from TAPS, one record/person/year. Table 12.5 has sample size/year and total & % per category/year.

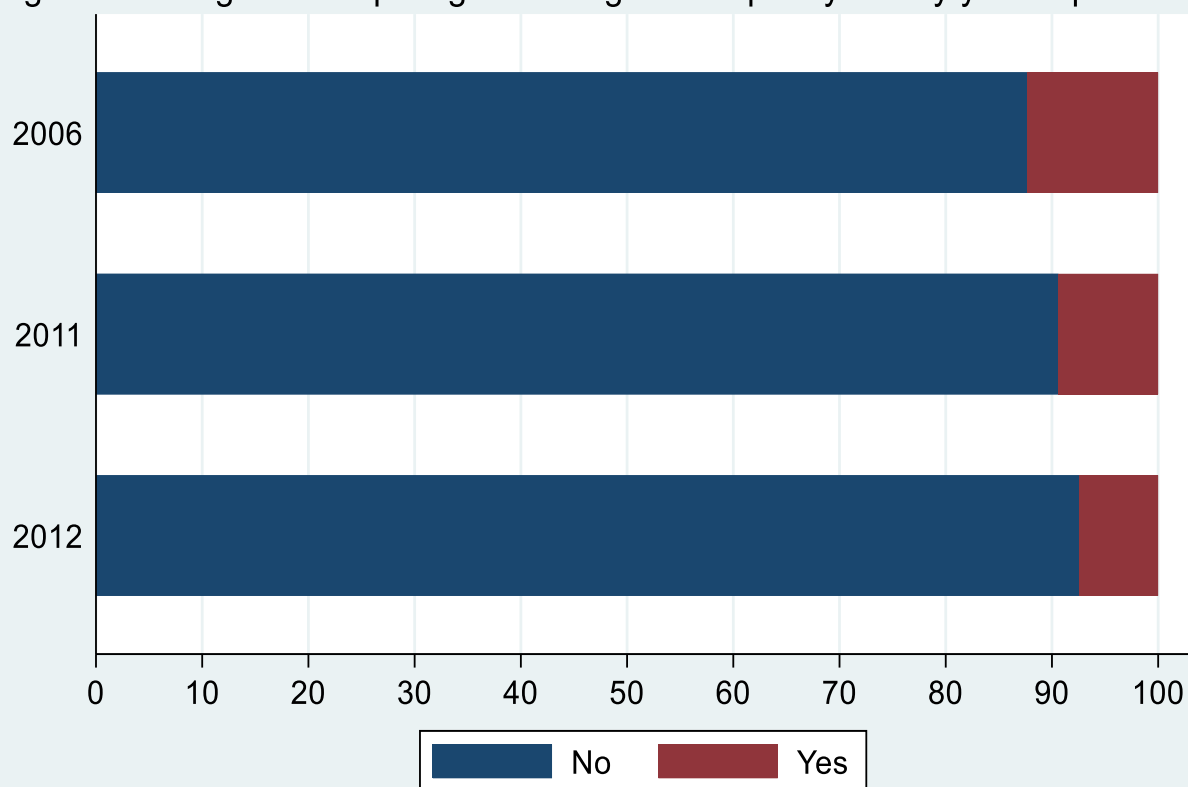


Fig. 12.14. Regrets reported in 2005 in percentages grouped by categories



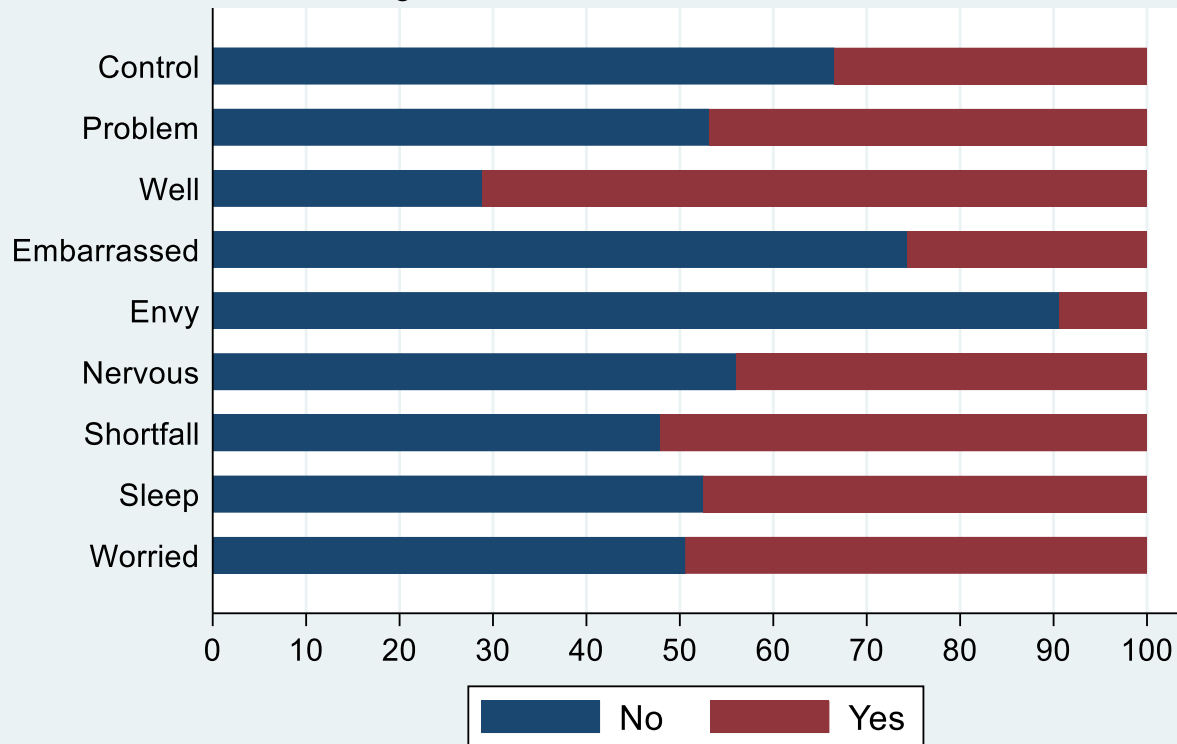
Data from TAPS, one record/person. Total sample = 524 people, of whom 114 (shown here) had regrets. Table 12.5 has frequency and percentage of people with and without regrets. The chapter has examples of regrets in categories.

Fig. 12.15. Regret at acquiring durable goods in past year. By year &amp; percent



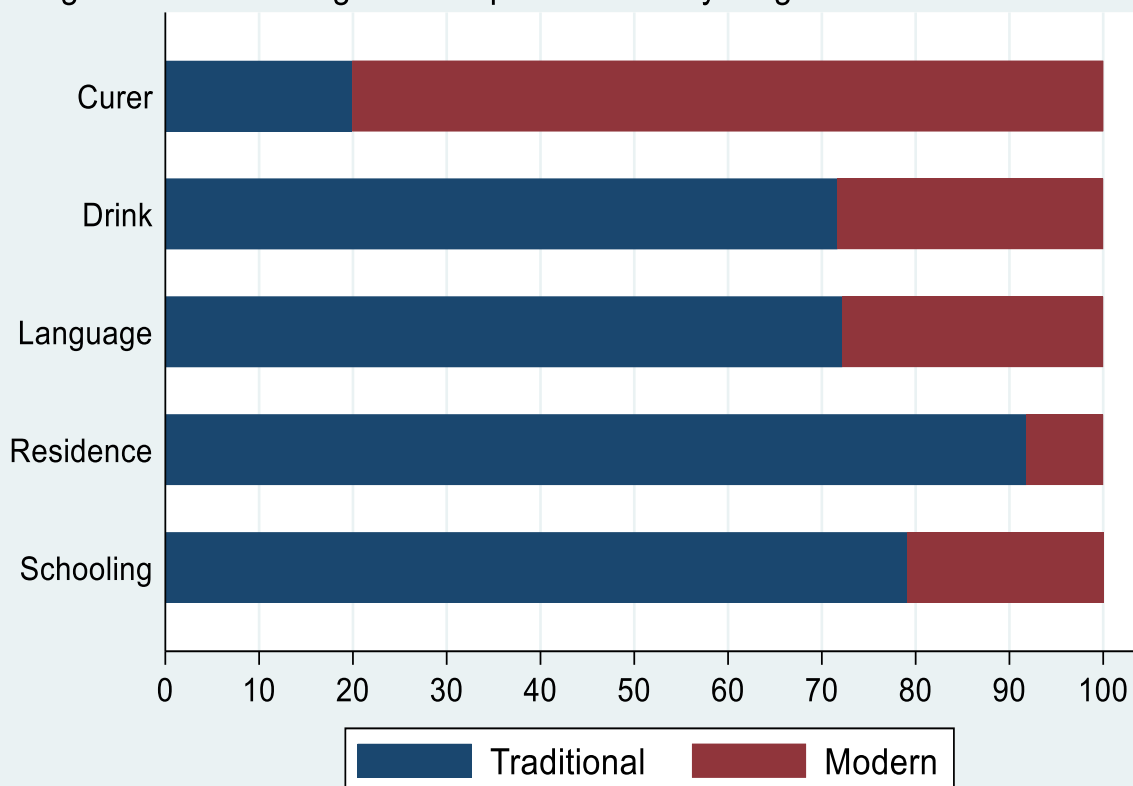
Data from TAPS and trials on savings (2011-2012). Obs = item acquired by purchase or barter and regret at the acquisition. Table 12.5 has sample size/year and total and percentage per category/year.

Fig. 12.16. Stress indicators



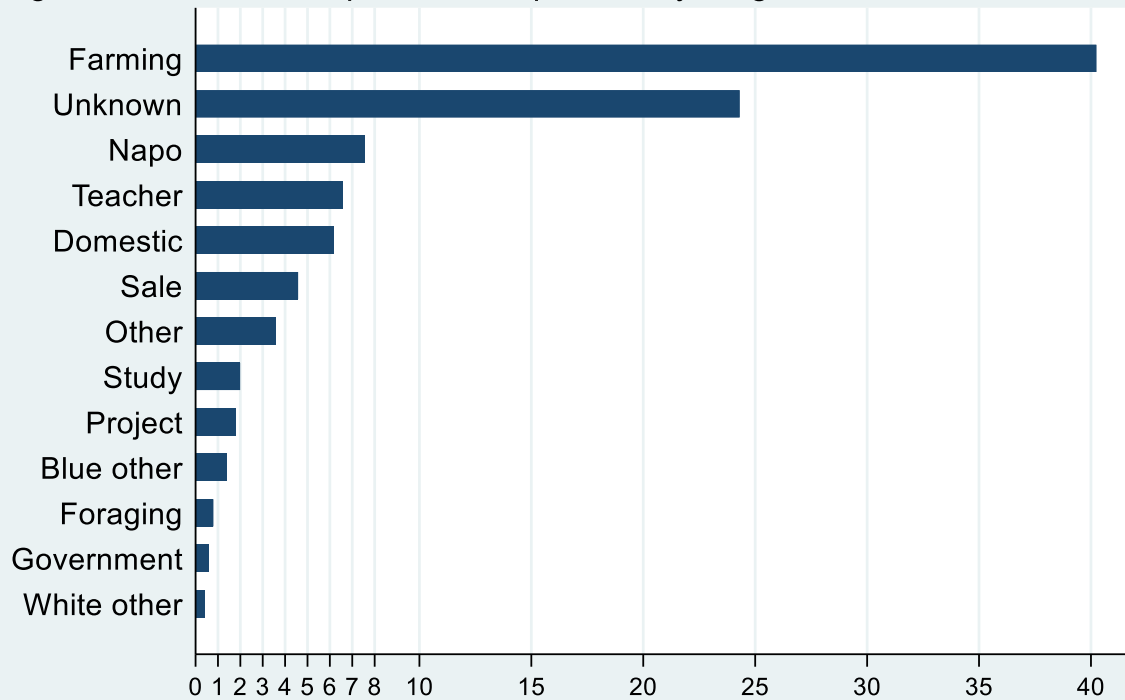
Data from TAPS and trial on inequality (2008), one record/person/year. Table 12.5 has sample size/year, total and percentage per category/year, and definition of Yes/No.

Fig. 12.17. Parents' general expectations for youngest child as an adult



Data from TAPS (2010) and trial on inequality (2008), one record for each parent. Table 12.7 has sample size/year, total and percentage per category/year, and definition of Modern and Traditional. X axis = %.

Fig. 12.18. Parents' expected occupation of youngest child as an adult



Data from TAPS (2010), one record for each parent (N = 502). The question was about the main source of income parents expected of their child. X axis = %. Chapter has examples of occupations in bins.

## Appendix A

### Queries and instructions surveyors used to obtain information about quality of life

This appendix has the questions posed to adults and the instructions followed by surveyors to garner answers about the topics of this chapter. Questions were directed at adults, generally Tsimane' 16 years of age or older, unless they headed a household. For each topic, I point to problems with the method of data collection.

<b>Causes of happiness and sadness</b>
<p><i>Instructions:</i> During each of five quarters from 9/2002 until 8/2003 surveyors asked adults in all the 13 village of the longitudinal study (TAPS) to list all the things that had made them happy or sad “this week.” The September and August start and end dates refer to when the modules on happiness took place; other modules during the five-quarter panel study had slightly different start and end dates. In the yearly survey of 2004, surveyors asked adults to list all the good and bad things they had experienced “in the past seven days.” Questions about happiness or good things came before questions about sadness. Answers were written and entered verbatim in the dataset.</p>
<p><i>Comments - General:</i></p> <p>[a] As noted in the chapter, the order of questions (asking about the causes of happiness or good things before asking about the causes of sadness or bad things) did not affect the range of answers, but changes in the wording of questions probably contributed to participants listing fewer reasons in 2004 than in 2002-2003.</p> <p>[b] A duplicate answer for the same person in the same survey I converted to a missing value. Thus, if a person mentioned receiving visitors as the first reason for having felt happy, but again mentioned visitors as the fourth reasons for having felt happy, I dropped one of the two observations. I did this to get a count of unique reasons for happiness or sadness for each individual.</p> <p>[c] In the original dataset for the quarterly study (2002-2003), the variable for the quarter of the year was inconsistent. I used the date variable to generate a new variable for calendrical quarter (e.g., 1 = January-March; 2 = April-June).</p> <p><i>Comments - happiness and sadness:</i></p> <p>[d] The dataset had many zeros, meaning nothing had made a villager happy or sad the past week. In the chapter I provide several explanations for this finding.</p> <p>[e] 6.5% of observations (~139/2114) in the quarterly study were not matched, meaning people reported answers in the module about quality of life, but not about causes of happiness or sadness in the module of emotions, or about the causes of happiness or sadness but not about quality of life. This arose from my inclusion criteria. A person had to be surveyed in the same year and month in both modules for the match to take place. If a villager was surveyed on different months in each module, a villager was considered unmatched. I dropped unmatched respondents even if they had complete information in both modules.</p>

### Quality of life

*Instructions:* In this chapter I used answers to most of the survey questions about quality of life: Food, clothing current health, visits, leisure time, availability of *chicha* in the village, and gossip. Four topics I did not include in the main analysis of the chapter. I did not feel compelled to bring fish or game consumption or the status of farm fields into the main analysis because the category Food that I discuss embraced the three topics. Cash holdings I put aside because I covered it when discussing earnings and purchases in chapters 7-8. There were also a few questions on emotions, like fear, anger, happiness, and sadness, which I did not include in this chapter since I discussed them in the previous one.

*Comments - General:*

[a] Questions were generally phrased in the same way across years, but there was one inconsistency with food satisfaction (see below).

[b] Quality of life module in the 2002-2003 quarterly study. I kept the quarters with the most observations: Q2 for 2002 (n = 656 subjects) and Q1 for 2003 (n = 573 subjects). Questions about health relative to a year ago and *chicha* drinking came from different modules, so for those two outcomes I kept the quarters with most observations for those outcomes, which are not necessarily the same as the quarters for the other dimensions of quality of life. For subjects who had been interviewed more than once in a quarter I kept the first interview and dropped the rest.

*Comments – Material dimensions:*

[c] Food. Most years we asked "how have you eaten in the past seven days?", but during 2002-2003 we asked "how have you eaten this week?"

[d] Health current. In 2010 questions about current health were included with slightly different codes in the survey modules on addiction and happiness. To facilitate comparison with other years, in this chapter I draw on answers from the 2010 module on happiness.

[e] Health change. [i] Except for the quarterly study of 2002-2003, the question was the same every year: "Are you in better health this year or last year?" In 2002-2003, we asked about health changes since the previous quarter. [ii] From the quarterly study of 2002-2003, I kept the quarters with most observations (Q2 for 2002 [n = 561 subjects] and Q4 for 2003 [n = 538 subjects]). [iii] The coding was the same in all but one year: 1 = better, 2 = same, 3 = worse. However, in 2004, the codes were: 1 = much better, 2 = a bit better, 3 = same, 4 = a bit worse, 5 = much worse. To make them comparable to answers from other years, I recoded answers from 2004 as follows: 1-2 → 1, 3 → 2, 4-5 → 3. [iv] The final dataset (n = 5,638) had 34 records with missing data, equivalent to 0.6% of all observations.

### Quality of life

#### *Comments – Social dimensions:*

[f] *Chicha* drink. The question came from a module on addiction, not the module on general quality of life. [i] The question and coding of answers did not change much. We asked "how many days in the past seven days did you drink fermented *chicha*." In 2002-2003 we did not mention "fermented", but the elision should not matter for we are interested in *chicha* consumption, whether fermented or not, as a sign of sociality. [ii] The same quarters and sample of subjects used to examine health changes mentioned above were used to examine *chicha* drinking. [iii] I rounded up observations for subjects who reported fractional days of *chicha* consumption. I rounded up to one day answers from 158 subjects (2.8%) who reported values less than one day, and I rounded up to two days answers from three subjects (0.5%) who said they had consumed *chicha* 1.5 days. [iv] I dropped eight subjects (0.14%) with missing values for *chicha* consumption.

[g] Trust. Information came from TAPS (2005), the trial on village income inequality (2008), and the trial on savings (2011-2012). [i] Questions varied over the years and were re-coded as a binary variable to indicate trust (1) or no trust (0). 2005: "Generally, do you think you can trust most people?" 2008 and 2011: "If you go to bathe in the river and leave your house open, do you think Tsimane' would steal from you?" 2012: "Are you afraid someone will steal your savings box?"; the question was asked only at the end-line survey among those who won a savings box in the randomized-controlled trial on savings of 2011-2012. [ii] Baseline (2008) data from the randomized-controlled trial on village income inequality had 25 records (1.6% of observations) with missing values; in some cases, the marginalia indicated the person was ill or did not answer.

#### *Comments – Psychological dimensions:*

[h] Gossip. The original question was "How often have Tsimane' gossiped about you in the past seven days." I recoded answers into a binary variable, equaled to one if the respondent had been the target of gossip and zero if not.

[i] Regret. We asked about regret in three ways. [i] In 2005 we asked an open-ended question about any regrets. The exact wording was: "What do you regret in life?" [ii] In 2006, 2011, and 2012 we asked adults to tell us all the durable assets (including livestock) they had acquired the past year through barter or purchase, and include the number and value of each good. For each item, we asked if they regretted the acquisition. Of the 11,882 records, I dropped subjects who had not acquired an asset (n = 464; 3.91%). After deleting these records, I also dropped records with missing data on regret (n = 38; 0.33%) or on quantity or value of the asset (n = 2; 0.02%). [iii] In 2006, 2011, and 2012 we asked whether villagers regretted having lent money and used two recall periods to elicit answers about lender's regret for all outstanding loans: Loans given in the past two months and loans older than two months. In 2006 we asked pointedly if subjects regretted having lent money. In 2011 and 2012 we didn't explicitly ask about regret; instead, we asked lenders if they would lend money again and assumed that if they said "no" they felt a morsel of regret.



<b>Quality of life</b>
<p>[j] Stress. In the survey we asked for the frequency subjects had experienced nine emotions in the past month (2006) or the past seven days (2008 RCT). There was only one question in common between the two surveys; the variable <i>Well</i> was defined as follows: “In the past [<i>recall period</i>] how often did you feel everything was going OK in your life?” I changed all questions about stress into binary variables, defined in the notes to Table 12.5. For most variables my change should not matter, but could when assessing the variable <i>Well</i> between 2006 and 2008 since the recall period differed. The variables <i>Nervous</i>, <i>Well</i>, and <i>Shortfall</i> had one, two, and three respondents who said “I don’t know.” I dropped them.</p>
<b>Expectations</b>
<p><i>Instructions:</i> The information comes from the 2010 survey of the longitudinal study. All questions capture answers from families with young children. The specific question was what each parent expected of their youngest child under 16 years of age when the child became an adult.</p>
<p><i>Comments general:</i> I relabeled three variables (<i>Curer</i>, <i>Drink</i>, <i>Language</i>), with one and zero for the modern (Western) and the traditional choice. For instance, the variable <i>Curer</i> = 1 if a respondent expected their offspring to see a physician and zero if they expected their offspring to consult a village healer. Missing observations in the dataset included parents who didn’t know or who had no children.</p>
<p><i>Comments specific:</i></p> <p>[a] Residence. In the 2010 survey we coded answers as 1, 2, and 3 for city, town, and village. I changed these into a binary variable, <i>Residence</i>, with 1 = city or town (Metropole) and 0 = village.</p> <p>[b] Education. We coded answers by the school grade mentioned (range 0 [no schooling expected] to 13, post high school). I recoded answers into groups commonly used in Bolivia at the time of the study to refer to school grades: Primary (grades 1-3), Intermediate (grades 4-6), Applied (grades 7-8), High school (9-12), and Higher (e.g., university, 13+).</p> <p>[b] Schooling. In the 2008 survey of the income inequality trial we asked parents if they would move to another village with a better school for their children. Unlike the questions in the 2010 survey of the longitudinal study, the question in the trial was not limited to parents with young children. I changed four records (0.3%) of villagers who said “I don’t know” (0.3%) to missing values.</p>

## Appendix B

### Textual answer by adults of reasons for being happy or sad the past week

This appendix documents the link between verbatim answers given by respondents and the categories I used to group answers. In the tables below, I list answers accounting for at least one percent of observations. Twenty-five and 24 unique answers accounted for at least one-percent of the reasons for being happy or sad.

*Happiness.* The dataset on happiness had a total of 2831 observations or textual reason; observations included repeats but exclude zeros, or “Nothing.” Of the total, 2390 observations (84.42% of total) accounted for at least one percent of all reasons for being happy.

Code	Activity (verbatim answer)	N	Percent	Category
102	Work well	216	7.6	Work
107	In company of family in household	207	7.3	Home
106	Good fish harvest	173	6.1	Food
134	Drink <i>chicha</i>	150	5.3	Social
105	Hunting by self or someone in household	150	5.3	Food
115	Good work in the fields	123	4.3	Work
124	Play soccer or do sports	107	3.8	Social
112	Visit towns	105	3.7	Social
108	Good food; there was food	103	3.6	Food
103	In company of non-household family members	96	3.4	Social
138	Village festivity	91	3.2	Social
137	Harvest or goods from the field	87	3.1	Food
117	Visit relatives	87	3.1	Social
129	Visit by relatives in the village	83	2.9	Social
100	Good health	73	2.6	Health
125	Visit by relatives living outside the village	68	2.4	Social
131	Fields produce well	68	2.4	Work
114	Eat meat	67	2.4	Food
141	Sell well	62	2.2	Market
113	Purchases	58	2.0	Market
110	Domestic animals	53	1.9	Home
147	Family has good health	47	1.7	Health
121	Listen to Church messages	46	1.6	Feelings
111	Eat fish	41	1.4	Food
167	Take a walk/a/	29	1.0	Social

*Sadness.* There were a total of 2379 observations in the dataset on the reasons for sadness (excluding zeros). Of these, 2000 observations (84.06% of total) accounted for at least one percent of all observations for having been sad the past week.

Code	Activity (verbatim answer)	N	Percent	Category
202	Own illness or accident	325	13.7	Health
207	Illness of someone in the household	278	11.7	Health
216	Lack of food, poor-quality food	270	11.3	Food
208	Insults, swears	213	9.0	Feelings
200	Lack of meat	79	3.3	Food
236	Death, illness, or loss of animals	69	2.9	Assets
214	Theft	67	2.8	Assets
240	Lack of money	65	2.7	Market
210	Lies	62	2.6	Feelings
206	Mad at non-household family members	56	2.4	Feelings
205	Poor weather	52	2.2	Other
220	Crop loss	51	2.1	Work
251	Poor quality of farm plots	50	2.1	Work
237	Bad dreams	47	2.0	Feelings
213	Drunkenness	42	1.8	Social
203	No hunting	38	1.6	Food
218	Mad at a household member	37	1.6	Feelings
222	No fish	36	1.5	Food
239	Bitten by wasp, sting ray, etc.	31	1.3	Health
204	Unable to work in the fields	29	1.2	Work
215	A household member left	29	1.2	Social
225	Accident in the family	25	1.1	Health
231	Visitors don't come	25	1.1	Social
238	Almost had an accident	24	1.0	Health

Notes:

*Code:* Original code in the dataset

*Activity:* The word-for-word textual answer given by respondent. I translated Spanish answers into English, keeping the translation as close to the Spanish as I could

*N:* Frequency of activity

*Percent:* N/2831 for happiness and N/2379 for sadness

*Category:* The category I used to group answers. These categories appear in the graphs.

/a/ The phrase “take a walk” does not capture the meaning of the Tsimane’ word *sóbaqui*, which stands for visiting, strolling, or taking a leisurely walk for pleasure.

### Appendix C

#### Predictors of regret at acquiring durable goods through purchase or barter in past year

The table shows ordinary least squares regression results of predictors of regret. The outcome =1 if a villager felt regret at acquiring the good, and zero otherwise.

<i>Predictors:</i>	<i>Definition:</i>	<i>Regret</i>
Female	Subject's sex; 1=female, 0=male	0.036*** (0.012)
Survey year (reference, 2006):	2011	-0.017 (0.016)
	2012	-0.051*** (0.016)
Durable (reference, tools):	Household	-0.026 (0.018)
	Transport	0.026 (0.029)
	Hygiene	0.010 (0.016)
	Kitchen	-0.015* (0.009)
	Luxuries	0.035*** (0.013)
	Livestock	-0.017 (0.037)
	Clothing	-0.001 (0.009)
	Unidentified	-0.012 (0.032)
	School supplies	0.069 (0.130)
Bought	Acquisition mode: 1=bought; 0 = barter	-0.171*** (0.052)
Total	Total # of goods obtained by subject/year	-0.006*** (0.002)
Constant		0.313*** (0.052)
Observations		11,378
R-squared		0.028

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Robust standard errors (in parenthesis) are clustered by a subject's acquisitions in a year.

## Appendix D

## Sex differences in psychological dimensions of quality of life

	MEN	WOMEN	Total
<b>Gossip</b>			
<i>Percent:</i>			
Never	60	58	59
At least once	40	42	41
Total	100	100	100
<i>N</i>	931	1,001	1,932
<b>Control</b>			
<i>Percent:</i>			
No	69	64	67
Yes	31	36	33
Total	100	100	100
<i>N</i>	342	337	679
<b>Problem</b>			
<i>Percent:</i>			
No	56	50	53
Yes	44	50	47
Total	100	100	100
<i>N</i>	342	337	679
<b>Well*</b>			
<i>Percent:</i>			
No	24	33	29
Yes	76	67	71
Total	100	100	100
<i>N</i>	995	1,042	2,037
<b>Embarrassed</b>			
<i>Percent:</i>			
No	75	73	74
Yes	25	27	26
Total	100	100	100
<i>N</i>	256	268	524
<b>Regret-general*</b>			
<i>Percent:</i>			
None	74	82	78
Yes	26	18	22
Total	100	100	100
<i>N</i>	256	268	524

	MEN	WOMEN	Total
<b>Envy</b>			
<i>Percent:</i>			
No	90	91	91
Yes	10	9	9
Total	100	100	100
<i>N</i>	653	707	1,360
<b>Nervous</b>			
<i>Percent:</i>			
No	56	56	56
Yes	44	44	44
Total	100	100	100
<i>N</i>	653	707	1,360
<b>Shortfall*</b>			
<i>Percent:</i>			
No	41	54	48
Yes	59	46	52
Total	100	100	100
<i>N</i>	650	703	1,353
<b>Sleep</b>			
<i>Percent:</i>			
No	51	54	53
Yes	49	46	47
Total	100	100	100
<i>N</i>	653	707	1,360
<b>Worried*</b>			
<i>Percent:</i>			
No	48	53	51
Yes	52	47	49
Total	100	100	100
<i>N</i>	653	707	1,360
<b>Regret-buyer*</b>			
<i>Percent:</i>			
No	92	88	91
Yes	8	12	9
Total	100	100	100
<i>N</i>	7,170	4,208	11,378

Asterisks show significant results at  $\leq 5\%$  level in chi-square test. See Table 12.5 for definition of variables.

## Appendix E

### Guide to tables and figures for Chapter 12

To replicate the tables and figures of this chapter follow two steps:

- Step #1. The do file that creates the clean dataset for each outcome has to run first. The seven main outcomes include: Aspirations, Chicha, Health, QOL (Quality of Life), Regret, Stress, and Trust. These do files start with the prefix *cr*. For instance, the do file *crAspirations\_V1* creates the dataset to analyze parental aspirations of their children. To create all seven clean datasets at once implement the do file *cr\_ALL\_Chapter\_12\_V1*.
- Step #2. The do files that analyze clean datasets from step #1 have to be run after the first step. The following four do files analyze data for different outcomes:
  - *anQOL\_SOME\_V1*
  - *anQOL\_MOST\_V1*
  - *anQOL\_CAUSES\_V1*
  - *anASPIRATIONS\_V1*

In the notes to all but four of the figures (12.1-12.3 and 12.18) I indicate in the figure the table from which it draws. For instance, Figure 12.15 rests on the statistics summarized in Table 12.5. To reproduce Figure 12.15, create a fresh Table 12.5 by running *crRegret\_V1* (to create the final dataset) and then *anQOL\_SOME\_V1* (to create the figure).

Output:		Do file that:		Created
Figure	Table	Creates data	Produces output	
12.1-12.3		Except for Figures 12.1-12.3, and 12.18 the notes to each figure indicate the table from which the figure draws.	anQOL CAUSES V1	In Stata
12.4-12.10			anQOL MOST V1	
12.11-12.12			anQOL SOME V1	
12.13			anQOL MOST V1	
12.14-12.16			anQOL SOME V1	
12.17-12.18			anASPIRATIONS V1	
	12.1			Manually
	12.2	crQOL V3	anQOL CAUSES V1	In Stata
	12.3	crHealth V1+ crQOL V3/a/	anQOL MOST V1	
	12.4	crQOL V3	anQOL MOST V1/b/	
		crChicha V1 + crTrust V1	anQOL SOME V1	
	12.5	crQOL V3 /c1/	anQOL MOST V1/c2/	
		crRegret V1 + crStress V1	anQOL SOME V1	
	12.6	crRegret V1	anQOL SOME V1	
	12.7	crAspirations V1	anASPIRATIONS V1	
Appendix B		crQOL V3	crQOL V3	
Appendix C		crRegret V1	anQOL SOME V1	
Appendix D		Same as Table 12.5	anQOL SOME V1	

/a/ Summary statistics for food, clothing, and current health are created in crQOL\_V3; summary statistics for health change are created in crHealth\_V1.

/b/ Most outcomes are analyzed in anQOL\_MOST\_V1, but statistics for *chicha* drink and trust are in do file anQOL\_SOME\_V1.

/c1/ The variable for gossip is created in crQOL\_V3; do file crRegret\_V1 creates all variables related to regret. The do file crStress\_V1 creates all the other psychological variables.

/c2/ Statistics and graphs for gossip are in do file anQOL\_MOST\_V1; summary statistics for regret and stress indicators are created in do file anQOL\_SOME\_V1.



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<sup>i</sup> I realize there are statistical techniques (e.g., factor analysis) for merging indicators of well-being measured in different units. I avoid those techniques because the results are hard to interpret for the general public.

<sup>ii</sup> Reyes-García (2012) recaps the exploratory studies done among Tsimane' to understand their views on well-being.

<sup>iii</sup> The closest one comes about the reasons for happiness are three records (0.08%) of respondents who said recovering stolen goods had made them happy, and seven records (0.18%) of people who said they were happy at having finished carving out (or owning) a dugout canoe.

<sup>iv</sup> A t-test comparing the mean difference between the total number of reasons mentioned for happiness versus sadness, 0.29, produced a t value of 7.88 ( $p = 0.001$ ;  $n = 993$ ). For the test, I excluded villagers who said nothing had made them happy or sad. Results can be found in the do file [anQOL\\_CAUSES\\_V1](#).

<sup>v</sup> An ordinary least squares regression with the total number of reasons for happiness or sadness as outcome variables and a binary variable for the survey year 2004 (year 2004 = 1; year 2003 = 0) showed that participants in 2004 listed 0.08 more reasons for feeling happy ( $p = 0.16$ ;  $n = 608$ ) and 0.02 more reasons for feeling sad ( $p = 0.66$ ;  $n = 516$ ) than in 2003. To make the comparison more valid, I limited the sample to surveys done between June and August (inclusive), to one yearly observation per person, and to villagers who mentioned at least one reason for feeling happy or sad. I dropped people who said nothing had made them happy or sad. The first two restrictions were necessary because the 2003 survey included several observations per respondent spread out over the year. Results can be found in the do file [anQOL\\_CAUSES\\_V1](#).

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<sup>vi</sup> I ran two ordinary least squares regressions with binary variables as outcomes. For happiness, the variable took the value of one if the respondent said nothing had made them happy, and zero for respondents who listed at least one reason for something that made them happy. I constructed the binary variable for sadness in the same way. As predictor I included a variable for the quarter of the year in which the survey took place, and used robust standard errors clustered by subject, with one observation per subject for each quarter. The regressions produced a coefficient for the variable quarter of 0.015 when using happiness as an outcome ( $t = 4.81$ ,  $p = 0.001$ ,  $n = 1642$ ) and 0.019 when using sadness as an outcome ( $t = 6.45$ ,  $p = 0.001$ ,  $n = 1641$ ). Results can be found in the do file [anQOL\\_CAUSES\\_V1](#).

<sup>vii</sup> I debated whether to include six additional figures akin to Figure 12.2 to show changes in responses by sex. I would have had to include three figures for women (one for each year) and three figures for men, also one for each year. I decided against it to save space, but the histograms and tabulations can be found searching for Figure 12.2 “addendum” in the do file [anQOL\\_CAUSES\\_V1](#). In addition, curious by the finding, I tested whether the reasons for happiness changed across quarters during 2002-2003 and found that they did not over such a short time. Sociality, work, and food typically ranked among the top three reasons while health and market interactions came at the bottom. This analysis too can be found in the do file mentioned in this note.

<sup>viii</sup> The do file [anQOL\\_CAUSES\\_V1](#) has the analysis of the reasons for sadness, broken down by year and quarter.

<sup>ix</sup> In analysis still in progress as of the time of this writing ([September 2021](#)), we find that the randomized-controlled trial on savings (2011-2012) did not have a statistically significant impact on the purchase or barter of durable physical assets after adjustments for false positives, so I include regret data from the end-line survey in this chapter. See discussion about criteria of when to include end-line survey data from the randomized controlled trials in the section “Data: General” of [Chapter 11](#).

<sup>x</sup> Some of the questions came from the psychological literature on stress (Godoy et al., 2010).

<sup>xi</sup> I thank Tomás Huanca for clarifying and providing an example of the Tsimane’ word *otejyeban* and for information on how long it takes to weave a *marico*. According to Huanca, the time to make a bag varies by bag size and yarn type. If a woman gathers wild cotton, spins the fiber, and dyes the thread to make a one-*arroba* bag to carry about 11 kg, we are talking two months of work, shorter if they use commercial yarn.

<sup>xii</sup> I assessed Chronbach’s alpha for the variables *Well*, *Control*, and *Problem* in 2006 and the variables measured in 2008. I split the variables into two groups because all but one of the variables in 2006 were measured in 2008. As expected, the variables bore a positive correlation with each other, but not strong enough to merit abridging to one measure for 2006 and another one for 2008. Chronbach’s alpha for the 2006 and 2008 variables were 0.46 and 0.65, below the threshold of 0.80 commonly used to decide whether to compress variables into an index. The do file [anQOL\\_MOST\\_V1](#) computes the alphas for the two sets of variables.

<sup>xiii</sup> The do file [anQOL\\_MOST\\_V1](#) has the Stata codes that produced the results.

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<sup>xiv</sup> The yearly change comes from an ordinary least squares regression of a binary variable for a respondent's yearly *chicha* consumption the past week (Yes = 1; No = 0) and the following predictors: Gender, survey year, binary variables for the two randomized controlled trials (with the longitudinal study used as the reference category). I used robust standard errors and clustering by year. The t and p values for the year variable were  $t = 2.56$ ,  $p = 0.029$  ( $n = 8,308$ ).

<sup>xv</sup> The do file [anQOL\\_MOST\\_V1](#) has the Stata codes that compare women and men in visits received, leisure time available, and perceptions of *chicha* availability in the village. The do file [anQOL\\_SOME\\_V1](#) compares the sexes in *chicha* drinking and trust.

<sup>xvi</sup> Some of the remarks about gossip come from the book by Dean and Elaine Kempf (2017, pp. 85, 87-88, 205).

<sup>xvii</sup> Two other results of Appendix C need a comment. First, acquiring a good through barter was 17 percentage points less likely to engender remorse than buying a good. Tsimane' typically buy goods in town stores. In this setting, buyer's rue depends on a store's return policy and the roundtrip cost back to the store to make a case. Barter is more informal, often done with another villager, often a kin. If you get it wrong, you can fix it easily by strolling over and renegotiating the swap. Second, the more items a villager came to acquire, the slimmer the chances they felt remorse. For an additional dozen articles fetched, the chances of acknowledging regret declined by six percentage points. A possible explanation: If transaction volume mirrors affluence, the estimate is saying the rich can go light on themselves after a bad acquisition because they have the means to remedy today's poor choice tomorrow.

<sup>xviii</sup> Table 7.17 of [Chapter 7](#) shows that around a quarter of earnings from sales came from forest goods, which included major commodities like timber and thatch palm. Fish, game meat, honey, and other non-timber forest goods accounted for the rest.

<sup>xix</sup> The results of the ordinary least squares regressions and cross tabulations can be found in the do file [anASPIRATIONS\\_V1](#).

<sup>xx</sup> The do file [anQOL\\_MOST\\_V1](#) produced the statistics on perceptions of plot quality.

<sup>xxi</sup> The difference was estimated from an ordinary least squares regression with a binary outcome variable for whether the person was bed-ridden during the interview, robust standard errors clustered by a household-year identification number, and one record per person in a year. The sample includes children and adults from the longitudinal study (TAPS, 2002-2010) and the baseline (2008) of the randomized-controlled trial on village income inequality. The do file [anQOL\\_MOST\\_V1](#) produced the estimates reported.

<sup>xxii</sup> Tsimane' has no word for thank you. They borrowed the Spanish mouthful, "Let God repay you", often mumbled in low voice after receiving a good. If you subscribe to the school "no word, no concept", you would conclude Tsimane' struggle to articulate gratitude, which doesn't mean they are not grateful; they might show gratitude by exchanging favors or by using other linguistic constructions.

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<sup>xxiii</sup> One wonders how much missionaries influenced (or perhaps even wrote) what Añez said. Note the phrase “their only defense is to flee” appears in the account by Kempf and Añez.

<sup>xxiv</sup> The positive association between schooling and patience we document in the article by Reyes-García et al. (2007), “The origins of monetary income inequality: Patience, human capital, division of labor.” *Evolution and Human Behavior* 28:1:37-47. In it we explain why patient people might seek more schooling and why more schooling could encourage patience. What has yet to be done is examine how parental patience influences parental hopes for their children.

<sup>xxv</sup> Dean and Elaine Kempf provide many examples of how they used modern medicines to cure patients who came to them for treatment when missionaries arrived in villages, or for patients who came to the missionaries’ headquarters in the outskirts of the town of San Borja (Kempf & Kempf, 2017, pp. 21, 58, 101, 137, 139, 152) .