SOEP-IS 2014 – Too Optimistic? Measurement of Self-Evaluation and Overconfidence in Different Life Domains

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SOEP-IS 2014 – Too Optimistic? Measurement of Self-Evaluation and Overconfidence in Different Life Domains

Module Title in SOEP Documentation: Self-Evaluation and Overconfidence in Different Life Domains

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Proposal for Inclusion of Questions in SOEP-IS

Too Optimistic? Measurement of Self-Evaluation and Overconfidence in Different Life Domains

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1 The Research Questions

Many decisions in the workplace and in daily life involve a judgment of skills relative to others: how well can I perform in the labor market? What are my chances of promotion? Am I good enough to make it through medical school? Can I outsmart this person? Forming accurate judgments over one's relative ability is key to making the right decisions to, e.g., enter a market, compete for a promotion or make a bold educational choice.

Yet, dozens of studies show that individuals overestimate their abilities relative to others: Early studies found that virtually all drivers consider themselves above-average drivers (e.g. Svenson, 1981).[1] When asked to rank themselves compared to the population, almost everyone thinks that their performance is in the top 50%, and much more than 10% are in the top 10%. While many earlier studies were plagued with methodological problems (as discussed in Benoît and Dubra, 2011), recent papers have overcome these problems (Merkle and Weber, 2011; Burks et al., forthcoming). Individuals exhibit strong overconfidence relative to their true abilities, and in a wide variety of settings (Merkle and Weber, 2011; Hoffrage, 2004; Burks et al., forthcoming).[2]

These overconfident beliefs have been shown to matter: Empirical studies have shown that overconfident CEOs are more likely to take on mergers, and rely more strongly on internal sources of financing (Malmendier and Tate, 2005, 2008). Overconfident investors hurt themselves by trading too much (Barber and Odean, 2001). In experimental settings, it has also been shown that individuals who are overconfident enter competitions too often, in the end hurting themselves (Camerer and Lovallo, 1999). We are currently working on a paper on the effects of overconfidence in one's health on preventive behavior using the BASE-II data, and find that overconfident beliefs are associated with many risky health behaviors (Arni et al., 2013). There is also emerging evidence from small-sample surveys that overconfidence matters in labor-market settings (Spinnewijn, 2010; Arni, 2011).

The empirical phenomenon of overconfidence has thus been well documented, but only in cross-sectional snapshots. Its root causes and development are poorly understood. Explanations based on the rational model have been proposed (Benoît and Dubra, 2011), but the evidence overwhelmingly rejects them (Merkle and Weber, 2011; Burks et al., forthcoming). The emerging evidence indicates that overconfidence is related to image motivation (Bénabou and Tirole, 2002) and that the mechanism is most likely individuals' desire to impress a positive image on others (Charness et al., 2011; Proeger and Meub, 2013; Goette et al., 2013; Burks et al., forthcoming), as opposed to managing a favorable self-image (Kőszegi, 2006; Weinberg, 2006).

The research topic of overconfidence thus draws strong attention at this time. Yet while these constitute first steps towards understanding the mechanisms and implications of overconfidence, key questions remain unanswered that we aim to address with our proposed SOEP-IS project:

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[1] This tendency seems to be so pervasive that even drivers who are currently hospitalized because of a traffic accident think of themselves as above-average drivers (Preston and Harris, 1965).

[2] In this project, we are mainly interested in overly optimistic judgments about one's abilities. There is a separate literature showing that individuals set confidence intervals too narrow on guesses they have to take (Hoffrage, 2004). The two concepts are potentially related, as the second can be interpreted as individuals believing that the information on which they act is better than it actually is.

(1) The pervasiveness and representativeness of overconfidence: Little is known about the pervasiveness of overconfidence in the population and across different life domains. We will address this issue by asking individuals to rate themselves with respect to their

- Household income

- Satisfaction with life

- Health

- Labor market success

using a simple format that has previously been shown to work well in the general population and each takes less than one minute to ask. The SOEP is particularly interesting in this context, as it is a representative sample with rich demographic variables that allow us to examine overconfidence in various groups.[3] A key feature of the SOEP are the Big-Five personality traits measured in the SOEP. Current research relates these traits to overconfidence, and this allows allow us to test empirical implications of different models of overconfidence. For instance, the social-signaling model predicts that extraversion should be positively related to overconfidence, while neuroticism should be negatively related to it (Charness et al., 2011; Goette et al., 2013; Burks et al., forthcoming).

Much like with earlier modules that exploited the advantages of the SOEP (e.g., risk aversion, as in Dohmen et al., 2011), we believe that a top-tier publication will be possible on overconfidence, exploiting these advantages of the SOEP for the question of overconfidence.

(2) The dynamics of overconfident beliefs. Models of self-image or social signaling have only been recently introduced to the literature, and have only been tested cross-sectionally. Yet, they also have strong implications with respect to how individuals should process new information and update their beliefs. Understanding how self-confidence evolves is key to understanding the phenomenon and its implications. In this project, we propose to introduce overconfidence questions into three waves of the SOEP and fully exploit its panel structure. This will, for the first time, allow us to test directly how, e.g., changes in income, job status, health status or family status affect confidence judgments. The different models make specific predictions as to how individuals should respond to the arrival of new information, and how the updating depends on their personality traits. This can be tested by exploiting the panel structure the SOEP offers, the Big-Five personality traits, and the questions we propose to add.

Addressing this question will be the key next leap in this literature, and guarantees a high impact in the field. Previous behavioral modules like this one from the SOEP-IS have proven to have high impact (as in, eg., Dohmen et al., 2010, 2012), and we expect no less from our proposed research design.

(3) The behavioral implications of overconfidence. Economic models that incorporate overconfident beliefs make a range of testable predictions for a wide range of behaviors, few of

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[3]For instance, overconfidence is much more pervasive in men than in women (Hoffrage, 2004).

which have been addressed. The SOEP provides us with rich measures of behaviors. It allows us to examine how overconfidence affects job search and job switching, financial planning and savings, as well as political attitudes. The rich data collected in the SOEP will allow us to distinguish differences in confidence from differences in personality traits and other confounding variables and provide us with new ways of testing the behavioral implications of overconfidence.

We are, in particular, interested in the connection between self-confidence and labor market outcomes, and one's perceived position in the income distribution and political attitudes. Both topics have not been addressed empirically, and we believe that good publications are possible in both.

Addressing these issues is important for several reasons. First, surveying overconfidence as part of the SOEP would provide new insights into the pervasiveness and representativeness of over-confidence, thus giving researchers and policy makers a better sense of the empirical relevance of this phenomenon and its behavioral implications. Second, surveying overconfidence would allow the scientific community to better understand the psychological mechanisms behind an important behavioral phenomenon. Understanding the psychological mechanisms is important because different mechanisms have different consequences for behavior and, finally, for welfare of the individuals. Knowledge about these mechanisms provides the base for the design of specific and targeted policy interventions (in the labor market, workplace, in health prevention etc.).

2 Strengths of Proposal and Suitability for SOEP-IS

Our proposed project promotes the objectives of the SOEP-IS in several ways. First of all, as discussed above, the proposal contributes to research questions that attracts a lot of attention across different disciplines. The three papers that we sketched in Section 1 have a very high potential for publication, thus promoting the SOEP-IS as an important source of progress in the social sciences.

Second, the curricula of the research team demonstrate their specific qualifications on this topic and their research drive. Dr. Goette is full professor in Lausanne (Switzerland) and one of the world leading experts in the field of behavioral and experimental economics. His work on overconfidence has been published in the *Review of Economic Studies*. Dr. Arni is research associate at IZA Bonn (Germany) and an expert in the evaluation of labor market policies. His expertise is in labor economics and Dr. Ziebarth is Assistant Professor in the interdisciplinary Department of Policy Analysis and Management (PAM) at Cornell University in Ithaca (USA). He is an empirical health economist. The international and interdisciplinary dimension is clearly given.

Third, the confidence measures are easy to incorporate into SOEP-IS. They are methodologically clean, have no ethical issues involved. Our previous work shows that these questions can be asked without problem, even in sensitive samples such as BASE II (Arni et al., 2013). Also, CAPI collection has been shown to be easy and efficient for these questions. This feasibility is a strong

asset of our proposal. Below, we describe in more detail the outcome of pre-tests and how we intend to measure overconfidence in the context of SOEP-IS.

In times of an increasing availability of household panel data, the SOEP has the unique opportunity to be the first panel worldwide to incorporate methodologically clean and easy-to-survey measure of self-confidence. The inclusion of our measures proposed would become a strong comparative advantage of the SOEP in a competitive field in the upcoming years, complementing its other behavioral-economics modules on risk aversion, patience and social preferences, positioning the SOEP as the world leader in this area. It will attract more and new SOEP users from various disciplines and stimulate more research and progress in policy.

3 Mode of Data Collection, Length of Interview, Sample Size, Sample Composition, Repetition

3.1 Pre-Test 2013: Measuring Overconfidence in BASE II

Questions Asked, Missings, and Descriptives

To prove the feasbility aspect, and as demanded by the SOEP-IS committee, we conducted a pre-test using BASE II. The following questions to measure overconfidence in the health domain were incorporated and surveyed in BASE II in 2013 (Arni et al., 2013), and a web-based version of the questionnaire in the Amphiro study (Tiefenbeck et al., 2013).

In the BASE II survey, we inserted the following questions:

Now we are interested how you would assess your health relative to others

Question: "Imagine one would randomly select 100 people in your age, what do you think:

(a) how many of those 100 people would be in better health than you?"
Answer: ... [value between 0 and 100]

(b) how many of those 100 people would have a higher blood pressure than you?"
Answer: ... [value between 0 and 100]

Similarly, we asked the individuals in the Amphiro study their confidence with regard to their income position, their water use, and their knowledge of energy conservations, using the same format (Tiefenbeck et al., 2013).

Our measure has the advantage that, under full rationality and common priors, the distribution should be uniform between zero and 100, and thus also have a mean of 50 (Goette et al., 2013). This avoids many of the methodological criticisms of earlier studies (Benoît and Dubra, 2011).

Figures 1a and 1b show the distribution of the responses from the BASE II survey. First of all, it is worthwhile to note that almost every respondent—note that BASE II is a representative

sample of elderly residents in Berlin—provided a response. The non-response rate is remarkably low. Ten respondents (0.47%) are coded with "don't know" and 129 respondents (6.12%) are coded with "does not apply." In total, 1,969 out of 2,108 BASE II respondents provided valid answers to the questions asked.

Second, Figure 1a displays a left-skewed distribution. Very few people provided values of more than 50. Since, by construction, half of all answers should be larger than 50 in the absence of overconfidence, this yields strong evidence for the existence of overconfidence in the domain of health. Note that, to our knowledge, this phenomenon has not been discussed before in the literature.

Figure 1: Distribution of Relative Beliefs in BASE II

a) Confidence in general health status
Source: Arni et al. (2013)

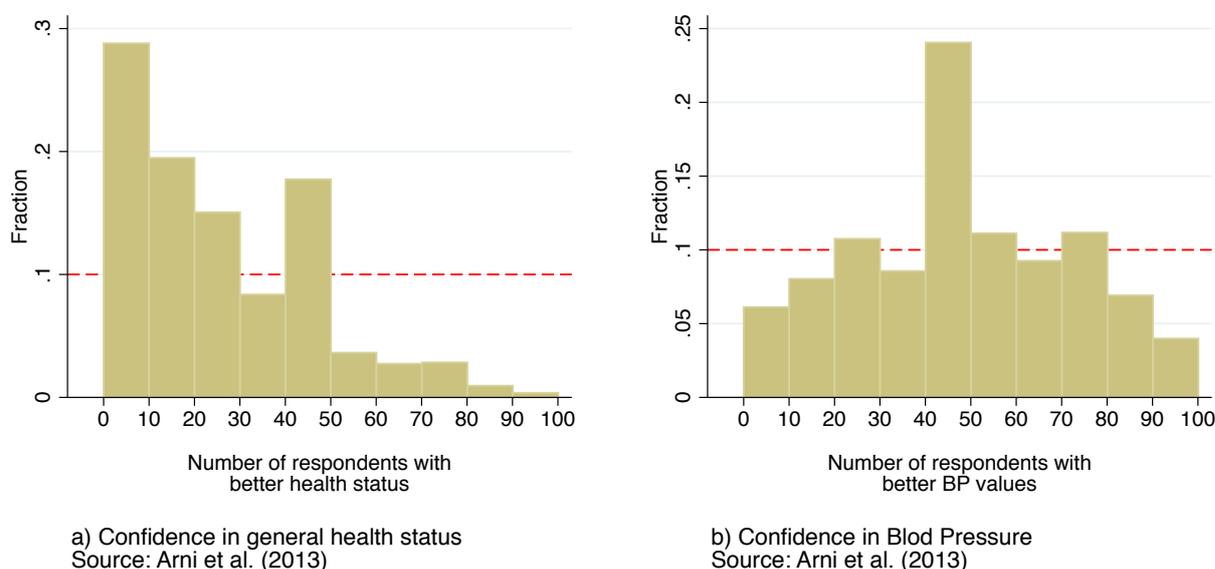b) Confidence in Blod Pressure
Source: Arni et al. (2013)

Figure 2a to 2c display the measurements from the Amphiro study. Again, the study worked flawlessly, and the response rate was 99% among the 698 respondents. The histograms again display the classic features of overconfidence: too few individuals place themselves in the bottom half of the distribution (at most 25% in Panels a to c), and too many place themselves at the top end of the distribution, or close to the middle.

3.2   Mode of Data Collection, Length of Interview

Computer assisted personal interviews (CAPI) are perfectly suited for surveying our measures. The experience with BASE II has shown that it does not pose any problems.

We also conducted some pre-tests with research assistants in order to assess the time required for our questions. In CAPI mode, students needed about 40 seconds to read and understand the very first question. Since the structure and content of the follow-up questions is almost identical, the time to answer decreased by 50 percent for all remaining questions. Hence, we calculate that surveying all questions proposed would take about 3 minutes.

Figure 2: Distribution of Relative Beliefs in Amphiro Study
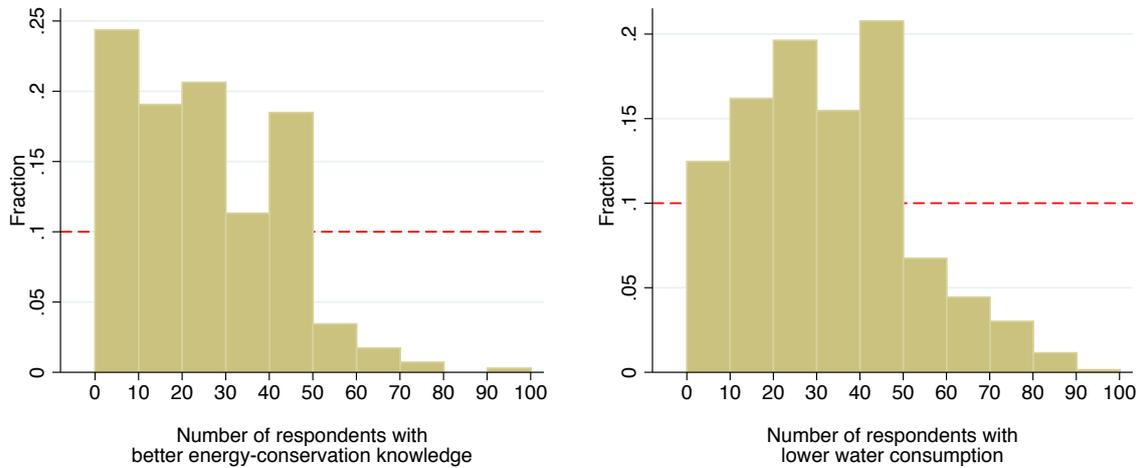
a) Confidence in energy-conservation knowledge
Source: Tiefenbeck et al. (2013)

b) Confidence in energy conservation
Source: Tiefenbeck et al. (2013)
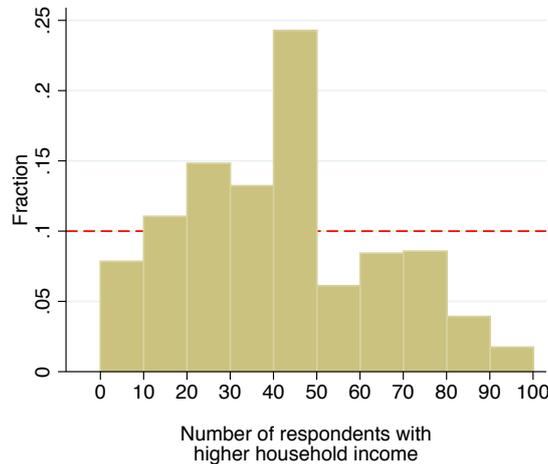
c) Confidence in household income position
Source: Tiefenbeck et al. (2013)

3.3 Repetition, Sample Size, Sample Composition

A key component of our project is to exploit the longitudinal character of the SOEP. We suggest to ask the questions for the first time in 2014 and to conduct a follow-up survey in the two following years 2015 and 2016.

As shown in Table 1 of Richter and Schupp (2012), the SOEP-IS supplementary samples consist of an estimated 1,720 households in 2013. Samples E and I consist of 1,180 households. When we apply the same attrition rates for the different subsamples as Richter and Schupp (2012)—even slightly more conservative—our back-of-the envelope calculations suggest the following *household sample sizes* for the first interviews:

Sample E:

- 2014: 415

- 2015: 400

- 2016: 380

Sample I:

- 2014: 630

- 2015: 510

- 2016: 410

Consequently, in 2016, we would have about 380 long-term SOEP households with life course information that date back to 1998 as well as 410 households that were first interviewed in 2009. Since personality traits were surveyed in SOEP core in 2005 and 2009, i.e., every 4 years, we could assess the interaction of personality traits and over- as well as underconfidence for about 1,500 individuals.

Assuming that roughly one third of those respondents are full-time employees and have labor market histories, 500 respondents would remain for thorough analyses of the interaction between personality, confidence, and labor market outcomes. As can be inferred from the Appendix, domain #4 (Labor Market) requires (full-time) employment and (individual) income. A sample of 500 people can be considered the lower bound for sound empirical labor market analyses, which is why we definitely need to survey Samples E and I. We would be happy to rely on additional short-term information of the supplementary samples.

For the supplementary samples, we apply the following attrition rates and thus obtain the following *household sample sizes*:

Supplementary Sample 2012:

- 2014: 500

- 2015: 350

- 2016: 240

Supplementary Sample 2013:

- 2014: 720

- 2015: 500

- 2016: 340

In 2016, this would yield about 240 and 340 households, respectively. Hence, in total and for domains #2 (Household Income), #2 (Life Satisfaction), and #3 (Health), we would be able to

analyze longitudinal information for almost 3,000 respondents. This seems to be a sufficiently large sample size. On the other hand, one has to consider that important life events that may impact over- or underconfidence in general or in specific domains only happen rarely.

In 2011, according to SOEPinfo, about 1.6 percent of all respondents married in the calendar years of the interview and prior to the interview. About 2.3 percent became parents; the same share of people broke up with their partners or were divorced from their spouses. In 3.5 percent of all cases, a close relative (father, mother) or a household member (partner, child) died. With 3,000 respondents, these figures translate into about 50 observations with marriage, 70 for kids born or separation, and 100 for death of a household member. Hence, we believe that the well-being and health questions should be surveyed in all four subsamples.

4 Scientific Expertise of the Researchers

Lorenz Goette is full professor at the faculté des hautes études commerciales at the Université de Lausanne since August 2009, and head of the department of economics since August 2011. He has obtained his doctorate at the university of Zurich in 2001, and has previously held positions at the university of Geneva, the Federal Reserve Bank of Boston, and the university of Zurich. His research is in applied microeconomics and behavioral economics. One of Goette's research interests is the role of reference-dependent preferences in economic behavior (Fehr and Goette, 2007; Abeler et al., 2011; Fehr and Goette, 2005). Goette has done extensive research on the role of group membership for social and anti-social behavior (Goette et al., 2006, 2012b,a) and on its neural substrates (Baumgartner et al., 2012). A third area of research is on the role of cognitive abilities in economic choice (Burks et al., 2009). His most recent research explores the phenomenon of overconfidence (Burks et al., forthcoming).

Nicolas Ziebarth is an Assistant Professor in the Department for Policy Analysis and Management at Cornell University. Before coming to Cornell, Professor Ziebarth worked as a research associate at the German Institute for Economic Research (DIW Berlin). He holds a PhD in Economics from the Berlin University of Technology (TU Berlin), where he graduated in 2011. Dr. Ziebarth's PhD thesis deals with "Sickness Absence and Economic Incentives" and was supervised by Prof. Gert G. Wagner. It has been awarded the Upjohn Institute Dissertation Award 2011.

Nicolas Ziebarth's research is in the field of applied health and labor economics. In one of his research fields, he analyzes the interaction of social security systems with labor markets and population health (Ziebarth and Karlsson, 2010, 2014). A second focus of his work is the driving forces and implications of health-related behavior (Ziebarth and Grabka, 2009; Ziebarth, 2010). Recently, Ziebarth has studied the intersection between behavioral and health economics (Schmitz and Ziebarth, 2013).

Patrick Arni is research associate and deputy program director of program evaluation at the IZA - Institute for the Study of Labor. He obtained his PhD at the Université de Lausanne in 2011. Arni has conducted a field experiment (on coaching of job seekers) in the Swiss Unemployment

Insurance which provided some first survey evidence that job seekers, and caseworkers, are too optimistic when assessing the chances of success of job applications (Arni, 2011). In an ongoing 3-year-project, mandated by the Swiss State Secretariat of Economic Affairs (Seco), he analyzes the role of beliefs for job seekers' behavior, for the decisions of caseworkers, and for the effects of labor market policy. The project involves theoretical and empirical work as well as a field experiment (on the beliefs of caseworkers). He has extensive experience in working with register and survey data, and combinations of both, in particular in the field of labor economics.

Full CVs of the three applicants are included in the appendix.

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Appendix

List of Proposed Survey Questions

Proposed survey questions (in English) to include in SOEP-IS:

1. **Household Income**

   (a) *Everybody:* Imagine one would randomly select 100 German residents in your age, what do you think: how many of those 100 people would have a higher net household income than you?

2. **Life Satisfaction**

   (a) *Everybody:* Imagine one would randomly select 100 German residents in your age, what do you think: how many of those 100 people would have a higher life satisfaction than you?

   (b) *Everybody:* And what do you think: how many of those 100 people would have a higher life satisfaction than you in one year?

3. **Health**

   (a) *Everybody:* Imagine one would randomly select 100 German residents in your age, what do you think: how many of those 100 people would be in better health than you?

   (b) *Everybody:* And what do you think: how many of those 100 people would be in better health than you in one year?

4. **Labor Market**

   (a) *Only full-time employed:* Imagine one would randomly select 100 German residents in your age in the same profession, what do you think: how many of those 100 people would have a higher monthly gross wage than you?

   (b) *Only full-time employed:* And what do you think: how many of those 100 people would have a higher monthly gross wage than you in one year?

   (c) *Everybody* Imagine you would be looking for a new job. If one would randomly select 100 German residents in your age with the same education, what do you think: how many of those 100 people would find a new job faster than you?

Proposed survey questions (in German) to include in SOEP-IS:

1. **Haushaltseinkommen**

   (a) *Von allen:* Wenn man 100 Bundesbürger ihres Alters zufällig aussuchen würde, was meinen Sie: wie viele dieser 100 Leute hätten ein höheres Haushaltsnettoeinkommen als Sie?

   (b) *Von allen:* Wenn man 100 Bundesbürger ihres Alters zufällig aussuchen würde, was meinen Sie: wie viele dieser 100 Leute hätten IN EINEM JAHR ein höheres Haushaltsnettoeinkommen als Sie?

2. **Lebenszufriedenheit**

   (a) *Von allen:* Wenn man 100 Bundesbürger ihres Alters zufällig aussuchen würde, was meinen Sie: wie viele dieser 100 Leute wären zufriedener als Sie?

   (b) *Von allen:* Und was denken Sie: wie viele dieser 100 Leute wären IN EINEM JAHR zufriedener als Sie?

3. **Gesundheitszustand**

   (a) *Von allen:* Wenn man 100 Bundesbürger ihres Alters zufällig aussuchen würde, was meinen Sie: wie viele dieser 100 Leute hätten einen besseren Gesundheitszustand als Sie?

   (b) *Von allen:* Und was denken Sie: wie viele dieser 100 Leute wären IN EINEM JAHR in einem besseren Gesundheitszustand als Sie?

4. **Arbeitsmarkt**

   (a) *Nur Vollzeiterwerbstätige:* Wenn man 100 Bundesbürger in Deutschland in ihrem Alter mit demselben Beruf zufällig aussuchen würde, was meinen Sie: wie viele dieser 100 Leute hätten einen höheres Bruttomonatslohn als Sie?

   (b) *Nur Vollzeiterwerbstätige:* Und was denken Sie: wie viele dieser 100 Leute hätten IN EINEM JAHR einen höheren Bruttomonatslohn als Sie?

   (c) *Alle:* Stellen Sie sich vor, Sie würden momentan eine neue Arbeitsstelle suchen. Wenn man 100 stellensuchende Bundesbürger in ihrem Alter und mit ihrer Ausbildung zufällig aussuchen würde, was meinen Sie: wie viele dieser 100 Leute würden schneller eine neue Stelle finden als Sie?