Essays on Labor Market Dynamics Using the Survey of Income and Living Conditions

by

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Signature	Name

To all workers who sell their labor power all around the world

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ABSTRACT

Essays on Labor Market Dynamics Using the Survey of Income and Living Conditions
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This dissertation is composed of two chapters on labor market dynamics based on the Survey of Income and Living Conditions (SILC) conducted by the Turkish Statistical Institute (TURKSTAT), the only publicly available household level panel data in Türkiye. SILC is collected across Europe under the supervision of European Statistical Institute (EUROSTAT). It offers a wide range of information on households and individual members, such as demographic characteristics, labor market status, income, asset ownership and living conditions by following households and household members for up to four years. EUROSTAT also supervises and coordinates a second effort that started earlier, known as Labor Force Surveys. Since the short panel component of the Household Labor Force Survey (HLFS), the main data source for labor market analysis in Türkiye, is not publicly available, T-SILC stands as a good candidate for studying labor market dynamics.

Increased availability of panel data has exposed the vulnerability of surveys to non-response. Attrition, non-response after an initial response, and reverse attrition, response after an earlier non-response, are examples of missing data problems that loom large. The potential selectivity in exits and reentry can compromise inferences on dynamics that can be drawn from panel data. In Chapter 1, we examine household attrition patterns in T-SILC. Using data from the 2006-15 period, we document that 15.5 percent of households in the sample frame of T-SILC attritted, and an additional 4.15 percent reverse attritted before completing the rotation plan. TURKSTAT keeps track of non-response and uses weights that depend on age, gender, a narrow region/location designation and household size, to render the balanced panel representative. This approach would work if attrition is random conditional on the observables used in weighting. Yet we find that the likelihood of

attrition conditional on observables is influenced by the labor market status of the household head. Households with heads who were unemployed (employed) in the period before attrition are more (less) likely to attrit compared to non-participants. The 19.6 percent combined attrition rate plus our finding that non-response has a statistically significant link with the labor market status of the household head exacerbates concerns that attrition in T-SILC can result in biased inferences while studying labor market dynamics. Other outcomes that can be affected are income inequality, poverty or deprivation status, and even living conditions of households that are intimately connected with the employment status of the household head.

In Chapter 2, we investigate the suitability of T-SILC for studying labor market dynamics. Since Chapter 1 documents that the probability of attrition is non-ignorable with respect to the labor market status of the household head, attrition stands as a major threat. We side-track the attrition problem by using fresh subsamples which rely on first and second round information only. Although T-SILC has other shortcomings such as the gap between the reference periods of earnings and detailed labor market information, lack of public/private distinction and tenure information at the current job, it has the potential to shed light on labor market dynamics. Our assessment of the suitability of T-SILC for studying labor market dynamics is based on three connected investigations, which can be seen as the initial steps of separate substantive analyses. Using data from the 2006-17 period, firstly we study the annual transition patterns obtained from T-SILC over a broad set of labor market states: full-time (FT) and part-time (PT) formal and informal wage and salary employment (WS), non-WS employment, unemployment, and non-participation. Use of a rich state space enhances our ability to evaluate the adequacy of T-SILC in reflecting what goes on in the labor market. In light of our finding that non-response is a significant concern, we include attrition (reverse attrition) as a terminal (origin) state in our forward (backward) transition analyses. We show that state dependence is the dominant pattern, except for unemployed individuals. Nearly half of the FT informal WS workers change their status one year later. Annual transition rates to attrition are sizeable, particularly from unemployment. Secondly, we test whether the transition rates show the footprints of economic shocks that Türkiye experienced during the period under investigation: the 2008-09 global crisis and the extraordinary minimum wage hike that took place at the beginning of 2016. We compare our findings with those obtained from HLFS to see how well T-SILC fares. Test results

reveal that transition rates estimated on T-SILC are sensitive to both shocks. Our rich state space designation allows us to evaluate the patterns and mechanisms that lead to changes in the transition rates. Lastly, we assess the suitability of T-SILC for studying labor market turnover via commonly used measures, including hiring, job separation, and job-to-job transition rates. Our results are broadly inline with the findings of studies that use HLFS. We conclude that T-SILC is a promising data source for deepening the investigations of the dynamics we explored.

ÖZETÇE

Gelir ve Yaşam Koşulları Anketi Kullanılarak İşgücü Piyasası Dinamikleri Üzerine Makaleler
Esra Öztürk
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Bu tez, Gelir ve Yaşam Koşulları Anketi (GYKA) kullanılarak Türkiye'de işgücü piyasası dinamikleri üzerine hazırlanmış iki bölümden oluşmaktadır. Avrupa İstatistik Enstitüsü, 2003 yılında gelir, yoksulluk ve sosyal dışlanma konularında karşılaştırılabilir ve güncel veri sağlamak üzere GYKA anketini uygulamaya başlamıştır. 2016 yılı itibariyle bu veri seti Avrupa Birliği üyesi olan ve olmayan toplam 36 Avrupa ülkesinde toplanmaktadır. Türkiye İstatistik Kurumu (TÜİK) bu sürece 2006 yılında katılmıştır. Türkiye-GYKA (T-GYKA) verileri hanehalkı düzeyinde Türkiye'de toplanan ilk ve tek halka açık veri tabanıdır. Haneleri dört yıla kadar takip ederek hanehalkı ve hanehalkı üyelerinin demografik özellikleri, işgücü piyasası konumları, gelirleri, varlık sahiplikleri ve yaşam koşulları ile ilgili kapsamlı bilgiler sunmaktadır. Türkiye'de işgücü piyasası analizinde asıl veri kaynağı olan Hanehalkı İşgücü Anketi'nin (HİA) kısa panel bileşenleri kamuya açık olmadığından, T-GYKA işgücü piyasası dinamiklerini çalışmak için iyi bir veri tabanı adayı olarak karşımıza çıkmaktadır.

Panel veri setlerinin kullanıma girmesiyle birlikte anketlerin yanıtsızlık hassasiyeti de artmaktadır. Kayıpranma (önceki bir yanıttan sonra gelen yanıtsızlık) ve tersine kayıpranma (önceki yanıtsızlıktan sonra gelen yanıt) büyük önem arz eden kayıp veri problemlerine örneklerdir. Tezin birinci bölümünde, T-GYKA verisindeki kayıpranma örüntülerini inceledik. 2006-2015 yılları arası panel veriyi kullanarak, T-GYKA örneklem çerçevesinde yer alan hanelerin yüzde 15.5'inin rotasyon planını tamamlamadan kayıprandığını ve yüzde 4.15'inin tersine kayıprandığını belirledik. TÜİK yanıtsızlığı kayda alıyor ve yaş, cinsiyet ve dar tanımlı bölge ve hanehalkı büyüklüğü bilgilerini kullanarak hesapladığı anket ağırlıkları ile örneklemin temsil özelliğini korumayı hedefliyor. Kayıpranmanın, hanelerin ağırlıklandırmada

kullanılan gözlemlenebilir özelliklerine koşullu olarak rasgele olması durumunda bu yaklaşım uygun olurdu. Ancak, bu çalışma göstermektedir ki hanelerin gözlenebilir değişkenlere koşullu kayıpranma olasılığı, hanehalkı reisinin işgücü piyasası konumu ile ilişkilidir. Çalışan (işsiz) hanehalkı reisine sahip olan hanelerin kayıpranma ihtimali işgücüne katılma-yan hanehalkı reisine sahip hanelere göre daha yüksektir (düşüktür). Yüzde 19.6 genel kayıpranma oranı, yanıtsızlığın hanehalkı reisinin işgücü piyasası konumuyla istitastiksel olarak anlamlı bir şekilde ilişkili olduğu sonucuyla birleşince, T-GYKA'daki kayıpranmanın işgücü piyasası dinamikleri ve hanehalkı reisinin işgücü piyasası konumuyla yakından ilişkili olan hanehalkı gelir eşitsizliği, yoksulluk ve yoksunluk statüsü ve hatta yaşam koşulları alanlarında çalışma yaparken yanlılığa yol açabileceği endişeleri güçlenmektedir.

İkinci bölümde, T-GYKA panel verisinin işgücü piyasası dinamiklerini çalışmak için uygunluğunu araştırdık. Birinci bölümde gösterildiği üzere hanelerin kayıpranma ihtimalinin hanehalkı reisinin işgücü piyasasındaki konumu ile olan ilişkisi gözardı edilemez olduğundan, T-GYKA verisinde kayıpranma işgücü piyasası dinamiklerini çalışırken önemli bir engel olarak karşımıza çıkıyor. Kayıpranma problemine bir yan çözüm olarak yalnızca her yıl örnekleme eklenen yeni altörneklerin ilk ve ikinci ziyaretlerinde toplanan bilgileri kullandık. T-GYKA veri seti, gelir referans dönemi ile detaylı işgücü piyasası konumu bilgileri referans döneminin uyuşmaması, kamu/özel sektör ayrımının ve bireylerin referans haftasındaki işindeki çalışma yılı bilgilerinin bulunmaması gibi başka eksiklikler olmasına rağmen, işgücü piyasası dinamiklerine ışık tutma potansiyeline sahiptir. T-GYKA'nın işgücü piyasası dinamiklerini çalışmaya uygunluğunu değerlendirirken, her biri ayrı bir analize konu olabilecek birbiri ile bağlantılı üç sınamaya yöneldik. İlkinde 2006-2017 yılları arası panel verilerini kullanarak, yıllık işgücü piyasası geçiş örüntülerini işgücü piyasası konumlarının geniş bir kümesi üzerinden inceledik: tam-zamanlı (FT) ve yarı-zamanlı (PT) kayıtlı ve kayıt dışı ücretli çalışma, ücretli-olmayan çalışma, işsizlik ve işgücüne katılmama. Zengin bir konum uzayı kullanarak T-GYKA'nın işgücü piyasasında olan biteni yansıtmaktaki yetkinliğini güvenli bir şekilde değerlendirmeyi hedefledik. Yanıtsızlık, T-GYKA'da önemli bir sorun olarak karşımıza çıktığından, kayıpranma (tersine kayıpranma) durumunu ileri (geri) yönlü geçiş analizlerinde nihai (başlangıç) işgücü piyasası konumu olarak analizimize ekledik. İşsizler dışındaki bütün gruplar için baskın örüntünün bir yıl sonra aynı işgücü konumunda bulunmak olduğunu gözledik. Tam-zamanlı kayıt dışı çalışanların neredeyse yarısının bir yıl sonra farklı

bir işte çalıştığını belirledik. Başta işsiz konumundakiler olmak üzere, kayıpranmaya geçiş hızlarının oldukça büyük olduğu dikkat çekiyor. İkinci olarak, geçiş oranlarının incelenen dönem içinde Türkiye'de yaşanan iki önemli şokun işgücü piyasasındaki izlerini yansıtıp yansıtmadığını inceledik: 2008-2009 küresel ekonomik krizi ve 2016 yılı başında yapılan olağan dışı yüksek asgari ücret zammı. Sonuçlarımızı HİA'dan elde edilen örüntüler ile karşılaştırarak T-GYKA verisinin performansını görmeyi amaçladık. Test sonuçlarına göre T-GYKA verisinden elde edilen geçiş oranları her iki şokun etkisini hassas bir şekilde yansıtmaktadır. Ek olarak, geniş bir işgücü piyasası konumu kümesiyle çalışmamız sayesinde geçiş oranlarında görülen değişimlere yol açan örüntüleri ve mekanizmaları da gözlemleyebiliyoruz. Son olarak, T-GYKA verisinin işgücü piyasası işe girme, işten ayrılma, işten-işe geçiş ve devir oranlarının hesaplanmasında kullanılabilirliğini değerlendirdik. Elde ettiğimiz sonuçlar, işçi devri oranları dışında genel olarak HİA kullanılarak ulaşılan sonuçlarla benzerlik göstermektedir. İşçi devrinde ortaya çıkan farklılıklar da istihdam kategorileri arasındaki geçişleri sadeliği korumak adına analize dahil etmememizden ve hesaplamalarda kullandığımız payda değerlerinden kaynaklanmaktadır. Bütün bulguları birlikte değerlendirdiğimizde, T-GYKA verisinin dinamiklerle ilgili yaptığımız araştırmaları derinleştirmek için kullanılabilecek iyi bir veri kaynağı olduğu sonucuna ulaştık.

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Chapter 1

HOUSEHOLD ATTRITION PATTERNS IN THE SURVEY OF INCOME AND LIVING CONDITIONS, TÜRKIYE 2006-15

1.1 Introduction

Non-response is a concern in any data collection effort. The concern gets magnified when panel data are collected and a unit that responded in the initial round fails to do so in later rounds, which is defined as attrition in the literature. There is a large literature devoted to this subject in the field of survey statistics [Rubin, 1976; Little, 1982; Little and Rubin, 1987; Little, 1988; Little and Rubin, 1989] and in subfields of economics where surveys play an important role [Hausman and Wise, 1979; Becketti et al., 1988; Burkam and Lee, 1998; Falaris and Peters, 1998; Fitzgerald et al., 1998; Lillard and Panis, 1998; Van den Berg and Lindeboom, 1998; Alderman et al., 2001; Hirano et al., 2001; Peracchi, 2002; Lipps, 2009; De Luca and Peracchi, 2012]. The literature cautions that the attrition process is often correlated with time-varying characteristics of attritors. When this is the case, the estimates of the parameters of interest may become biased.

Panel data sets differ according to their sampling design. Forward looking panels start with a representative sample of individuals or households at some point of their lives and follow them. Some well-known examples are the Panel Study of Income Dynamics (PSID) and National Longitudinal Survey of Youth (NLSY) in the USA. Rotating panels follow individuals or households for a fixed number of rounds, rest them for a predetermined period, and then visit the same sampling units again, for a fixed number of times. Entry to the sample is staggered so that each cross section

includes a mix of addresses at different points in their visit schedule. Units that complete the visit schedule are replaced by a new nationally representative sample. For example, the USA Current Population Survey (CPS) uses a monthly 4 – (8) – 4 rotation, whereby units are visited each month for four months, rested for eight months, visited each month for four more months, and then dropped. The Household Labor Force Survey (HLFS) in Türkiye follows a quarterly rotation plan with a 2 – (2) – 2 revisit schedule. CPS yields short panels that have monthly, quarterly and annual components. HLFS yields quarterly, biannual, and annual short panels.

The Survey of Income and Living Conditions (SILC), subject of this paper, is an example of a fixed length panel with a built-in rotation schedule. It was launched by the Statistical Office of the European Union (EUROSTAT) in 2003 to provide data on the living conditions of households, so that progress towards sustainable and inclusive growth objectives in European countries (initially set for 2020) could be monitored. Starting from 2006, TURKSTAT has been conducting SILC in co-operation with EUROSTAT. The fixed panel length of T-SILC, the version used in Türkiye, is four years so each round consists of four nationally representative subsamples. Repeat visits take place at annual frequency. A new nationally representative subsample is drawn to replace the outgoing subsample.

SILC has an address-based sampling frame. Original households that move or those that are newly formed by members moving to another location (so called splits) are followed-up in their new addresses as long as contact information is available. If new address information is not available, they become attritors. The survey protocol does not allow for substitution of households. This means they are not substituted by the new household that settles at the original address. Households and splits that move abroad or to an institution are not traced. Households that refuse to be interviewed or cannot be contacted in the first year of the panel are not included in the sample. Households that are interviewed at the first visit but cannot be contacted for two consecutive years despite an initial response are dropped from the sample as well [EUROSTAT, 2020].

Labor economics literature shows that individuals and even households often

respond to changes in their labor market status by moving and becoming attritors [Fields, 1976; McCall and McCall, 1987; Clark and Hunter, 1992; Etzo, 2011]. On the other hand, sometimes households in the sample receive new individuals in a subsequent round, who leave their original household because of marriage or divorce, a process which can be thought of as a form of reverse attrition. An offspring who rejoins the household after completing his/her schooling is another example. All our examples illustrate the connection between time-varying characteristics of individuals and attrition behavior. Put differently, the dynamics being investigated can be reflected selectively in the balanced panel component of the data. Thus, before using panel-structured data sets to study individual or household behaviour, it would be prudent to study attrition patterns. In the statistical literature, attrition which is correlated with the outcome of interest is dubbed non-ignorable [Rubin, 1976; Little, 1982; Little and Rubin, 1987].

The special issue of *Journal of Human Resources*, published in Spring 1988 (*Volume 33, Number 2*) is devoted to investigations of the incidence and consequences of non-ignorable attrition in several major forward-looking panel data sets used in the U.S.A. We follow the approach proposed by Fitzgerald et al. [1998], which involves an investigation of attrition in the Panel Study of Income Dynamics (PSID) and adapt it to our rotating panel context. The outcomes investigated in their paper include labor income, marital status, and welfare participation. They test randomness (ignorability) of attrition with respect to these outcomes by including a binary indicator that distinguishes ever-attritors from non-attritors and conclude that "... PSID has remained roughly representative through 1989." (p.252). We also rely on a related approach by Becketti et al. [1988] which examines the problem using a reverse regression strategy, also in the context of the PSID. To test for presence of non-ignorable attrition, they estimate conventional income equations using binary indicators for the round of attrition. They find limited evidence that attrition compromises the representativeness of the PSID and conclude that attrition does not substantially affect the estimates of parameters of earnings equations.

The first aim of our paper is to document attrition patterns of households in

T-SILC and quantify the severity of attrition for the period between 2006 and 2015. The second aim is to test for non-ignorability of attrition with respect to labor market status of the household head. Attrition, defined as non-response followed by a response, is the prevalent missing data problem in SILC. Averaged over 4-year panels, 15.5 percent of the households attrited during the period under investigation. Reverse attrition, response followed by a non-response, is relatively modest with 4.15 percent share on average, because households that cannot be contacted in two subsequent visits are dropped from the sample. As a result, 19.6 percent of the households "generally" attrited (attrited or reverse attrited) some time during the rotation plan and did not fully contribute to the data collection effort. In the early survey years, the most commonly observed pattern is attrition after the first visit. Attrition after the third visit becomes more common in later years.

To our knowledge our paper constitutes the first implementation of a unifying testing framework based on Fitzgerald et al. [1998] and Becketti et al. [1988] in a rotating panel context. Since T-SILC contains panels of different length (2-, 3- and 4-years), our tests of ignorability of attrition are more involved than those in the original papers. We engage in a comprehensive assessment by linking the timing of attrition with labor market outcomes from earlier rounds. Test results forcefully establish that our concern with the consequences of attrition in T-SILC is well-founded. We find that households whose head is employed (unemployed) in the initial round of the panel are less (more) likely to attrit compared to those with a non-participant head. This establishes that the samples of survivors are not representative of the population for studying labor market outcomes in later rounds. Our conclusion serves as a warning for users interested in tracking dynamics in life conditions measured by SILC which are intimately linked with the labor market status of the head.

The organization of the rest of the paper is as follows: Section 2 formalizes the attrition concept and its statistical consequences. Section 3 is devoted to a brief description of SILC. Attrition statistics for the period under investigation are reported in Section 4 for T-SILC and compared with the counterparts in the EU.

Methodologies used to test the presence of non-ignorable attrition are the subject of Section 5. Section 6 examines the working samples associated with the different length panels included in T-SILC. The results of the tests are reviewed in Section 7 and Section 8 concludes.

1.2 Attrition and reverse attrition

Attrition occurs when an individual or household scheduled to be re-interviewed does not show up in a subsequent visit. It captures non-response followed by a response. As used here, reverse attrition is a response followed by an earlier non-response. Intuitively reverse attrition and attrition are related outcomes, and should be studied together. Those that constitute the balanced panel are non-attritors. We refer to the sequence of outcomes that are realized over the relevant time window as the attrition process. The choice echoes the stochastic nature of the outcome at each round.

If the attrition process can be described by the operation of a completely random mechanism (such as sequence of independent Bernoulli trials) it may be characterized as random. Unfortunately, attrition is rarely random, in that attritors have characteristics that distinguish them from non-attritors. If attrition process is non-random, the sample loses its representativeness over time and inferences drawn from the sample of survivors may become biased [Rubin, 1976; Little, 1982; Little and Rubin, 1987].

Consider a two period panel and let y_{it} be the time-varying outcome of interest for unit i at time t, t=1,2 (such as labor market status, poverty status, wage or income level) and let x_i be a vector of fixed characteristics of unit i, observed in the first period. To keep track of attrition, we use a dummy variable (D_{it}) which is equal to 1 if the household attrits between rounds t and t+1 of the survey, 0 otherwise, t=1, 2, 3. For simplicity, we drop the individual subscript i and let $f(y_t, y_{t+1} \mid x, D_t)$ represent the joint distribution of the time-varying outcomes conditional on x and D_t. If $f(y_t, y_{t+1} \mid x, D_t = 0) \neq f(y_t, y_{t+1} \mid x)$, inferences drawn from the balanced panel (defined as the subsample with $D_t = 0$) may become biased. The problem

arises because in general

$$P(D_t = 1 \mid y_t, y_{t+1}, x) \neq P(D_t = 1 \mid y_t, x) \neq P(D_t = 1 \mid x). \tag{1.1}$$

Equation (1.1) captures the fact that attrition probability may depend on the time-varying outcomes of the respondent households who have the same time-invariant characteristics. In our case, the outcome of interest is the labor market state of the household head, and the dynamics we study are flows between different states. When attrition is selective on labor market status in either period, inferences concerning labor market dynamics drawn from the sample of households that survive attrition may be biased. This is called non-ignorable attrition in the literature [Rubin, 1976].

In the only attrition study based on data from Türkiye, Tunalı [2009] documents attrition patterns for household heads aged between 20 and 54 and examines the presence of non-ignorable attrition in the HLFS for the period between 2000 and 2002. The attrition probabilities of these household heads are 8 percent by 3 months, 18.3 percent by 12 months and 24.7 percent by 15 months, cumulatively. He establishes that attrition status of households is correlated with the labor market status of household heads even after controlling for a long list of household characteristics.

Data collection agencies use weights to align the joint sample distribution of key covariates with the population distribution. The weighting scheme of TURKSTAT exploits sex, age group and region information of individuals. Moreover, the weights are calibrated using household type, size and locality (urban/rural) information which is not publicly available. This approach has been dubbed "Missing At Random" (MAR) adjustment in the statistical literature because it assumes that missing data process is random conditional on these observables. It rules out correlation between non-response and endogenous time-varying outcomes (such as job loss, or job change) after weighting. The results of Tunalı [2009] show the limitations of the typical weighting scheme used by statistical agencies to account for non-response.

1.3 SILC

EUROSTAT started SILC in 2003 with the purpose of providing data for tracking socio-economic indicators and living conditions. Survey instrument includes sections on demographic characteristics, labor market status, social transfers, income, ownership of assets, and housing conditions. The questionnaire content is determined by the European Statistical System (ESS) which is a partnership between EUROSTAT and national statistical institutes of the European Union members. The aim is to achieve consistency across countries in their data collection and statistical reporting functions [Iacovou et al., 2012]. As of 2016, SILC was being implemented in 36 countries including non-members as well as members of the European Union [EUROSTAT, 2019].

The reference period of the questionnaire varies with information sought. Although individual countries have a say on the implementation, the typical reference period for income is the previous calendar year. For determining current labor market status, the full week before the survey date serves as the reference week. In addition, each adult member (aged 15 and over) provides retrospective information on employment and some competing activities for each month of the previous calendar year. Information used for constructing the indicators of living conditions reflect the situation at the time of the survey and are updated at each visit. In Türkiye, surveys are conducted during April through July in each year [TURKSTAT, 2017]. Repeat visits to panel households are scheduled for the same month as the initial visit.

T-SILC data released to the public include a household roster and individual records on all household members who are followed-up for a maximum period of four years.[1] Each annual sample contains four nationally representative subsamples. One of the four subsamples is dropped after each round and replaced with a nationally representative "fresh" subsample. As a result, 75 percent of the sample remains in

[1]Household members at all ages are registered to the individual roaster. Individuals aged over 13 are referred as "sampled individuals" and they are followed in their new addresses if they move to another location. Individual characteristics, such as education level, health status, labor market status and employment history, are recorded only for those aged over 15.

the panel window while 25 percent is replaced each year. When the survey is first launched, one of the four subsamples is never revisited. One of the subsamples is visited two times, another three times, and only one of the original four is designated for four visits. At the steady-state, each address is visited four times. Figures A.1-A.3 in Appendix A show the rotation plan of the survey and identify the 2-year, 3-year and 4-year panels in our time window.

Years 2006-08 constitute the pre-steady-state period. Subsamples 2, 3 and 4 are special, because they are respectively scheduled to be visited once, twice and three times. Subsamples from 5 to 11 contribute to 4-year panels. Panels that started in years 2013-2014 are truncated in year 2015 and will be completed as additional visits take place in later years. In our pooled sample, 2013 panel contains three, 2014 panel contains two rounds. Our time window includes seven 4-year panels, nine 3-year panels and eleven 2-year panels. To reach these counts, we include subsamples that start in 2006 and 2007 but are scheduled only for 2 or 3 visits, as well as truncated panels. In the section that follows, we document attrition rates observed in these different length panels contained in the pooled data set. We investigate the determinants of attrition after the first, second and third visits to paint a broad picture of how the attrition process is manifested in the different length panels.

Figure A.3 in Appendix A shows the structure of 2-year panels contained in the combined data set we use, 2006-2015. We refer to the collection of marked subsamples as pooled "fresh subsamples". In our ignorability test we use first and second round information from fresh subsamples. We identify y_t and x from the first round information, and D_t from the first and second round.

1.4 Attrition and reverse attrition in T-SILC

Statistics on survey non-response in our pooled T-SILC 2006-15 data set of all households can be seen in Table 1.1. Attritors are households who did not respond after an initial response, while reverse attritors are households who responded after an earlier non-response. We refer to the total of attritors and reverse attritors as generalized attritors. Non-respondents are defined as households that did not

respond at the initial visit.

In our sample, the risk sets $R(m)$, m=1, 2, 3 consist of households who are present as of the beginning of round m. Households that attrit in round m are excluded from the later risk sets. By definition, 2-year panels have only one risk set $R(1)$. Similarly, the risks sets in 3-year panels are $R(1)$ and $R(2)$, while in 4-year panels the risk sets are $R(1)$, $R(2)$ and $R(3)$.

Table 1.1 is organized to expose the severity of the non-response problem, via the absolute and relative frequencies collected in groups, respectively in rows A to L and M to T, so readers can gauge the severity of the problem that is relevant to their own work. The relative frequencies reported in rows M to T are derived using the information in rows A to L. Categories that do not apply to a given subsample are marked with a double dash (- -). The last column of the table shows the mean statistics for subsamples 5-11 that are slated for four visits, namely the 4-year panels identified in Figure A.1.

Since the survey has an address-based sampling frame, some of the selected addresses may not contain households. These are classified as invalid addresses. Row L presents the total number of addresses that are selected initially by TURKSTAT. The number of invalid addresses, namely addresses that do not contain households at the first visit, is reported in row K. Number of total households to be visited is shown in row J and equals L-K. Some households cannot be contacted at their addresses, or simply refuse to participate. These non-respondents at the first visit are shown in row I. The sum of non-respondents (I), and respondents that contribute to the panel effort (H) also equals J, number of addresses that contain households.

The total number of households that attrit at some point of their panel window are shown in row B, while the number of reverse attritor households are presented in row C. Their sum gives the number of generalize attritiors, shown in row A. Recall that panel window lengths vary at the beginning and end of the period under study, as shown in Figure A.1. Those who survive until the end of the panel window constitute the balanced panel and are shown in row D. Rows E-G break down the

Table 1.1: Survey non-response in T-SILC, by subsamples.

Unit of observation: All households.

		Subsamples											
	Row label	3	4	5	6	7	8	9	10	11	12	13	4-yr Mean
Frequency													
generalized attritors	A=B+C	284	445	736	686	737	733	671	1177	1025	596	273	824
attritors	B	284	445	652	536	562	553	509	930	797	486	273	648
reverse attritors	C	- -	0	84	150	175	180	162	247	228	110	- -	175
balanced panel	D	2554	2609	2729	2736	3001	3013	2955	5548	5600	5566	5643	3655
attritors after the first visit	E	284	265	294	153	205	210	203	340	312	269	273	245
attritors after the second visit	F	- -	180	201	209	195	171	161	351	274	217	- -	223
attritors after the third visit	G	- -	- -	157	184	170	191	176	249	223	- -	- -	193
total panel hh	H=B+D	2838	3054	3381	3272	3563	3566	3464	6478	6397	6052	5916	4303
non-respondent hh at the first visit	I	327	327	285	384	222	314	355	483	420	418	340	352
total hh	J=H+I	3165	3381	3666	3656	3785	3880	3819	6961	6817	6470	6256	4655
invalid addresses at the first visit	K	205	178	75	53	78	189	213	371	485	568	506	209
total addresses	L=J+K	3370	3559	3741	3709	3863	4069	4032	7332	7302	7038	6762	4864
Share (%)													
generalized attritors	M=A/H	10.01	14.57	21.77	20.97	20.68	20.56	19.37	18.17	16.02	9.85	4.61	19.65
attritors	N=B/H	10.01	14.57	19.28	16.38	15.77	15.51	14.69	14.36	12.46	8.03	4.61	15.49
reverse attritors	O=C/H	- -	0.00	2.48	4.58	4.91	5.05	4.68	3.81	3.56	1.82	- -	4.15
attritors after the first visit	P=E/H	10.01	8.68	8.70	4.68	5.75	5.89	5.86	5.25	4.88	4.44	4.61	5.86
attritors after the second visit	R=F/H	- -	5.89	5.94	6.39	5.47	4.80	4.65	5.42	4.28	3.59	- -	5.28
attritors after the third visit	S=G/H	- -	- -	4.64	5.62	4.77	5.36	5.08	3.84	3.49	- -	- -	4.69
non-respondent hh at the first visit	T=I/J	10.33	9.67	7.77	10.50	5.87	8.09	9.30	6.94	6.16	6.46	5.43	7.80
invalid address at the first visit	U=K/L	6.08	5.00	2.00	1.43	2.02	4.64	5.28	5.06	6.64	8.07	7.48	3.87

Note: The years in which the samples were visited can be seen in Figures A.1, A.2 and A.3. Cells that do not apply to a given sample are marked with a double dash (- -). The last column titled '4-yr Mean' shows the means for 4-year panels identified in Figure A.1.

attritors into categories according to rounds at which they attrit. Since the subsamples are slated for 4 visits at most, households can attrit after the first (row E), second (row F) or third (row G) round. The relative frequencies of attrition (rows M-S) have the same denominator, number of households that respond at the first visit (row H). The share of non-respondent households (row T) is calculated relative to total number of households (row J). Lastly, the fraction of invalid addresses among total addresses are reported in row U.

The sampling protocol marks addresses that do not contain a household as "invalid" and excludes them from the sample frame. Incidence of invalid addresses varied between a low of 1.43 and a high of 8.07 percent (row U). The protocol also weeds out households with valid addresses that cannot be contacted, as well as households that refuse to participate in the survey. Likelihood of non-response at the first visit ranged between 5.43-10.5 percent (row T), meaning at least 1 out of 20, and as many as 1 out of 10 households did not contribute to T-SILC in our time window. These figures are among the lowest seen in SILC implementations.

Number of households targeted by T-SILC in a given round can be seen in row J. Household roster contains 3666 households in the first 4-year panel that convened in 2006 (subsample 5). In 2011, sample size nearly doubled to 6961 households (subsample 10). When 4-year panels are evaluated collectively, 3.87 percent of addresses were invalid. Additionally, 7.8 percent of the households with valid addresses were classified as non-respondents on the first visit and were removed from the sample frame. While the share of non-respondents is higher in the early subsamples, it decreases in later survey years (row T).

As shown in row N in Table 1.1, the average attrition fraction for 4-year panels is around 15.5 percent. The reverse attrition share is 4.15 percent on average (row O in the table). Since households that do not respond at the first visit and those that cannot be interviewed for two subsequent visits after an initial visit are dropped from the sample, the lower reverse attrition ratio is a consequence of the protocol of the survey [EUROSTAT, 2020]. As a result, 19.6 percent of the households generally-attrited during the period under investigation (row M).

The first noticeable point about attrition patterns is that total fraction of attritors (row N) in 4-year panels declines subsequently after the early data collection years. This is probably a consequence of improvements in the execution of field operations. Attrition share is the highest after the first visit. The fraction of attritors after the second and third visits are close to the share of attritors after the first visit. Elevated attrition rate after the second visit (6.39 percent vs. 5.28 percent 4-year means) observed in subsample 6 may be associated with the global economic crisis in 2008. The summary statistics suggest that our concern with attrition in T-SILC data is well founded, and the correlates of attrition require a closer look.

Studies based on EU-SILC document alarming attrition rates. Steinsson and Lagerstrom [2009] state that Iceland has 13.8 percent individual attrition fraction in the 2005-2009 panel, while Norway-SILC has slightly lower figure (12.6 percent) for the same time period. The authors underscore that the attrition shares affect the analysis of social indicators such as the Gini coefficient, and the S80/20 ratio. In both countries, subsamples of attritors tend to have higher values of inequality measures compared to survivors. Wilhelmsen [2012] also uses the Norway-SILC but reports a higher individual attrition rate of 27.5 percent from 2003 to 2008. He points out that the main determinants of attrition are low education level and higher age. An analysis of attrition in Italy indicates 12.2 percent individual attrition after the first visit and 10.7 percent after the second visit conditional on being respondent in the first visit. This results in 21 percent cumulative attrition in two years for the period between 2004 and 2006 [Ceccarelli and Giorg, 2009]. However, attrition bias is negligible for standard income inequality measures, including the Gini coefficient. In contrast Junes [2012] reports a lower cumulative attrition fraction of 18 percent in the 2005-2008 panel from Finland but biased income inequality measures. A comparative study that documents attrition patterns in the 23 European Union member countries using 2008-2011 EU-SILC panel reports that the fraction of ever attrited individuals ranges from less than 10 percent to more than 50 percent [Jenkins and Van Kerm, 2017]. Their analysis emphasizes that another consequence of attrition is inflated estimates of standard errors and wider confidence intervals of persistent

at-risk-of poverty rates.

As in Tunalı [2009], we study household level attrition orientation using the characteristics of household heads. Tunalı relied on data from the short panel component of the Household Labor Force Survey in Türkiye (HLFS) between 2000-02. He focused on the labor market status of household heads because heads are typically male and display very high labor market attachment by virtue of being the main bread-winner. Since the links between attrition status and labor market outcome are our primary concern, we also focus on the labor market status of the household head. Here we restrict the working sample to households that have 25-64 years-old household heads, instead of 20-54 years-old household heads used in Tunalı's paper, because of the increase in the statutory retirement age and prolonged schooling during the period under investigation. The share of households with younger household heads is lower in our sample and attrition status of those households may have different underlying causes. Households whose head is younger than 25 constitutes 2.1 percent of the initial sample in 2-year panels (2 percent in 3-year panels and 1.9 percent in 4-year panels). These household heads are more likely to be attrition-prone due to transition from school to work, marriage (mostly for females) or compulsory military service in the case of males. At the upper tail, older household heads are less active in the labor market as 80.5 percent of the household heads aged over 65 are not in the labor force at the time of the initial visit in 2-year panels (80.6 percent in 3-year panels and 81.3 percent in 4-year panels).

Table A.1 reports the attrition statistics for households with households heads aged between 25 and 64. The sample is constructed conditional on contribution to at least the first round of survey so that demographic characteristics of household members are recorded. Attrition fraction for 4-year panels is lower compared to figure reported in Table 1.1, and averages to 12.1 percent. The reverse attrition share is 4.17 percent. In total, 16.25 percent of the households contained in the working sample of 4-year panels generally-attrited during the period under investigation. Investigation of attrition patterns of households whose heads are 25-64 years old will give us ample opportunity to investigate links with labor market outcomes.

1.5 Methodology

In our investigation the endogenous outcome of interest is the labor market status of the household head. The key question is whether subsequent attrition status depends on labor market status. SILC offers panels of different length, and we use them all, along with attrition information from one or more rounds. Since attrition has the potential to render the samples of survivors non-representative, tests conducted on them may not be valid for drawing inferences about the population. We carry out the tests anyway, to offer a fuller assessment of the SILC data, subject to the caveat they are valid conditional on survivorship.

The first method we follow is due to Fitzgerald et al. [1998], which we abbreviate as FGM. The generic probit model is specified as:

$$Pr\{D_h(m) = 1 \mid y_h, x_h, h \in R(m)\} = \Phi[\sum_{j=1}^{m} \beta_{1j}^{'} y_{hj} + \beta_{2m}^{'} x_h], m = 1, 2, 3; \quad (1.2)$$

where m denotes the attrition round and $D_h(m)$ denotes the attrition outcome for household h (=1 if household attrits after visit m, =0 otherwise); y_h is a $2 \times m$ vector of indicators that tracks the labor market status of the household head; x_h is a $k \times 1$ vector of covariates for household h measured at the first visit and k varies across model specifications; $R(m)$ denotes the risk set of all households present at the beginning of round m, before the attrition outcome is observed. Moving on to the right-hand side of equation 1.2, $\Phi(\cdot)$ denotes the standard normal c.d.f. and β's denote parameter vectors to be estimated. At each round we take non-participation as our reference and define two binary indicators that capture the labor market status of the household head as of the beginning of the relevant period, so that for round j (=1, 2, 3), y_{jh} is a 2×1 vector with elements

$$y_{1hj} = \begin{cases} 1 & \text{if the head is employed at the beginning of round } j, \\ 0 & \text{otherwise;} \end{cases} \quad (1.3)$$

$$y_{2hj} = \begin{cases} 1 & \text{if the head is } \textit{un}\text{employed at the beginning of round } j, \\ 0 & \text{otherwise;} \end{cases} \tag{1.4}$$

and β_{1j} is a conformable parameter vector.

The summation in equation 1.2 adjusts the total number of parameter vectors used for testing dependence on labor market status so that: while a single labor market status vector is used in the first round, in the second round attrition status probits include *two* vectors, which respectively capture dependence on labor market status at the beginning of rounds 1 *and* 2, and in the third round attrition status probits include *three* vectors, which respectively capture dependence on labor market status at the beginning of rounds 1 *through* 3. Note that the length of the pooled panel also adjusts so that attrition outcome at round m is tracked on multiple panels of length $m + 1$, m=1, 2, 3 that commence at various years in our time window.

In our investigation of ignorability of attrition with respect to labor market status, we have full confidence in tests that exploit the 2-year panels because we use data from all fresh subsamples and can claim full representation of the population. Under the null hypothesis of ignorability both elements of β_{11} associated with labor market indicators defined by 1.3-1.4 will equal zero. In 3-year and 4-year panels it is also possible to claim full representation, albeit when the links between $D(m)$, m=2 and 3 in turn, and labor market status in the *first* period is tracked. The null relevant null hypotheses in round m conducted on a panel of length $m + 1$ (=1, 2, 3) then, can be stated respectively as $\beta_{11} = 0$, $\beta_{12} = 0$ and $\beta_{13} = 0$, a pair of zero restrictions on parameter pairs associated with the elements of y_{hj} defined by 1.3 and 1.4, for j=m=1, 2, 3. In 3-year and 4-year panels when information from later rounds are used to update what is known about labor market status, the analysis has to be confined to attrition survivor subsamples, which may no longer be representative of the population.

FGM refer to models that examine ignorability of attrition with respect to sequences of outcomes as dynamic models. In equation 1.2 dynamics is confined to main effects. Technically richer models that contain interactions between labor

market states visited in multiple rounds can be estimated to deepen the analysis, subject to the caveat that the investigation is carried out conditional on surviving until rounds 2, or 3.

The second approach we follow is due to Becketti et al. [1988] (BGLW). The labor market outcomes under scrutiny are indicators of participation and unemployment (conditional on participation), defined as:

$$y_{1hj} = \begin{cases} 1 & \text{if the head is a participant at the beginning of round } j \ (m), \\ 0 & \text{otherwise;} \end{cases} \tag{1.5}$$

$$y_{2hj} = \begin{cases} 1 & \text{if the head is } un\text{employed at the beginning of round } j \ (m), \\ 0 & \text{otherwise;} \end{cases} \tag{1.6}$$

The generic probit model we estimate has the form:

$$Pr\{y_{khm} = 1 \mid D_h, x_h, h \in R(m)\} = \Phi[\sum_{j=1}^{m} \gamma_{1kj}^{'} D_h(j) + \gamma_{2k}^{'} x_h], k = 1, 2; m = 1, 2, 3. \tag{1.7}$$

Here D_h=[$D_h(1)$, $D_h(2)$, $D_h(3)$]′, where $D_h(m)$, m=1, 2, 3 is the attrition indictor associated with round m, and γ's denote the parameters to be estimated. As in the FGM version by extending the panel length, information from additional rounds can be used to test for ignorability, subject to the caveat that the findings from survivor subsamples are only valid for subpopulations of non-attritors.

1.6 Working samples

As explained in Section 1.3, TURKSTAT releases T-SILC panel data in the form of 2-year, 3-year, and 4-year panels. We analyze different length panels separately. Under the age restrictions, our pooled 2-year panels consist of 34,862 households. The share of households that attrit after the first visit is 4.88 percent. The pooled

sample of 3-year panels includes 28,122 households. The attrition fraction after the first visit is 4.79 percent, while an additional 3.71 percent of the initial sample attrits after the second visit. The working sample for 4-year panels has 21,363 households, 4.76 percent of whom attrit after the first visit. An additional 3.96 and 2.93 percent of the initial sample attrits after the second and third visits, respectively. Given these magnitudes, investigation of the links between labor market states and attrition behavior is a worthy undertaking.

The initial visit characteristics of household heads and household type are used as controls to explain the probability of attrition in all subsequent rounds. Following the labor economics literature, we use a long list of controls: age group (single age information is not available for the first panel), level of education, gender, labor market status, marital status and household type. Tables A.2-A.4 in Appendix A present the summary statistics for 2-year, 3-year, and 4-year panels, respectively. The first two columns show the initial round statistics for the whole sample including attritors ($D_1 = 1$) as well as the balanced panel ($D_1 = 0$) households. The second set of two columns display the same statistics for attritors after the first visit ($D_1 = 1$). The third pair of columns in Tables A.3 and A.4 are reserved for the summary statistics of attritors after the second visit ($D_2 = 1$) and the fourth pair in Table A.4 shows the summary statistics for attritors after the third ($D_3 = 1$) visit.

Since T-SILC started in 2006, the fraction of households that contribute to the 2-year panels is the highest (20 percent) in 2006. In 2007, only one subsample starts fresh so that year's share is 7 percent of the pooled sample. Due to nearly doubling of the sample size overtime, the share of households that are interviewed for the first time each year gradually increases to 13 percent of the pooled sample in 2011. The share of attritors fluctuates between years and visits. Household heads who are aged 25-29 and aged 60-64 have below average fractions in the whole sample with 8 and 9 percent shares, respectively, while the other age groups have 11-15 percent shares. Household heads of attritor households are mostly younger (aged 25-29 to 40-44).

The share of female household heads is 11 percent in the pooled sample and

increases to 17 percent among attritor households. More than one-half of household heads in the working sample are low-educated (primary school graduates or less). Attritors have a lower fraction of low-educated and higher fraction of household heads who have a university degree (20 percent). In the pooled sample, 74 percent of the household heads are employed, 21 percent are not in the labor force, and 3 percent are unemployed. The share of those who are out of the labor force is about 15 percent higher in the attritor sample (24 percent), while the share of employed household heads are 8 percent lower (68 percent). Nearly 90 percent of the household heads are married, and only 3 percent are single. The share of single household heads who attrit after the first visit is nearly double of the share of those in the pooled sample. Accordingly, 10 percent of attritor households are single person households while the share of single person households is 4 percent in the whole sample. Overall, household heads of attritor households are more likely to be young, female, highly-educated, not in the labor force, single and live alone compared to the pooled sample.

1.7 Results

In this section, we present the estimation results obtained from FGM and BGLW models defined via equations 1.2 and 1.7, respectively. We estimate the models for 2-year, 3-year and 4-year panels separately using pooled samples. The main objective is to estimate the link between attrition status and the labor market status of household heads at the initial visit.

Since TURKSTAT computes and records weights for the members of the balanced panels, weights for attritors are missing. Thus weights provided in T-SILC cannot be employed in our investigation. Although proper weights for the fresh subsamples in each period can be constructed, inclusion of observables used for weighting as covariates is adequate for carrying out the ignorability tests. Therefore, all the results we report are from unweighted T-SILC samples.

1.7.1 FGM model

The dependent variable in FGM probits is the attrition dummy $D(m)$ that takes the value 1 if attrition takes place after visit m and equals 0 otherwise, m=1, 2, 3. The same set of seven models are estimated for different length panels. Model 1 contains year dummies and captures the differences in the severity of attrition over time. Using 2006 as the reference category, year dummies mark the year in which the panel commenced. Other models contain selected household characteristics from the initial round. Model 2 has age group and gender dummies (variables TURKSTAT uses for weighting) where males and household heads aged between 30 and 34 are used as reference categories. Labor market status of the household head which is the key variable in the ignorability test, is added in the third model.

TURKSTAT uses additional variables in the calculation of weights but does not include them in micro data files. The full list includes region, location (urban/rural distinction) and household type/household size. If we had all the necessary information used in the weight calculation, we would be doing proper correction by including the relevant variables. We do not, so to capture some of the excluded variation, we include education dummies and marital status information in Model 4. Model 5 is augmented with household type dummies we constructed, so that we come closer to the weighting scheme of TURKSTAT. Models 6 and 7 include two-way and three-way interactions of age group, gender and year dummies.

Full results from FGM probits that rely on first round information obtained on fresh subsamples of panels of length 2-4 years are collected in Appendix A, Tables A.5-A.7. Additional results based on information from later rounds of attrition are reported in Tables A.8-A.10. First seven models estimated are the same as those described earlier. While Models 3-7 in Tables A.8-A.9 capture the links between the second round attrition status $D(2)$ and labor market states recorded in visit 1, the additional Models 8-10 examine the link between $D(2)$ and labor market states recorded in visits 1 and 2. The set of controls used in Models 8-10 are respectively the same as those in Models 5-7. All models are estimated on the subsample of survivors as of round 2. In Table A.10 focus shifts to the third round attrition outcome $D(3)$,

conditional on survival until round 3. While Models 3-7 in Table A.10 examine the link between $D(3)$ and labor market states recorded in visit 1, Models 8-10 examine the link between $D(3)$ and labor market states recorded in visits 1 through 3. Parameter estimates associated with labor market status indicators are collected in the top rows of Tables A.5-A.10. Note that while Models 3 and 4 yield rather different magnitudes for the parameters of interest, the magnitudes are stable in the models with interactions. As we argue below, these results lend strong support to our concern with the presence, and consequences of, non-ignorable attrition in T-SILC.

The key findings from our undertaking are summarized in Table 1.2. This table contains the average marginal effects associated with the probit estimates of the coefficients of labor market status indicators obtained from Models 5-7 under the columns labelled "Attrition: first visit," and Models 8-10 elsewhere. The table is organized so that results associated with the timing of the attrition round can be viewed together. Since panel length determines the number of visits, some parts of the table are empty. Cells in these parts contain double dashes (- -). Recall that longer panels include fewer subsamples hence fewer observations, and that the period composition is also altered, as shown in Figures A.1-A.3 in Appendix A.

We begin by reviewing the results obtained from the first visit, where $D(1)$ serves as the dependent variable. In 2-year panels, we find that attrition probability after the first visit is statistically significantly linked with the labor market status of the household heads at the initial visit (p-value<0.001 in the joint test). Taking non-participants as the reference category, households with employed heads are 2.1 percent less likely to attrit. However, attrition probability increases by 1.8 percent if the household head is unemployed. In light of the 4.88 percent average attrition rate (see Table A.2), the marginal effects are very large.

The results reported under "Attrition: first visit" for 3-year and 4-year panels are strictly comparable to those from 2-year panels, except they are obtained on smaller working samples. We find that while the magnitudes of the marginal effects

Table 1.2: Summary table of the marginal effects (standard errors) of the FGM tests of non-ignorable attrition. Based on the probit estimates reported in Tables A.5-A.10.

Dependent variable=1 if attrited, 0 otherwise.

2-year Panels									
Labor market status at the initial round	Attrition: first visit			Attrition: second visit			Attrition: third visit		
Employment	-0.021***	-0.023***	-0.024***	- -	- -	- -	- -	- -	- -
	(0.0057)	(0.0064)	(0.0065)	- -	- -	- -	- -	- -	- -
Unemployment	0.018*	0.020*	0.019	- -	- -	- -	- -	- -	- -
	(0.0107)	(0.0119)	(0.0118)	- -	- -	- -	- -	- -	- -
Reference: non-participation									
Joint test p-value	<0.001	<0.001	<0.001	- -	- -	- -	- -	- -	- -
Observations	34,862	34,862	34,862	- -	- -	- -	- -	- -	- -
Year x Age group FE	NO	YES	YES	- -	- -	- -	- -	- -	- -
Year x Gender FE	NO	YES	YES	- -	- -	- -	- -	- -	- -
Year x Age group x Gender FE	NO	NO	YES	- -	- -	- -	- -	- -	- -
3-year Panels									
Labor market status at the initial round	—		Attrition: first visit	Attrition: second visit			Attrition: third visit		
Employment	-0.020***	-0.023***	-0.023***	0.010**	0.012**	0.013**	- -	- -	- -
	(0.0061)	(0.0072)	(0.0073)	(0.0051)	(0.0058)	(0.0059)	- -	- -	- -
Unemployment	0.018	0.021	0.020	0.011	0.012	0.013	- -	- -	- -
	(0.0116)	(0.0113)	(0.0113)	(0.0088)	(0.0098)	(0.0100)	- -	- -	- -
Reference: non-participation									
Labor market status at the second round									
Employment	- -	- -	- -	-0.015***	-0.017***	-0.017***	- -	- -	- -
	- -	- -	- -	(0.0034)	(0.0043)	(0.0043)	- -	- -	- -
Unemployment	- -	- -	- -	-0.009**	-0.010*	-0.010*	- -	- -	- -
	- -	- -	- -	(0.0046)	(0.0054)	(0.0054)	- -	- -	- -
Reference: non-participation									
Joint test p-value of initial round LM status	<0.001	<0.001	<0.001	0.1264	0.1168	0.0827	- -	- -	- -
Joint test p-value of second round LM status	- -	- -	- -	<0.001	<0.001	<0.001	- -	- -	- -
Joint test p-value of all rounds LM status	- -	- -	- -	<0.001	<0.001	<0.001	- -	- -	- -
Observations	28,122	28,122	28,122	26,773	26,773	26,773	- -	- -	- -
Year x Age group FE	NO	YES	YES	NO	YES	YES	- -	- -	- -
Year x Gender FE	NO	YES	YES	NO	YES	YES	- -	- -	- -
Year x Age group x Gender FE	NO	NO	YES	NO	NO	YES	- -	- -	- -

Table 1.2 continued

4-year Panels									
Labor market status at the initial round	Attrition: first visit			Attrition: second visit			Attrition: third visit		
Employment	-0.021***	-0.024***	-0.024***	0.039***	0.048***	0.050***	0.011	0.010	0.010
	(0.0071)	(0.0086)	(0.0086)	(0.0123)	(0.0152)	(0.0155)	(0.0072)	(0.0072)	(0.0071)
Unemployment	0.022	0.027*	0.026*	0.028*	0.033*	0.034*	0.009	0.009	0.009
	(0.0133)	(0.0159)	(0.0158)	(0.0161)	(0.0191)	(0.0193)	(0.0098)	(0.0094)	(0.0094)
Reference: non-participation									
Labor market status at the second round									
Employment	- -	- -	- -	-0.038***	-0.048***	-0.048***	-0.011*	-0.010	-0.009
	- -	- -	- -	(0.0076)	(0.0112)	(0.0114)	(0.0063)	(0.0066)	(0.0066)
Unemployment	- -	- -	- -	-0.018**	-0.021**	-0.021**	-0.013**	-0.012**	-0.013**
	- -	- -	- -	(0.0071)	(0.0090)	(0.0089)	(0.0061)	(0.0063)	(0.0064)
Reference: non-participation									
Labor market status at the third round									
Employment	- -	- -	- -	- -	- -	- -	-0.007	-0.007	-0.008
	- -	- -	- -	- -	- -	- -	(0.0049)	(0.0048)	(0.0048)
Unemployment	- -	- -	- -	- -	- -	- -	0.048**	0.045*	0.046*
	- -	- -	- -	- -	- -	- -	(0.0234)	(0.0245)	(0.0251)
Reference: non-participation									
Joint test p-value of initial round LM status	<0.001	<0.001	<0.001	0.0014	<0.001	<0.001	0.2811	0.2849	0.2990
Joint test p-value of second round LM status	- -	- -	- -	<0.001	<0.001	<0.001	0.0212	0.0226	0.0253
Joint test p-value of third round LM status	- -	- -	- -	- -	- -	- -	<0.001	<0.001	<0.001
Joint test p-value of all rounds LM status	- -	- -	- -	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Observations	21,363	21,363	21,363	20,346	20,346	20,346	19,499	19,499	19,499
Year x Age group FE	NO	YES	YES	NO	YES	YES	NO	YES	YES
Year x Gender FE	NO	YES	YES	NO	YES	YES	NO	YES	YES
Year x Age group x Gender FE	NO	NO	YES	NO	NO	YES	NO	NO	YES

Note: Reported magnitudes were computed as the average of individual marginal effects. Equations for subsequent rounds of attrition are estimated on subsamples of survivors. The full set of probit results are collected in Tables A.5-A.10. Cells that do not apply to a given estimation are marked with a double dash (- -). Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

are the same, those associated with unemployment are no longer statistically significant at conventional levels. Joint tests establish that labor market state of the household head is statistically highly significant (p-values$<$0.001) in all panels studied. This means that users of different length panels have to think about the consequences of relying on the respective balanced panels when the outcome they study is influenced by the labor market status of the household head.

In the columns reported under "Attrition: second visit" we examine results from panels that allow us to study the probability of attrition after the second visit, *conditional on surviving the first round of attrition*, as a function of observed labor market status at the time of the first and second visits. Joint tests on data from 3-year panels reveal that while the association with the first visit status is weak (p-values are between 0.08 and 0.13), labor market status in the second visit has a strong influence on attrition probability (p-values$<$0.001). In the case of 4-year panels, labor market status information from both rounds are seen to have strong statistical influences on attrition in round 2. When we examine the signs of the marginal effects, we see that while employed heads as of the initial visit were *more* likely to attrit at the second round, heads who were employed at the second visit are less likely to attrit. This finding suggests that examination of dynamics on the eroded balanced panel may result in a complex set of biases.

Moving on to the last set of columns (under "Attrition: third visit") we find results that corroborate our concern with the balanced panel losing its representativeness as the panel length increases. While unemployed heads as of the second visit were *less* likely to attrit at the third round, heads who were unemployed at the third visit are *more* likely to attrit. In this case, the results are valid *conditional on surviving two rounds of attrition*. Nonetheless estimates obtained on longer panels can be viewed as shedding light on how labor market draws influence attrition behavior. Joint test results on our 4-year panel reveal that as the labor market information becomes dated, its influence on the likelihood of attrition weakens (initial round LM status p-value $>>$ second round LM status p-value $>$ third round LM status p-value). Put differently, most recent status has a more direct bearing on the

likelihood of attrition at a late stage than information coming from earlier rounds.

Since our paper is preoccupied with attrition, it is worthwhile to highlight how the probability of attrition varies across households, using the rich set of covariates in SILC. In doing so we rely on the results from Models 4 or 5 reported in Tables A.5-A.7, depending on the emphasis we want to place on household composition. We focus on 2-year panels and briefly mention differences we came across in the longer panels. The reference in the analysis is household heads aged between 30 and 34, male, non-participant, primary school graduate, married and living in a household which contains 2 adults with kids in 2006.

Age group dummies indicate that attrition probability is lower for the households with older household heads. Having a female household head increases the attrition probability of households for 2-year and 3-year panels, but this result is not statistically significant. This finding is consistent with attrition and migration literature, as the common opinion suggests that households with female household heads are more likely to move to another location and attrit [Burkam and Lee, 1998; Tunalı, 2009]. In 4-year panels, the results partially contradict the literature, yet they are not statistically significant. The reason behind this result may be caused by migration often taking place in stages: male head moves first, and the rest of the household moves subsequently. We find strong evidence that households whose heads have higher education are more likely to attrit compared to households whose heads are primary school graduates. Having a households head who is illiterate or literate without diploma does not statistically significantly affect the probability of attrition after the first visit. The results are consistent across 2-year, 3-year and 4-year panel samples.

Based on findings from the migration literature, marital status of the household head may have an impact on the attrition probability because relocation cost increases with marriage. Furthermore, mobility can be higher for households with divorced or widowed heads for a horde of reasons. However, our results do not indicate significant relationship between marital status of the household head and attrition probability, except for widowed household heads in 4-year panels. Tak-

ing households with married heads as the reference, the probability of attrition is not statistically significantly different if the household head is single, widowed or divorced in 2-year and 3-year panels.

The last household characteristic that we include in our models is household type, in Model 5. Female dummy loses its significance because it is highly collinear with household composition captured by our typology. Taking households which include 2 adults with kids as our reference category, we see that single person, 2 adults, single dad with kids, single mum with kids and heterogeneous types of households are more likely to attrit. In particular, heterogeneous households, which includes individuals who are not related with each other, and single person households are prone to attrition. The results imply that households that include 2 adults with kids are the most stable group compared to other types of households in 2-year panels.

1.7.2 BGLW model

As an alternative approach to test for presence of non-ignorable attrition in T-SILC, an earlier method developed by Becketti et al. [1988] is applied. This approach uses a reverse regression technique and estimates the link between two binary indicators, respectively labor force participation and unemployment conditional on being a participant, and indicators of future attrition status. The equations include a long list of covariates and are estimated using probit regression. For each panel segment four different specifications are estimated. Model 1 contains only attrition status and year of initial survey round dummies. Model 2 is extended to include the same set of household characteristics as Model 5 in the FGM Model (age group, gender, education, marital status and household type characteristics of households and household heads). In Models 3 and 4, we add the two-way and three-way interactions of year, age group and gender dummies.

Full results of the BGLW tests are reported in Appendix A in Tables A.11-A.13 (participation outcome) and A.14-A.16 (unemployment outcome conditional on participation) separately for 2-year, 3-year and 4-year panels. Probit estimates of the key parameters associated with labor market status are reported in the top

Table 1.3: Summary table of the average marginal effects (standard errors) in the BGLW tests of non-ignorable attrition. Based on the probit estimates reported in Tables A.11-A.16.

	Labor market status: initial round						Labor market status: second round					
Future attrition status	Participant			Unemployed			Participant			Unemployed		
2-year panels												
Attritor after the first visit	-0.011***	-0.011***	-0.009***	0.035***	0.042***	0.041***	- -	- -	- -	- -	- -	- -
	(0.0034)	(0.0035)	(0.0031)	(0.0091)	(0.0113)	(0.0113)	- -	- -	- -	- -	- -	- -
Observations	34,862	34,862	34,862	27,285	27,285	27,285	- -	- -	- -	- -	- -	- -
3-year panels												
Attritor after the first visit	-0.011***	-0.010***	-0.008***	0.035***	0.043***	0.041***	- -	- -	- -	- -	- -	- -
	(0.0038)	(0.0039)	(0.0034)	(0.0101)	(0.0126)	(0.0124)	- -	- -	- -	- -	- -	- -
Attritor after the second visit	-0.001	-0.001	-0.001	0.004	0.004	0.005	-0.005	-0.004	-0.003	0.020**	0.022**	0.021**
	(0.0034)	(0.0032)	(0.0025)	(0.0092)	(0.0115)	(0.0115)	(0.0035)	(0.0031)	(0.0023)	(0.0092)	(0.0101)	(0.0102)
Joint test p-value	0.0022	0.0029	0.0034	<0.001	<0.001	<0.001	- -	- -	- -	- -	- -	- -
Observations	28,122	28,122	28,122	22,087	22,087	22,087	26,755	26,755	26,755	20,936	20,936	20,936
4-year panels												
Attritor after the first visit	-0.012**	-0.010**	-0.008*	0.039***	0.042***	0.039***	- -	- -	- -	- -	- -	- -
	(0.0046)	(0.0044)	(0.0040)	(0.0117)	(0.0135)	(0.0131)	- -	- -	- -	- -	- -	- -
Attritor after the second visit	-0.002	-0.001	-0.001	0.003	0.003	0.003	-0.005	-0.005	-0.003	0.026**	0.028**	0.028**
	(0.0040)	(0.0028)	(0.0028)	(0.0098)	(0.0105)	(0.0103)	(0.0040)	(0.0041)	(0.0032)	(0.0108)	(0.0118)	(0.0120)
Attritor after the third visit	-0.006	-0.005	-0.004	0.014	0.014	0.015	-0.005	-0.006	-0.004	0.017	0.017	0.017
	(0.0049)	(0.0045)	(0.0038)	(0.0122)	(0.0130)	(0.0130)	(0.0046)	(0.0048)	(0.0038)	(0.0121)	(0.0121)	(0.0124)
Joint test p-value	0.0165	0.0200	0.0235	<0.001	<0.001	0.0012	0.2232	0.2194	0.2700	0.0041	0.0045	0.0050
Observations	21,363	21,363	21,363	16,829	16,829	16,829	20,322	20,322	20,322	15,958	15,958	15,958
Year x Age group FE	NO	YES	YES	NO	YES	YES	NO	YES	YES	NO	YES	YES
Year x Gender FE	NO	YES	YES	NO	YES	YES	NO	YES	YES	NO	YES	YES
Year x Age group x Gender FE	NO	NO	YES	NO	NO	YES	NO	NO	YES	NO	NO	YES

Table 1.3 continued

	Labor market status: third round					
Future attrition status	Participant			Unemployed		
2-year panels						
Attritor after the first visit	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -
Observations						
3-year panels						
Attritor after the first visit	- -	- -	- -	- -	- -	- -
Attritor after the second visit	- -	- -	- -	- -	- -	- -
Joint test p-value	- -	- -	- -	- -	- -	- -
Observations	- -	- -	- -	- -	- -	- -
4-year panels						
Attritor after the first visit	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -
Attritor after the second visit	- -	- -	- -	- -	- -	- -
	- -	- -	- -	- -	- -	- -
Attritor after the third visit	-0.004	-0.003	-0.002	0.063***	0.069***	0.074***
	(0.0043)	(0.0041)	(0.0029)	(0.0166)	(0.0195)	(0.0206)
Observations	19,422	19,422	19,422	15,126	15,126	15,126
Year x Age group FE	NO	YES	YES	NO	YES	YES
Year x Gender FE	NO	YES	YES	NO	YES	YES
Year x Age group x Gender FE	NO	NO	YES	NO	NO	YES

Note: Reported magnitudes were computed as the average of individual marginal effects. Equations for subsequent rounds of attrition are estimated on subsamples of survivors. The full set of probit results are collected in Tables A.11-A.16. Cells that do not apply to a given estimation round are marked with a double dash (- -). Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

rows of the respective tables. A summary of key results is reported in Table 1.3. Joint tests of the significance of attrition dummies indicate that they are jointly statistically significant for each panel at least at the 5 percent significance level or lower. In each panel set-up, attrition after the first visit is strongly correlated with the labor market status of the household head at the time of the initial visit. However, there is no significant link between attrition after the second and third visit and the likelihood of having a participant head or unemployed head conditional on being a participant in the first round.

BLGW method corroborates the results of FGM model in that when labor market status of the head is the outcome variable of interest, household attrition in T-SILC is non-ignorable. Both regression and reverse regression approaches establish that while attrition after the first visit is strongly linked with the labor market status of household heads at the initial round, the link weakens in later rounds of attrition. BLGW results indicate that although attrition after the second and third visits are jointly significantly linked with head's labor market status, they are not significant individually.

1.8 Conclusion

This paper adds to the accumulated evidence regarding the presence of considerable attrition in EU-SILC data. It documents the patterns of attrition, defined as non-response after an initial response, and reverse attrition, response after an earlier non-response, in T-SILC using data from 2006 to 2015. Averaged over 4-year panels, T-SILC 2006-15 has 15.5 percent annual household attrition fraction. The most noticeable pattern is the attrition after the first visit has the highest attrition share in the early years of the survey and drops in later years. The average annual reverse attrition share is 4.15 percent resulting 19.6 percent general attrition (attrition or reverse attrition). This means that approximately 1 out of 5 households did not fully contribute to the balanced panel. Comparison with evidence from other countries indicates that attrition in Türkiye is on the low end of the spectrum.

When panel data are known to suffer from attrition, inferences drawn on the

sample of survivors may be biased. Bias is present if attrition status is related to the outcome variable of interest, in which case it is said to be non-ignorable [Rubin, 1976] because behavior can be different in attritor and non-attritor subsamples. To test for presence of non-ignorable attrition in T-SILC collected between 2006-15, we follow Fitzgerald et al. [1998] (FGM) and Becketti et al. [1988] (BGLW) after modifying their estimation strategies to make them suitable for our rotating sample frame context. FGM approach involves estimating a separate equation for each round of risk, to examine the determinants of household attrition and testing whether the probability of attrition is affected by labor market status indicators observed before the attrition outcome is revealed. BGLW relies on an indirect method of testing ignorability by estimating separate equations for each indicator of labor market status where future realizations of attrition are included as explanatory variables, a method known as reverse regression.

The two approaches are related in the sense that they both examine the correlation between attrition and labor market status of the household head, holding a rich set of household characteristics (gender, age, education and marital status of the head and household type) constant. We confine our tests to households whose heads are aged between 25-64, who are known to have strong labor market attachment. Estimation results using the FGM approach indicate that labor market status of the household head is strongly linked with attrition status of the household. Taking non-participants as the reference category, households that have employed heads are 2.1 percent less likely to attrit after the first visit in 2-year panels. Having an unemployed head increases the probability of attrition by 1.8 percent. Keeping in mind that the average share of attritors in 4.88 percent in 2-year panels, these marginal effects are very large. Results from the BGLW version reveal that attritors in 2-year panels are 1 percent less likely to be participants, and 4 percent more likely to be unemployed (conditional on participation).

Tests of ignorability with respect to labor market status conducted on longer length panels that span 3 and 4 years provide additional evidence that attrition renders balanced panels unrepresentative. Keeping in mind that the results are valid

conditional on surviving earlier rounds of attrition risk, it would be safe to say that using T-SILC to study dynamic outcomes that are influenced by the labor market status of the head, may not be advisable. To give a concrete example, consider the dynamics of extreme poverty, an outcome which is listed among the key purposes that EUROSTAT envisioned for launching SILC. Technically households can be followed for four years, and one may think that this is a decent sized window for studying how long a household suffers from extreme poverty, and why. The problem is, households respond to changing conditions, and those that can survive three rounds of attrition and remain in the balanced 4-year panel may not be the ones suitable for studying extreme poverty.

Although SILC survey protocol monitors non-response closely, weighting practice reflects the focus on balanced panels for the purpose of studying dynamics. Our analysis underscores the perils of the Missing at Random (MAR) weighting approach adopted by EUROSTAT and employed by TURKSTAT. Non-ignorability of attrition with respect to labor market outcomes is a warning bell that should be heeded by researchers and policy makers who exploit the information on dynamics. Although the econometrics literature offers many alternatives to MAR, it is difficult to isolate one that offers the best option for handling attrition problems. Consequently proper handling of attrition remains a task that is intimately connected with the specific question, and possible endogeneity of attrition in that context.

Chapter 2

IS THE SURVEY OF INCOME AND LIVING CONDITIONS SUITABLE FOR STUDYING LABOR MARKET DYNAMICS?

2.1 Introduction

Survey of Income and Living Conditions (SILC) is a widely used data source in Europe that provides the opportunity to track household and individual outcomes over time. It offers rich data on income, ownership of assets and living conditions of households and labor market outcomes for individual members. European Statistical Institute started SILC in 2003 [EUROSTAT, 2021]. Turkish Statistical Institute (TURKSTAT) joined the effort in 2006. Türkiye-SILC (T-SILC) is the only household level panel data collected in Türkiye. It is conducted annually and follows households for a maximum of four years. Individual country implementations vary in terms of data collection frequency and panel length. In this paper, we examine the suitability of SILC for studying labor market dynamics at annual frequency from 2006 to 2017. Although our analysis is based on micro data from T-SILC, the similarities in the structure of SILC across countries render our evaluation broadly applicable and our findings relevant.

Mortensen and Pissarides [1994] were the first to underscore the information value of labor market transitions to study the implications of macro shocks and policy responses. The empirical job search literature that followed their theoretical contributions shed light on the determinants of flows into, and out of unemployment [Atkinson and Micklewright, 1991; Poterba and Summers, 1995; Fitzenberger and Garloff, 2008; Bramoulle and Saint-Paul, 2010]. In the developing country context flow data were used to test dual labor market conjectures by analyzing the transitions

between formal and informal jobs, which are typically demarcated by registration status to the public social security system [Maloney, 1999; McKeever, 2006; Bosch and Maloney, 2010].

Although the notion of labor market dynamics can be understood to include specific transitions, such as school-to-work transition, retirement dynamics and wage consequences of job mobility, we adopt a broad view, and examine dynamics by relying on a large state space that reflects the structure of the labor market in Türkiye. Studies in the developed country literature typically rely on a 3 by 3 transition matrix where states consist of employment, unemployment and non-participation. We zoom in to paid employment and break it down by access to social security (formal vs. informal) and according to work intensity (full-time (FT) vs. part-time (PT)). Our focus is warranted, because the labor market has been transforming rapidly, via a rapid rise in the share of wage and salary (WS) employment accompanied by increased formalization, an expanding unemployment insurance system, and emphasis on flexibility.

The literature on labor market dynamics in Türkiye is extremely thin. Except for Cilasun et al. [2015], who rely on the first two waves of T-SILC to examine the efficacy of labor market measures taken during the 2008 global crisis, researchers have relied on the Household Labor Force Survey (HLFS), which too resembles its European counterparts. Şengül [2014] and Şengül and Taşçı [2020] followed Shimer's [2012] lead and inferred transition rates from aggregate monthly stock data obtained from the HLFS.[1] Others used micro-data from the short-panel component of the HLFS which is not publicly available [Taşçı and Tansel, 2005; Ekinci, 2007; Tunalı, 2009; İkizler, 2011; Gökçe, 2011; Özkan, 2013]. The studies that follow Shimer's methodology rely on steady-state analysis [Petrongolo and Pissarides, 2008; Elsby et al., 2009, 2013; Elsby and Michaels, 2013; Smith, 2011]. Our approach is different in that we do not constrain the transitions. This allows us to capture the effects of economic crises and labor market policy changes and make comparisons with the

[1]Shimer [2012] assumes that labor force does not change between periods. Şengül [2014] relaxed this assumption and allowed for labor force growth, generalizing the applicability of Shimer's methodology.

results obtained from the HLFS, arguably the main data source for labor market analyses.

SILC is a fixed-window panel data that uses an address-based sampling frame. Each annual round contains four nationally representative subsamples. One is dropped after each round and replaced with a new nationally representative subsample (fresh sample) [EUROSTAT, 2021]. T-SILC follows this protocol and retains the same set of addresses for up to four years.

SILC includes information on the labor market status of household members in the reference week as well as retrospective monthly labor market activity for the previous year. This provides an opportunity to study annual [Lehmann et al., 2020] and monthly [Berger and Schaffner, 2017; Duhautois et al., 2018; Symeonaki et al., 2019] labor market transitions. To our knowledge possible drawbacks of using SILC have not been assessed in the existing literature. In this paper, we aim to contribute to the EU-SILC literature by scrutinizing the appropriateness of SILC for studying labor market dynamics. We discuss the challenges that SILC users should be aware of and offer fixes where appropriate, motivated by our work on T-SILC. We then proceed to document the intra- and inter-state transition patterns at annual frequency using data from 2006 to 2017 for Türkiye. Finally, we compute labor turnover measures, particularly hiring, job-to-jobless separation and job-to-job transition rates.

Panel data are prone to missing data problems such as attrition, which refers to non-response after an initial response, and reverse attrition, response after an earlier non-response. T-SILC is no exception. A 4-year T-SILC panel contains 2-year, 3-year and 4-year panel components. TURKSTAT provides separate weights for each panel component, for both households and individuals who survive until the end of the respective panels. The weights rely on the Missing at Random (MAR) approach and are based on the observables in the terminal period of the relevant panel component. While MAR approach is suitable in the case of non-response at the initial visit, it can be problematic in later rounds because it assumes that attrition is random with respect to the outcome variables of interest. Chapter 1

documents that the likelihood of non-response in later rounds of T-SILC is non-ignorable with respect to labor market status of the household head. Given the intimate connection between employment status and outcomes such as income and poverty status, attrition can serve as a veil that hides the true dynamics.

The first challenge in employing SILC then, is the presence of attrition. A distinguishing feature of our approach is how we handle attrition. To expose the scale of attrition and its effect on measured dynamics, we define attrition and reverse attrition as separate states in our analyses of labor market transitions. To avoid possible bias, we use the fresh subsamples which rely on first and second visit information only. Although this strategy leads to loss of roughly two thirds of the sample size, it is warranted given the results in Chapter 1. In this chapter, we take another crack at the issue and reach the same conclusion upon comparing the labor market status stock shares from the fresh subsamples with those obtained from the subsamples that survived one, two and three rounds of attrition under the null hypothesis that annual stock shares are equal. We reject the null in 10 out of 70 comparisons we make in one-round attrition survivor subsamples. In two- and three-round attrition survivor subsamples, the rejection rate increases dramatically (to 15 out of 63 and 17 out of 56 cases, respectively).

A second novelty we employ is calculation of weights consistent with our prudent strategy that uses fresh subsamples. While EUROSTAT and TURKSTAT compute balanced panel weights for survivors, we calculate the weights for all individuals who are present in the first period of 2-year panels. Our weights also rely on the MAR approach. This is acceptable because attrition is treated as a terminal state in our approach.

A notable feature of SILC, which can be viewed as a handicap for studying wage dynamics, is the gap between the reference periods of earnings and detailed labor market information collected from individuals. The reference period for earnings information is the previous calendar year. Detailed labor market information is recorded for the full week before the visit and the visit date varies in a window that starts in April and ends in July. It is challenging to link current labor market infor-

mation with previous year's earnings especially when a job-change occurs before the visit. Moreover, earnings information is subject to additional recall bias compared to other surveys. In the European LFS as well as HLFS which have much larger sample sizes, all weeks serve as the reference week for labor market activity and earnings data come from the previous month. Although retrospective labor market activity is recorded for each month of the previous calendar year in a separate section of SILC, it provides information based on the self-perception of individuals rather than the conventional International Labor Organization (ILO) classification of labor market status. As we show below, additional information collected on current labor market status during the reference week allows us to follow ILO guidelines.

There are also some minor issues which limits the scope of analyses that can be conducted using T-SILC. One is the lack of public vs. private sector distinction. Another is the lack of tenure information on the current job. We conduct our empirical analysis with these handicaps in mind. We adopt a three stage empirical strategy to examine the suitability of SILC for studying labor market dynamics by analyzing annual labor market transition rates. We compare our results with findings obtained from HLFS where we can.

In the first stage, we rely on a 7 x 8 transition matrix and present a detailed analysis of the key flows in the labor market. The initial labor market states of interest are full-time (FT) formal and informal wage and salary (WS) employment, part-time (PT) formal and informal WS employment, non-WS employment, unemployment and non-participation. We include attrition on our list and consider 8 terminal states. Forward transition analyses conducted on fresh subsamples show that persistence is the dominant pattern, except for unemployed individuals. Non-participants and FT formal WS workers have the highest retention rates with 82 percent and 81 percent, on average. Nearly half of the FT informal WS workers change their status one year later. Transition to attrition is relatively high in the sense that it is the second dominant flow in transitions from FT formal WS employment and non-participation. The transition rate from unemployment to non-participation is 26.6 percent. The transition rate from non-participation to employment is sizeable

as 7.3 percent of non-participants starts to work one-year later.

We analyze backward transitions to gain insight about how reverse attritors return to the labor market. The results show that the share of reverse attritors among unemployed individuals is highest at 13.5 percent on average. Transition rates into FT formal and informal WS employment from reverse attrition are also considerable, and average to 7.4 percent and 6.8 percent, respectively. These patterns suggest that labor market draws determine both attrition and reverse attrition behavior.

Since we have data from multiple years, we are in a position to detect departures from steady state transition rates. In the second stage, we test whether there are changes in the transition rates at the time of the 2008-09 global financial crisis and the extraordinary minimum wage hike that took place at the beginning of 2016. We rely on a simple error components model to test for adverse employment effects of these two major shocks that Türkiye experienced during the period under investigation. The results underscore that the 2008-09 economic crisis makes the transitions from FT informal WS employment and non-WS employment to formal WS employment difficult. Additionally, we find elevated labor force participation orientation of non-participants which could be a sign of the added-worker effect. The minimum wage hike also alters transition patterns. It increases mobility regardless of state. It reduces the probability of persistence in formal WS employment and the transition rate from informal to formal sector, but improves the chances of non-WS workers and non-participants to transit into formal WS employment. Although aggregate level analyses point out to some adverse employment effects after the minimum wage hike, further analysis is needed to connect them causally.

Forward and backward transition rates calculated at the first stage allow us to compute turnover measures. In the third stage of our evaluation, we examine hiring, job separation and job-to-job transition rates that track the overall well-being of the labor market and compare our findings with those obtained from the HLFS. During the period under investigation, the average annual job finding rate from unemployment is 39.3 percent which means that less than one-half of the unemployed individuals find a job one-year later. We further investigate the hiring

rate from non-employment and obtain 11.4 percent average hiring rate.

When we turn to job separations, we examine its two components separately. The average annual job-to-jobless separation rate is 9.8 percent. Only 5.2 percent of employed individuals make a job-to-job transition within a year in the sense that they remain employed but hold different jobs. Overall labor turnover rate is 26.5 percent meaning that 26 out of 100 employed individuals find jobs, separate from their jobs or change their employers annually.

Based on our three stage assessment of the appropriateness of SILC for studying labor market dynamics, we conclude that SILC is a useful data source for shedding light on labor market flows and for studying labor turnover. It also has great potential for studying the determinants of attrition and reverse attrition which act as veils and stand in the way of proper characterization of labor market dynamics.

The rest of the paper is organized as follows: Section 2 provides background information on the characteristics of the Turkish labor market. Section 3 introduces T-SILC and explains how we construct the working samples. Section 4 documents the challenges and shortcomings for studying labor market dynamics and offers fixes. The methodology used in constructing the transition matrices and the motivation behind the choice of labor market states used in the transition analyses are provided in Section 5. Section 6 contains empirical results. We begin by making the case for use of fresh subsamples. We proceed to study the dynamics using transition rate graphs, look for footprints of major economic crises and assess the contributors of aggregate dynamics using various labor market turnover measures. Section 7 concludes. Auxiliary figures and tables are included in the appendix.

2.2 Labor market characteristics in Türkiye

Although fertility rates have been coming down, population momentum kept the population growth rate high [Tunalı et al., 2021]. During the period we study, non-institutional population aged over 15 increased from 50 million in 2006 to nearly 60 million in 2017. High unemployment rate combined with low female labor force participation rate (LFPR) are the principal challenges of the Turkish labor market.

The average annual LFPR was 49.4 percent from 2006 to 2017, the lowest figure observed among OECD countries where the average is 60.5 percent in 2017 [OECD, 2022]. This is mostly attributable to exceptionally low female LFPR which was 33.6 percent in 2017 at a time when the aggregate reached 52.8 percent [TURKSTAT, 2022]. Naturally, employment-to-population ratio is lower, 44.2 percent, on average, for the period under study, and 47.1 in 2017.

Historically, employment in the Turkish labor market was dominated by small-scale family enterprises, often agricultural farms, operated by self-employed household heads and supporting household members engaged as unpaid family workers. The labor market has been undergoing a dramatic structural transformation since the 1950s with accelerating urbanization and shift from agriculture to manufacturing and services sectors [İlkkaracan and Tunalı, 2010; Cilasun et al., 2015; Tunalı et al., 2021]. Tunalı et al. [2021] observe that the share of agriculture in total employment decreased from 85 percent in 1950 to 36 percent in 2000 which was accompanied by a decline in female LFPR (72 percent in 1955 to 40 percent in 2000) due to lack of employment opportunities for low-educated females who migrated to urban areas.

In the last three decades, labor market experienced a remarkable increase in the share of wage and salary (WS) employment, from 58.9 percent in 2006 to 67.3 percent in 2017 in our time window. Accordingly, the fraction of self-employed individuals and employers decreased by 6.4 percentage points in the same period. The shift was accompanied by formalization in WS employment. The unemployment insurance program, which was initiated in 1999 and started making payments in March 2002, encouraged formalization. Furthermore, the short-time work compensation program, which started in 2005 and was actively used during the global crisis as an employment protection tool, prevented layoffs in the firms who ran into economic troubles and kept job destruction in the formal sector in check [Cilasun et al., 2015; Balkan et al., 2016; Öktem, 2020; Tunalı and Ulus, 2021]. Employment subsidies in the form of payroll tax reductions provided incentives for hiring formal rather then informal workers. Last but not least, stiff penalties for hiring workers informally were introduced in 2006. The combined effects of these policies and sus-

tained growth increased the formal share in WS employment from 68.5 percent in 2006 to 81.7 percent in 2017.

During the period under study, the Turkish labor market faced two major shocks that had the potential to usher in adverse employment effects. The first one is spillover from the 2008-09 global financial crisis and the second one is the 30 percent nominal, 22.6 percent real minimum wage hike between 2015/16. Although data from the Household Labor Force Survey (HLFS), the primary dataset used in the analysis of labor market outcomes, point out to employment loss [Gürsel and Dinçer, 2008] and a substantial increase in the unemployment rate in the last quarter of 2008 and the first half of 2009, the employment protection measures launched by the government and the rapid recovery minimized the adverse effects of the global crisis [Cilasun et al., 2015]. On the other hand, aggregate HLFS data do not point out to detrimental employment effects that can be associated with the unusually large minimum wage hike [Bakış et al., 2021]. Remarkably WS employment increased by 3.1 percent (550 thousands workers) from 2015 to 2016. Since a sizeable share of WS employees earned at or below the minimum wage (42.3 percent in the first quarter of 2016 [Bakış et al., 2021]), this finding runs against the predictions based on standard neoclassical labor market theory [Neumark and Wascher, 2008; Card and Krueger, 2015].

It is tempting to revisit these episodes using panel data. With these broader objectives in our mind, we assess the suitability of T-SILC to investigate labor market dynamics and labor turnover, in particular job separation and hiring patterns. We use micro data we assembled on forward and backward transitions between a broad set of labor market states to analyze labor market dynamics. We exploit the transitions out of, and into WS employment, to assess the appropriateness of T-SILC for detecting the adverse employment effects of the global crisis and the minimum wage hike that occurred at the beginning of 2016.

2.3 Data

We use data from several rounds of T-SILC panel data. In this section, we review the structure of the data and provide information on how we construct the working samples. Since the survey instrument of T-SILC serves a broader set of objectives and has a different flow logic, we provide some contrasts with Household Labor Force Survey (HLFS). The challenges and potential shortcomings of T-SILC for studying labor market dynamics are discussed in a separate section.

2.3.1 Overview of SILC

EUROSTAT launched SILC in 2003 to collect multi-purpose data on income, labor market status, demographic characteristics, ownership of assets and living conditions of households and household members. The ultimate objective was to have comparable data sets across Europe [Iacovou et al., 2012].[2] TURKSTAT joined the effort in 2006. SILC has an address-based, rotating sampling frame. It follows households for up to four years. Households that do not respond at the initial visit are recorded as non-respondents and dropped from the sample. Those who respond at the initial visit and move to another location in subsequent visits are visited in their new addresses as long as contact information is available [EUROSTAT, 2020].[3]

The data are supplied in the form of an annual cross-section, or a 4-year panel format that includes 2-year, 3-year and 4-year components. Each panel of T-SILC is provided in the form of 4 different files, titled household registration, household rosters, individual registration and individual rosters, which can be merged using household and individual ID numbers and year information. Individual rosters contain the main information necessary for analysis of labor market dynamics and include sections on employment status, main job characteristics, job history, and income. Income information is broken down by source and recorded for the previous

[2]SILC replaced an earlier panel dataset that was collected across Europe by EUROSTAT, called European Community Household Panel (ECHP). For more information on ECHP, see Peracchi [2002].

[3]A summary of the rotation plan and following protocol of T-SILC can be found in Chapter 1.

year for all household members who are 15 years-old or older.

2.3.2 Working samples

Survey protocol of T-SILC stipulates collection of labor market information from those who will reach age 15 by the end of the panel window. We restrict our working sample to those who are aged 15 or over at time t for forward transition analyses to maintain the comparability of statistics with those obtained from HLFS. The working sample of backward transition analyses consists of individuals aged over 15 at time t+1.

In the forward transition analyses, our full sample consists of 142,449 individuals in fresh subsamples which is obtained by pooling individuals who are present in the first period. It drops to 121,511 individuals in the one round attrition survivor subsamples, and 101,373 individuals in the two rounds attrition survivor subsamples. The working sample size used in the backward transition analyses is 131,385 individuals in the first round. It drops to 123,290 individuals, and 102,684 individuals in subsequent rounds. Drops in the sample sizes in later rounds raise concerns about the suitability of the panels for studying dynamics.

2.3.3 Weighting

T-SILC public use micro data files include separate weights for 2-year, 3-year and 4-year balanced panels. The supplied weights are calculated using observables from the last leg of each panel. TURKSTAT uses the terminal period's non-institutional population projection obtained from the Address Based Population Registration System (ABPRS) to arrive at the target population. The observables used in weight calculation are age group, gender and region (NUTS II classification) information. Since weights based on this variable set is not sufficient for arriving at the target population, they are calibrated using additional information: household type, household size and urban/rural distinction. The additional information used for calibration is not provided to users of T-SILC. Region information (NUTS I and II) is included in cross-section data, but not in the panel component.

In Section 2.6.1, we conduct tests on the marginals obtained from fresh subsamples and those from later rounds and document discrepancies. To side-track the problem of erosion of representativeness brought about by attrition, we mostly use only the first and second round information obtained from fresh subsamples and include attrition and reverse attrition as separate states among our list of labor market states. We calculate our own weights to be able to use fresh subsamples. Although we follow a similar weighting logic (MAR approach) as TURKSTAT and EUROSTAT, we do not adopt their methodology. While both agencies include non-zero weights for the balanced panel, we compute weights for all individuals who are surveyed in the first period of 2-round transitions in fresh subsamples. Since we do not have region and the additional information used in calibration, we also exploit variation in education. This variable allows us to make partial adjustment for the influences of excluded variables. We obtain the non-institutional target population from the cross-section components of T-SILC. Details on weight calculation are given in Appendix B.2.

2.4 Challenges in the use of T-SILC for studying labor market dynamics

T-SILC is the only household level panel data set available for public use in Türkiye. A feature that renders SILC attractive is the availability of information on living conditions and income broken down by source for all members of the household. Since it also tracks the labor market status of the members, it emerges as a potential candidate for studying labor market dynamics and their consequences. However, it also has some drawbacks that SILC users should be aware of. In this section, we document the challenges that face the user while working with T-SILC in labor market analyses and offer some fixes. The upshot of our analyses is that SILC is a useful data source for studying labor market dynamics, subject to our caveats.

One of the major challenges that face users of T-SILC is attrition. All panel data are prone to attrition and T-SILC is not an exception. In Chapter 1, we document that averaged over 4-year panels from 2006 to 2015, T-SILC has 15.5

percent attrition and 4.15 percent reverse attrition at the household level. Moreover, we have evidence in Chapter 1 that endogeneity outcomes are linked with labor market status of the household head. This would lead to attrition bias in the analyses of labor market dynamics, since attrition incidence is correlated with the variable of interest. We side-track this problem by using the first period information from fresh subsamples which are not subject to attrition. Furthermore, we respectively include attrition as a terminal state, and reverse attrition as an origin state in our analyses of forward and backward transitions. This enables us to study the patterns of transition into and out of attrition that can confound dynamic analyses. Later, we discuss how the results can be combined to shed light on the nature and consequences of attrition.

Although it does not affect our analyses, a second challenge that potential users need to be aware of is the gap between reference periods of earnings information and labor market status collected from individuals. The reference period for detailed labor market information is the full week before the interview. The reference period for earnings is the previous calendar year. Therefore, it is challenging to connect current labor market status with earnings information. Moreover, since individuals report their annual earnings for the previous calendar year, the responses recorded in the income section are subject to recall bias.

The main goal of SILC is to collect comparable cross-sectional and panel data on poverty, income distribution and social exclusion [EUROSTAT, 2020, p. 14]. Consistent with this goal, the employment segment in the survey instrument begins with a question on individual's perception of his/her employment status.[4] To be able to compare our findings with those based on the HLFS, we exploit additional information available in the dataset to arrive at a conventional definition of labor market status that follows International Labor Organization's (ILO) guidelines. Details on how we define the labor market status of individuals are explained in Appendix B.

[4]The relevant question in the individual roster is FI010. The options that are recorded as self-defined current activity are full-time (FT), part-time (PT) employment, looking for a job, being in school, retirement, disability, fulfilling domestic work, and other. After 2011, FT and PT employment are divided further as FT and PT wage and salary (WS) employment, and FT and PT self-employment which includes employers and unpaid family workers.

Although retrospective labor market activity is recorded for each month of the previous calendar year, this component of the survey does not include relevant information about the job - - such as occupation, sector, regular working hours, firm size and access to social security - - which is available for the main job held in the reference week. Technically it is possible to study transitions at monthly frequency, albeit by ignoring the formal/informal distinction. An apparent advantage of the retrospective employment history is better overlap with annual earnings information. Unfortunately it is not possible to separate earnings from different jobs held during the year.

The month-by-month labor market activity is based on individual's perception, and might not yield a consistent picture of the labor market. In particular how individuals view unemployment can be quiet different.[5] Additionally, recorded information is subject to potential recall bias. It is possible to ascertain the magnitude of the recall bias in the month-by-month information for the subset of individuals who held the same job in the past year. We discovered that for 6.8 percent of WS workers, "months of employment" calculated from the month-by-month labor market activity differed from the information on "months worked in the previous year" reported for the main job.[6] Most importantly, it is not possible to reconcile the information in the month-by-month labor market activity with conventional ILO classification. Given these shortcomings, we decided to analyze transitions at the annual frequency using labor market status reported in the reference week.

In what appears to be a deviation from EUROSTAT practices, entrepreneurs who

[5]Guidelines provided by EUROSTAT include passages that reveal the difficulties: "More than one activity status can apply to a person but only the most important activity should be reported. Self-perception means the variable must capture how people perceive themselves, not how they meet certain objective criteria. Where more than one status applies to the person, the respondent should select the category that best describes their situation." [EUROSTAT, 2020, p. 357]. Concrete examples that illustrate the difficulties of handling unemployment include the following: "Respondents can consider themselves being employed irrespective of their official labour market status, working time or kind of income from employment. They can also be looking for another job in parallel... Respondents can see themselves as being unemployed irrespective of an official status or a registration with the public employment agency. Unemployed persons can also have minor jobs while seeking a main job."

[6]The responses recorded in the income section are also subject to recall bias, unfortunately, we do not have any tools to measure the potential bias.

are also WS employees in their own companies are recorded as wage and salary (WS) employees in T-SILC.[7] These individuals do not face employment risk that regular WS employees are exposed to. Their source of employment risk is entrepreneurial risk. Consistent with the guidelines of EUROSTAT, we excluded individuals who report entrepreneurial income from our WS employee category.[8]

Bakış et al. [2021] argue that analyses of the labor market in Türkiye should recognize the three dimensions along which segmentation occurs: male vs. female, formal vs. informal, and public vs. private. They point out that the bulk of formal public sector workers occupy higher positions in the wage distribution. More importantly, they are not subject to employment risks that WS employees face in the private sector. Unfortunately, T-SILC micro data files do not have public/private distinction for WS workers. Consequently, it is not possible to disaggregate public and private sector workers and analyze sectoral dynamics separately using T-SILC.

Unlike HLFS, SILC records actual labor market experience of individuals.[9] Potential experience is known to overestimate actual experience, particularly for women and others who transit in and out of employment frequently. The actual experience information available in SILC may provide a better measure of human capital, albeit subject to recall bias. On the down side, SILC does not collect data on tenure. From the job search perspective, tenure is a good proxy for measuring match quality

[7]EUROSTAT methodological guideline states that employees constitute a separate category from self-employed individuals who work in their own business, professional practice or farm to earn a profit. [EUROSTAT, 2020, pp. 371–372]. Consistent with this view, EUROSTAT eliminates employer category from employment type and records employers as self-employed individuals in SILC. In T-SILC, individuals who own and run their companies are recorded as employers.

[8]To detect FT WS employees with entrepreneurial income, first we started by identifying FT WS employees (by using questions FI020, FI120 and FI010 (for FT/PT distinction)) at time t. We then examined retrospective month-by-month labor market activity information (by using questions FI340A-FI340L) to check their labor market status at time t-1. If these FT WS employees were continuously employed as WS workers for 12 months at time t-1, and reported self-employment income, then we concluded that these individuals were entrepreneurs, even though they are recorded as WS employees. For those who worked less than 12 months as WS employees at time t-1, we checked if they worked as self-employed at time t-1. Those who did not work as self-employed, but reported entrepreneurial income were considered as entrepreneurs.

[9]T-SILC questionnaire includes two helpful questions: Age at which the individual started working on a regular job (FI320) and years spent on earning income since the first job (FI330).

[Centeno, 2004; Akgündüz and van Huizen, 2015]. This potentially important driver of labor market dynamics is absent in SILC.

Ultimately, although challenges and data gaps are present, after careful evaluation of the data content, we concluded that SILC has potential for studying labor market dynamics at an annual frequency. In particular, it is possible to study labor market turnover and identify the different transitions that contribute to job separation and hiring rates. To reach this conclusion, we subjected T-SILC to a torture test by examining the information content of transitions computed on a large state space.

2.5 Methodology

A key step in our empirical investigation is the estimation of transition rates between states of interest. In this section, we explain the methodology we employ in our calculation of forward and backward transition rates and motivate our choice of labor market states.

2.5.1 Transition rate calculation

In forward transition analyses, we study the terminal states of individuals at time t+1 conditional on being in a given state at time t. Backward transition analyses complement the picture by informing us about the origin states of individuals at time t conditional on being in a given state at time t+1. The key challenge in the calculation of transition probabilities is proper handling of the effects of attrition and reverse attrition.

To shed light on how attrition impacts our investigation, we include it in our labor market transition analyses. Since we do not know the labor market status of attritors (reverse attritors) at time t+1 (at time t), we keep attrition (reverse attrition) as a terminal (an origin) state in our forward (backward) transition matrix and analyze the transitions into attrition (out of reverse attrition) separately from other states. Conceptually attrition and reverse attrition are two halves of the same

phenomenon: What attrition hides from us can be learned by examining reverse attrition.

To illustrate the utility of our approach, we rely on a 3 x 3 transition matrix representation for simplicity. Let p_{ij} denote the joint probability of occupying state i at time t and state j at time t+1. In case of no attrition, we can compute the true transition rates using the parameters shown in Table 2.1. For example, forward transition rates are obtained as conditional probabilities defined via $Pr(j \mid i) = \frac{p_{ij}}{p_{i\cdot}}$ (i=1, 2, 3; j=1, 2, 3), where $p_{i\cdot} = \sum_j p_{ij}$.

Table 2.1: Joint probabilities without attrition

		State in t+1			
		1-E	2-U	3-NP	
State in t	1-E	p_{11}	p_{12}	p_{13}	$p_{1\cdot}$
	2-U	p_{21}	p_{22}	p_{23}	$p_{2\cdot}$
	3-NP	p_{31}	p_{32}	p_{33}	$p_{3\cdot}$
		$p_{\cdot 1}$	$p_{\cdot 2}$	$p_{\cdot 3}$	

In the presence of attrition and reverse attrition, the transition matrix looks like that in Table 2.2. The additional column and row respectively capture forward transitions to attrition, and backward transitions from reverse attrition. To see the impact of generalized attrition on our analysis of dynamics, we need to study forward transitions in a 3 x 4 state space, and backward transitions in a 4 x 3 state space. For the sake of our argument, we refer to the cell values in Table 2.1 as true fractions and those in 2.2 as observed fractions.

When attrition or reverse attrition are present, cell fractions in the original 3 x 3 component (upper left hand side) of the new table are lower than the true cell fractions: $\widetilde{p_{ij}} < p_{ij} (i = 1, 2, 3; j = 1, 2, 3)$. Empirical studies in the labor economics literature typically ignore attrition and calculate forward transition rates as

$\widetilde{Pr}(j \mid i) = \frac{\widetilde{p_{ij}}}{\widetilde{p_{i\cdot}}}$ (i=1, 2, 3; j=1, 2, 3), where $\widetilde{p_{i\cdot}} = \sum_{j<4} \widetilde{p_{ij}}, i = 1,2,3.$ Since $\widetilde{p_{i\cdot}} < p_{i\cdot}$, the calculation involves dividing a (negatively) biased number by another (negatively) biased number, where by $\widetilde{Pr}(j \mid i)$ may be higher or lower than the true $Pr(j \mid i)$.

We follow a different tack and calculate the forward transition rates as $F(j \mid i) = \frac{\widetilde{p_{ij}}}{p_{i\cdot}}$, using the correct marginal probabilities in the denominator and the augmented 3 x 4 state space. Although the joint probabilities are still biased downward because of attrition, by relying on the correct marginals we obtain lower bounds on the forward transition rates,
$F(j \mid i) = \frac{\widetilde{p_{ij}}}{\widetilde{p_{i\cdot}}} < \frac{p_{ij}}{p_{i\cdot}} = Pr(j \mid i)(i = 1,2,3)(j = 1,2,3).$

Table 2.2: Transition probabilities with attrition

		State in t+1				
		1-E	2-U	3-NP	4-A	
State in t	1-E	$\widetilde{p_{11}}$	$\widetilde{p_{12}}$	$\widetilde{p_{13}}$	$\widetilde{p_{14}}$	$p_{1\cdot}$
	2-U	$\widetilde{p_{21}}$	$\widetilde{p_{22}}$	$\widetilde{p_{23}}$	$\widetilde{p_{24}}$	$p_{2\cdot}$
	3-NP	$\widetilde{p_{31}}$	$\widetilde{p_{32}}$	$\widetilde{p_{33}}$	$\widetilde{p_{34}}$	$p_{3\cdot}$
	4-RA	$\widetilde{p_{41}}$	$\widetilde{p_{42}}$	$\widetilde{p_{43}}$	- -	
		$q_{\cdot 1}$	$q_{\cdot 2}$	$q_{\cdot 3}$		

We calculate backward transition rates using the 4 x 3 submatrix of Table 2.2, as $B(i \mid j) = \frac{\widetilde{p_{ij}}}{q_{\cdot j}} (i = 1,2,3,4; j = 1,2,3)$. The point of adding attrition as a terminal state is that by examining $F(j = 4 \mid i)$, (i=1, 2, 3) we get to find out which origin states are associated with higher rates of attrition. Conversely the advantage of including reverse attrition as an origin state is that by studying $B(i = 4 \mid j)$, (j=1, 2, 3), we get to find out which terminal states contain higher shares of reverse attritors. As we argue in the empirical results section, by adding attrition and reverse attrition to our state space, we get to take a peek behind the veil created by

attrition and reverse attrition, and glean a better understanding of the dynamics.

So far we ignored sampling issues. Since fresh samples are representative of the population, analysis of forward transitions does not create additional problems. Matters get more complicated when we turn to backward transition rates, which rely on the information given in the respective columns, j=1, 2, 3 of Table 2.2. Since attritors shown in column 4 are absent in the second round, the column sums denoted by $q_{\cdot j} = \sum_i \widetilde{p_{ij}}$, j=1, 2, 3, 4 do not qualify as correct marginal probabilities for the population of interest. Put differently, information used in the computations come from period t+1, and there is no guarantee that the combined sample of first round attrition survivors plus reverse attritors constitute a random sample drawn from the population of interest. In fact, we offer empirical evidence that supports this concern below, in Section 2.6.1.

2.5.2 Labor market states

In picking the states to be included in the transition analyses, we relied on the background information given in Section 2.2. The share of wage and salary (WS) employees increased by almost 15 percent from 2006 to 2017 (from 58.9 percent to 67.3 percent). To capture composition effects, we focus on subsets of WS employees. The main source of vulnerability among WS employees is informality which brings job insecurity, as well as poor working conditions and lower pay. Such concerns distinguish full-time (FT) and part-time (PT) WS workers as well. Therefore, we break down WS employees into four groups: FT formal, FT informal, PT formal and PT informal WS workers in anticipation of differences in employment stability.

Individuals who work at non-WS jobs, such as self-employed individuals, and employers may not share the same employment risks as WS employees in the event of macroeconomic shocks and labor market policy changes. Their risk can be labelled as entrepreneurial risk which is shared by unpaid family workers in family enterprises. In our examination of transitions we lumped all three employment types together as non-WS employment. This group constituted 13.1 percent of employed individuals in 2006 and their share declined to 11.1 percent in 2017 [TURKSTAT, 2022].

To complete state space, we include unemployment and non-participation in our transition matrix. Studies in the literature typically examine the transitions between employment and unemployment which form a significant part of labor market turnover. However, transitions from non-participation to employment are substantial in Türkiye. Using data from the short panel component of HLFS, Özkan [2013] reported the annual transition rate from non-participation to employment from 2001 to 2002 as 11 percent. More importantly for every individual transition from unemployment to employment, 2.4 individuals transited from non-participation to employment. We study the contributions of unemployed individuals and non-participants in our forward and backward transition analyses to better understand the channels of job finding.

By adding attrition as a terminal state, we obtain a 7 x 8 forward transition matrix. Similarly, we obtain an 8 x 7 transition matrix with reverse attrition added as an origin state in the backward transition analyses. The graphical and tabular presentations of transition matrices and the discussion of results will be presented in the next section.

2.6 Empirical results and discussion

In this section, we report the results from our empirical examination of stock and flow data from panels 2006-17 and conclude our investigation of the suitability of SILC for labor market dynamics. In Chapter 1, we established that revisited subsamples suffer from sizeable attrition, and that attrition is non-ignorable with respect to observed labor market status of household heads in the period just before attrition occurs. We begin by taking another crack at the issue in subsection 2.6.1 and provide evidence that annual labor market stock shares obtained from subsamples that survived one, two, and three rounds of attrition are different from those obtained on the fresh subsamples. We therefore conduct the remaining steps on the fresh subsamples only. In subsection 2.6.2, we study forward and backward transitions and discuss the patterns of annual dynamics which contributed to the trends observed in Section 2.2. A distinguishing feature of our analysis is our use of attrition (reverse attrition)

as a terminal (origin) state in our examination of forward (backward) transitions. By putting together the flow patterns into attrition and out of reverse attrition, we are able to assemble a clearer picture of the labor market dynamics.

In two subsequent subsections, we look for further evidence of the ability of SILC to track dynamics. We first establish that broad economic shocks (such as the 2008-9 global crisis) as well as specific ones (such as the jump in minimum wage between 2015/16) left their mark on the annual transition rates (subsection 2.6.3). We then compute turnover measures and show that key trends observed on the HLFS data can also be detected from T-SILC (subsection 2.6.4). Obviously a thorough analysis of the patterns goes well beyond the confines of this chapter. Presently we are content with supporting the conclusion that SILC has the potential to contribute to all the above mentioned undertakings.

2.6.1 The case for using fresh subsamples

First order of business is to determine the suitability of subsamples that consist of attrition survivors for analysis of dynamics. We focus on stocks of individuals in the various labor market states which serve as denominators in the calculation of transition rates. Since the subsamples that contribute to a given cross-section started as representative samples drawn from the population, it is tempting to use them all. However, Chapter 1 shows that attrition in a given round of T-SILC is non-ignorable with respect to the labor market status of the household head at the time of the most recent visit, based on pooled data from 2006-15 on households that have 25-64 year old heads. In this chapter micro-data from all working-age household members are used, so another crack at the impact of attrition is warranted. The impact of attrition on stocks can be seen by examining a simple error components model that tracks the observed fraction in a given labor market state across different subsamples. Since the cross-section at a given year consists of (up to) four subsamples, we compare the fresh subsamples visited for the first time (in a given year) with subsamples that belong to panels that commenced earlier. Let f_s denote the observed fraction in a given state (designation of which is omitted for brevity) where the subscript s identifies the

subsample, s=1, 2, ..., 4, and let ϕ_s denote the corresponding population fraction. Using t to index time, we may write

$$f_s(t) = \phi_s(t) + \epsilon_s(t) + \eta_s(t), \tag{2.1}$$

where ϵ denotes a zero mean random disturbance that captures sampling variation and η denotes the term that captures the potential non-random influence of attrition which impacts the observed fraction in later rounds, s=2, 3, 4. Since $\eta_1(t) = 0$ by the definition of a fresh subsample, the object of interest is the difference between subsample fraction means in subsequent and fresh subsamples,

$$E[f_q(t) - f_1(t)] = E[\eta_q(t)], q = 2, 3, 4. \tag{2.2}$$

If attrition does not compromise the ability of a subsample to represent the population, then for each labor market state, $E[\eta_q(t)] = 0, q = 2, 3, 4$. Revisited subsamples that pass the zero mean test are suitable for use along with the fresh subsamples. The difference-in-means tests we employ looks for evidence in favor of this null hypothesis separately for each labor market state in each year, t= 2007, 2008, ..., 2016. In each year, we regress the binary indicator of membership in a given state on binary indicators of membership in revisited subsamples, taking fresh subsamples as our reference. Under the null the coefficients of the membership dummies should equal zero.

The fractions of individuals in the labor market states we study (except attrition and reverse attrition) and number of observations contained in each subsample are presented in Table B.1 in Appendix B. The table includes four partitions. The last three partitions belong to attrition survivors and contain the significance levels of the test results. Using the regression results we compute the annual stock shares for 70 cells (7 states x 10 years) in the fresh subsamples. We then recompute the shares for all 70 cells in partition 2, (7 x 9 =) 63 cells in partition 3, and (7 x 8 =) 56 cells in partition 4. The number of observations are shown in the last row of the table.

The mean column can be thought of as steady-state fractions when trends are not present.

For 1-round attrition survivor subsamples, 4 out of 70 stock shares are statistically significantly different from the shares obtained from fresh subsamples at the 1 percent significance level. Additionally 2 rejections at the 5 percent, and 4 at the 10 percent level are observed. The representativeness of the samples erodes further after being subjected to additional rounds of attrition. In 2-round attrition survivor subsamples, 7 out of 63 shares are statistically significantly different from those computed on the fresh subsamples at the 1 percent, 5 at the 5 percent, and 3 at the 10 percent level. In 3-round attrition survivor subsamples, 5 out of 56 shares are statistically significantly different from the shares obtained from fresh subsamples at the 1 percent level, 10 at the 5 percent level, and 2 at the 10 percent level.

The last column in the table can be used to summarize the patterns from our time window. Test results indicate that on average attrition survivor subsamples contain a larger fraction of FT WS workers (both formal and informal) and lower fraction of unemployed individuals. The share of non-participant individuals decreases after the first round of attrition, returns to its initial level after the second round of attrition and ends up higher after the third round. The differences are attributable to the selective nature of attrition. A glance at the individual cells reveals that short run deviations from the general pattern are present. Moreover, the incidence of rejection is the highest in 2007, early in the T-SILC field experience. This could be attributable to fielding problems. In fact, incidence drops starting from 2008 until 2013. The number of rejections rise abruptly in 2013 and 2014, and remain high afterwards. These observations attest to the fact that attrition may constitute a serious challenge despite accumulation of experience with panel data collection.

Although test results justify our preference for the use of fresh subsamples for studying labor market dynamics, we implemented our methodology on attrition survivor subsamples as well. The graphs and tables can be found in Appendix B.3. By-and-large the qualitative patterns seen in fresh subsamples hold up in attrition survivor subsamples as well. In other words, much of our substantive discussion

applies to the full panel. However quantitative results differ in numerous ways and constitute the subject of another paper.

2.6.2 Forward and backward transition rates

We begin by examining the flow rates of individuals into labor market states at time $t+1$ conditional on their state at time t. The starting states are FT and PT formal and informal WS employment, non-WS employment, unemployment and non-participation. Terminal labor market states include all the starting states plus attrition. We rely on graphs to provide an overview because the patterns are easier to see graphically. The magnitudes of the forward transition rates are tabulated in Table B.2 in Appendix B.

Annual forward transition rate graphs obtained from fresh subsamples for the period between 2006 and 2017 are presented in Figure 2.1. Each figure labelled A-G in the combined figure belongs to a starting state and contains 8 boxes that contain bar charts. Each box represents a terminal state. The bars in the boxes show annual transition rates calculated as the fraction of individuals observed in the terminal states given the stock in their starting states. As we underscored in Section 2.5.1 the stock measures are unbiased, so the transition rates computed for the first seven state underestimate the true values when attrition is present. Bars just before the last one mark the transition rates between 2015 and 2016 when an unprecedented 30 percent nominal, 22.6 percent real minimum wage hike occurred. Horizontal lines mark average transition rates for the respective boxes. Labels of the horizontal axes track the years that the stocks come from. A limited set of labels are shown in the interest of visibility. Figures B.2 and B.3 in Appendix B contain the same set of graphs obtained from revisited subsamples.

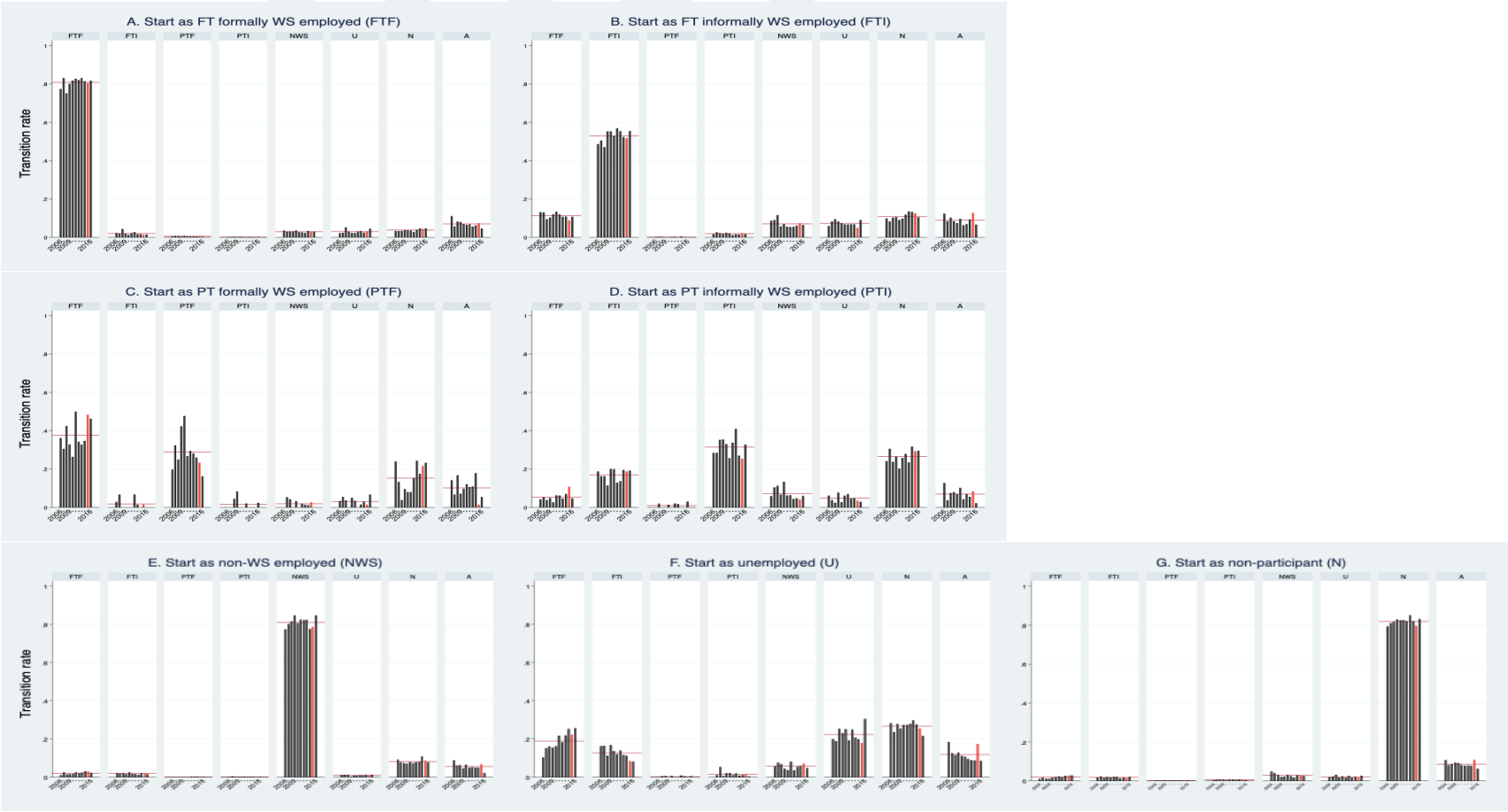
Forward transition rate graphs show that persistence is the dominant pattern except for unemployed individuals (panel F). Averaged from 2006 to 2016, the groups that have the highest retention rates are FT formal WS employees (panel A: 81 percent), non-WS workers (panel E: 81.1 percent) and non-participants (panel G: 82 percent). The persistence rate of FT informal WS employees (panel B) is 52.9

percent, meaning nearly half change their labor market state one-year later. PT formal and informal WS employment graphs (panels C and D) display low persistence rates (respectively 29 and 32 percent on average) and have significant flux, in the sense that several states receive flows of comparable magnitudes. This reflects their often temporary nature. There is evidence that PT jobs serve as stepping stones for transitions to FT jobs in their respective sectors.

We see that 22.3 percent of those who start as unemployed are still unemployed one year later. Furthermore, 26.6 percent give up on search and become non-participant, while 11.8 percent attrit. Unemployed individuals have the largest fraction of attritors. In total, 1 in 3 make a successful transition to employment – 18.9 percent to FT formal WS, 12.7 percent to FT informal WS, 5.7 percent to non-WS employment, and a tiny fraction to PT employment. Moreover, we observe striking opposite trends in transitions from unemployment to FT formal and informal WS employment. While transition rates to formal jobs increase, transition rates to informal jobs decrease from 2006 to 2016. These patterns suggest that policies directed to increased formalization are paying off.

Visual comparison between panels A and B help reinforce our understanding of how formal and informal sectors operate and interact. Formal jobs provide employment protection after a six month trial period, higher pay and better working conditions overall. Hence transition rates out of FT formal WS employment are quite a bit lower. The fraction of FT formal WS employees who do not participate in the labor market one-year later is 3.7 percent, while 3 percent of them become unemployed. The transition rates into non-WS and informal WS jobs are 2.9 and 2 percent respectively. While transitions from formal to informal WS employment are rare (2 percent), the reverse route is followed more frequently (11 percent). Transition rate from informal WS employment to non-participation is also high at 10.8 percent. The outflows into unemployment and non-WS employment have smaller

Figure 2.1: Forward transition rates - Fresh subsamples, 2006-2016



Source: Own calculations on T-SILC.

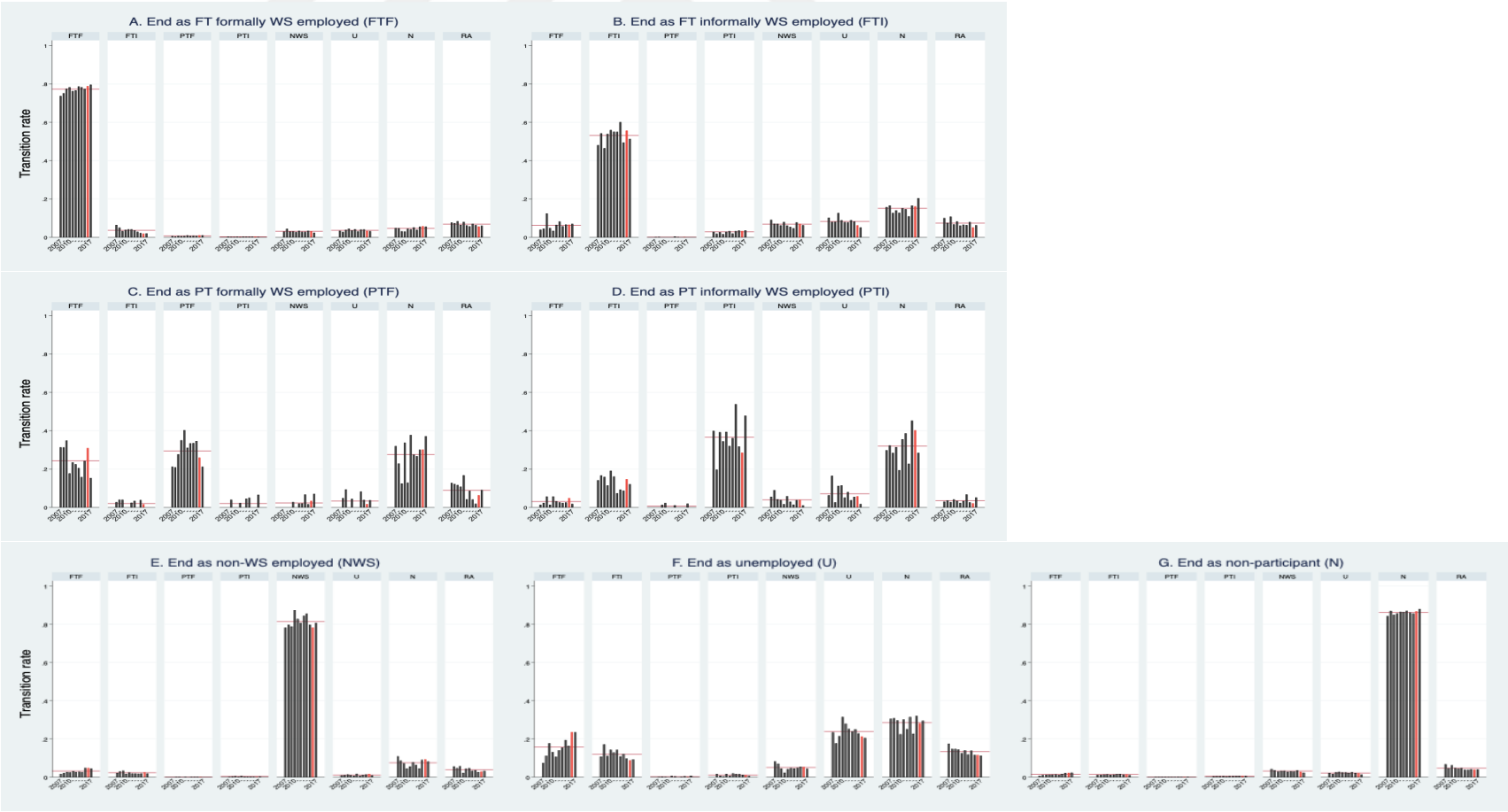
Note: The rates graphed here are collected in Table B.2 in Appendix B.

shares, respectively at 7.3 and 7 percent per annum. Last three figures are higher than the respective values observed in the case of formal WS workers.

Non-WS employment covers self-employed individuals, employers and unpaid family workers. Unpaid family workers are typically members of agricultural households who work on their family farm. On the other side, self-employment consists of two very different tiers, the first containing high-educated, high-earners, such as accountants or lawyers, while the second consists of low-educated low-earners, such as small farmers and street vendors. We may think of the latter as last ditch options, in the sense that individuals who are unable to find WS jobs opt for low return self-employment. Self-employed individuals often have various amounts of capital or land and expertise that ties them to the non-WS employment state. Therefore a large proportion of them remains in the same state one year later, 81.1 percent. The most common path of exit for non-WS workers is transition to non-participation at 8.1 percent. Only 4 percent of non-WS workers become FT WS employees one year later. An even smaller fraction (1 percent) of non-WS workers transit to unemployment.

As mentioned in Section 2.2, Türkiye tops the charts with its low participation rate and low employment-to-population ratio. Based on data from the HLFS Özkan [2013] underscores that transitions from non-participation to employment constitute a large flow in Türkiye. We see that the rate of non-participants who become employed one-period later is 7.3 percent in fresh samples. This rate may seem modest until the huge non-participant stock in the Turkish labor market is recognized. In fact, we find that for each unemployed individual who becomes employed in the second period, 2.4 non-participants transit to employment. To be sure school-to-work transitions constitute a large share of this flow. Yet another factor is the presence of discouraged workers who want to work but do not search because they do not believe there is a job available [Özkan, 2013]. We find that informal employment accounts for a higher share among those who transit from non-participation to WS employment compared to those who transit from unemployment. Later, in Section 2.6.4, we compute job finding rates separately to reevaluate the importance of transitions

Figure 2.2: Backward transition rates - Fresh subsamples, 2007-2017



Source: Own calculations on T-SILC.

Note: The rates graphed here are collected in Table B.5 in Appendix B.

from non-participation to employment. Only a modest share of non-participants, 2.1 percent, joins the labor market in the second period as unemployed individuals to search for a job.

As a main goal of this paper is understanding attrition behavior as a response to labor market draws, we include attrition in our analysis of forward transitions. Notably, the transition to attrition is the second dominant flow for FT formal WS employees and non-participants. Since we do not have information on the labor market states of attritors in the second round, it acts as a veil that hides the full picture. In fact, in Section 2.5.1 we established that the transition rates we calculate constitute lower bounds for the true transition rates.

It is possible to examine labor market dynamics from the perspective of backward transition rates by distinguishing the origin states for those who are in a given state at time $t+1$. Unlike the forward transition rates which provide lower bounds when calculated on the fresh subsamples, the bias in the backward transition rates cannot be signed. In our view, the undertaking is still useful when attrition is present. As discussed in the context of forward transition, attrition serves as a veil that can stand in the way of capturing the 'true' dynamics from the sampling perspective. It is reasonable to expect that reverse attritors resemble attritors that exit the frame. By including reverse attrition as a starting state in our backward transition analysis, we are able to lift the veil and gain additional insights. Figure 2.2 presents the backward transition rate graphs using similar format to that employed in Figure 2.1. The key difference is that in Figure 2.2, the panels belong to terminal states and the boxes in each panel show origin states. The terminal states are FT formal WS, FT informal WS, PT formal WS and PT informal WS employment, non-WS employment, unemployment, non-participation, respectively. Origin states include all terminal states plus reverse attrition.

The persistence and flow patterns that we saw in forward transitions are also presentin backward transition graphs. Therefore, we skip them and focus on the transitions from reverse attrition. The last box in each panel of Figure 2.2 shows the share of reverse attritors among members of that terminal state. The flows into

FT formal WS employment and non-participation are the second dominant patterns after state dependence, as 6.8 percent of FT formal WS workers and 4.7 percent of non-participants are reverse attritors. Considering the size of these groups in the Turkish labor market, we may say that most of the reverse attritors reenter the labor market as FT formal WS workers or become non-participants. The sizeable share of reverse attritors among those who transit to unemployment confirms the connection between adverse labor market shocks and attrition.

Forward and backward transition analyses together show that labor market exit and entry patterns of attritors and reverse attritors are similar to each other. Transition to attrition is a frequently visited path for FT formal WS workers and non-participants, while the share of transitions from reverse attrition is sizeable in the same states. Hence, we may conjecture that attritors and reverse attritors are the two sides of the same coin. Unfortunately, the sampling protocol of SILC does not allow us to see reverse attritors in each round.[10]

2.6.3 Footprints of shocks

During the period under examination, Turkish economy experienced two major shocks, the 2008-09 global economic crisis and a minimum wage increase of extraordinary magnitude that took place at the beginning of 2016. Conventional economic wisdom suggests that these shocks should impact job separation and job finding rates adversely. Later in this subsection, we test whether they lead to statistically significant changes in the transition rates calculated from fresh subsamples in T-SILC.

Firstly, we review the patterns of change in formal and informal WS employment using quarterly data from the Household Labor Force Survey (HLFS), the primary data source used for tracking the developments in the Turkish labor market. Figures 2.3 and 2.4 show both quarterly (dark bars) and annual (light gray bars) changes between the same quarters in formal and informal WS employment from 2006 to 2017. Increases (decreases) are shown as positive (negative) values. This time

[10]Formal support for this conjecture is offered in Tunalı [2009].

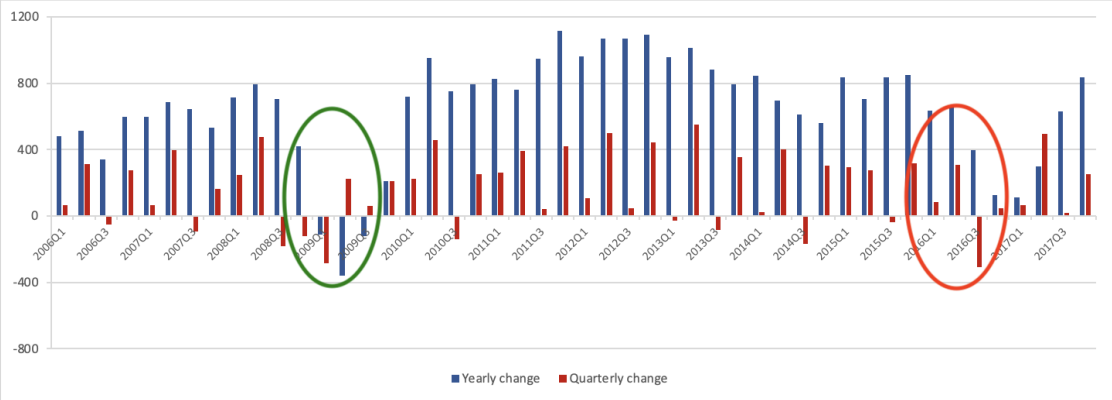
window is a period of WS employment growth accompanied by formalization. Since the vertical axes have the same scale, the graphs reflect the relative performance of the two sectors. Informal WS employment graph has many negative bars, while formal WS employment graph does not. In fact there are very few negative bars in the formal sector graph.

The ovals mark the periods when shocks under examination impacted the economy. After the twin banking and foreign exchange crises in 2001, Turkish economy grew by 7.2 percent, on average, between 2002 and 2007. However, the GDP growth rate dropped to 0.8 percent in 2008 and the economy contracted by 4.8 percent in 2009 [World Bank, 2023]. The labor market impact can be seen in the first pair of ovals. Quarterly changes are negative after the second half of 2008 until the second half of 2009. Employment losses are larger among informal WS workers. While sustained formal employment growth returns starting with the first quarter of 2010, the erratic pattern that characterizes informal employment returns soon after.

During the period under study, the minimum wage was adjusted upward regularly, resulting in a sustained real increase of about 1 percent between 2005 and 2015. An unexpected hike took place at the beginning of 2016 which increased the nominal minimum wage by 30 percent and the real minimum wage by 22.6 percent. It is difficult to detect adverse employment effects in the second pair of ovals which mark this episode. Since minimum wage rise becomes effective after the first month in the first quarter and spillover effects settle by the second quarter, at a minimum we would expect to see a slowdown in formal employment growth. But it did not happen. The decrease in the formal sector WS employment in the third quarter of 2016 is attributable to politically-driven dismissals in the public sector after the coup attempt on July 15. We would not expect adverse employment effects in the unregulated informal sector because of the minimum wage hike. A more likely outcome is replacement of formal WS workers by informal WS workers. Evidently, that did not happen either.

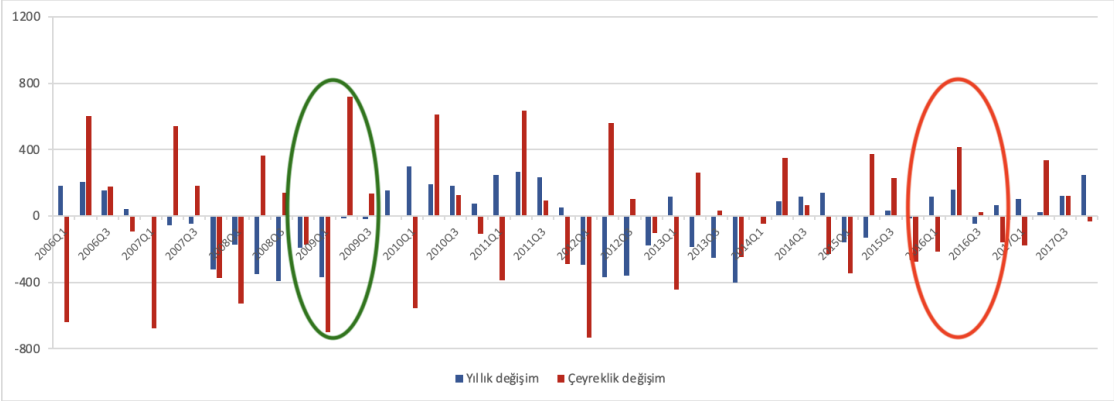
The point of the graphs is that while the effects of macroeconomic shocks may be detected by the naked eye using the quarterly HLFS, any adverse effects of

Figure 2.3: Changes in formal WS employment - HLFS, 2006-2017



Note: Data are from the quarterly HLFS, 2005-17.

Figure 2.4: Changes in informal WS employment - HLFS, 2006-2017



Note: Data are from the quarterly HLFS, 2005-17.

the minimum wage shock remain elusive. Presently, we are interested in seeing how these episodes are reflected in T-SILC, where we get to observe labor market dynamics recorded for the same set of individuals at the annual frequency. We use the differences in means methodology employed in Subsection 2.6.1 to test if the transition rates in the shock periods are statistically different from the relevant

averages calculated for the 2006-16 period. We run the tests on each flow separately using both forward and backward transition rates. The tables that contain the test results are collected in Appendix B.3 as Tables B.8-B.9 (global crisis) and Tables B.10-B.11 (minimum wage shock).

The first set of null hypotheses are that the transition rates in 2008 and 2009 are not statistically different from the average transition rates in normal times, which we define exclusive of the data from 2008-09 and the second shock year, 2015. Using forward transition rates, during the first year (2008) of the global crisis, the null hypotheses are rejected in 12 out of (7x8=) 56 cases at the 1 percent significance level. Additional 2 rejections at the 5 percent, and 3 at the 10 percent level are observed. Using backward transition rates, the null hypotheses are rejected in 9 out of 56 cases at the 1 percent level. Additionally, 8 more rejections are obtained at the 5 percent level. In case of transitions calculated in the second year (2009), we find 7 rejections at the 1 percent level. Additional 8 rejections are obtained at the 5 percent level. We conclude that the transition rates were perturbed dramatically as a consequence of the global shock.

We apply the same methodology to detect the changes in the transition rates from 2015 to 2016 when the minimum wage hike took place. The results shown in the third columns of Tables B.8-B.9 contain many rejections. In this test, we prefer to restrict the pooled sample to the post-2008 period when the panel reaches its steady-state, and exclude 2009 to eliminate the effects of the global crisis. The summary tables for the test results conducted on the 2010-17 window are provided in Appendix B.3 as Tables B.10 and B.11. In the case of forward transition rates there are 14 rejections out of 56 at the 1 percent significance level. Additional 3 rejections at the 5 percent, and 6 at the 10 percent level are detected. Using backward transition analysis results, 8 out of 56 cases are rejected at the 1 percent level. Additional 4 rejections at the 5 percent, and 6 at the 10 percent level are observed. The qualitative results are the same as those displayed in the third column of Tables B.8-B.9, except the evidence against the null are weakened by virtue of smaller sample sizes.

Since the second shock is confined to the formal sector, these two episodes are expected to trigger different forms of adverse employment effects such as losing a job, transitioning to less attractive jobs or having trouble finding FT jobs in the formal sector. Moreover, PT jobs may emerge as short-run alternatives or disappear, individuals might stop searching due to discouragement or there could be a boost in search as a result of the minimum wage hike. Individual test results reveal that many differences emerge. Here we focus on some key outcomes.

Starting with the global crisis episode, we see that job separations from FT formal WS employment occur more frequently. Additionally, flow rates from formal to informal sector go up, while rates in the opposite direction go down. The crisis decreases the probability of remaining as a FT informal worker. The probability of transition from FT informal WS employment to non-WS employment - - which includes self-employed individuals, employers and unpaid family workers - - increases. The economic crisis makes transitions from non-WS employment to formal WS employment difficult. On the other hand, it encourages non-participant individuals to participate in the labor market and search, even though they cannot find a job and remain unemployed.

The results tabulated under the second column refer to transitions in the recovery period, between 2009 and 2010. Transitions into formal WS employment from non-WS employment, unemployment and non-participation are still hard to achieve. Unemployed individuals are more likely to find a job in the informal sector during this period. While the probability of transitions into attrition from FT formal WS employment increases, transition rates from FT formal WS employment to other states are not affected.

Tests on backward transition rates confirm that during the 2008-09 economic crisis, the probability of transition into formal WS employment from non-participation is lower. Transitions from formal to informal sector are elevated. The share of non-WS workers who remain in the same state decreases, while the transition rate from FT informal WS employment to non-WS employment increases. We observe that non-participant individuals join the labor market as their probability of remaining

non-participant decreases, but there is no significant evidence of them finding a job or becoming unemployed. The probability of transition from reverse attrition increases for FT formal and informal employment, non-WS employment and non-participation, confirming the tight link between labor market draws and attrition outcomes.

After the minimum wage hike, we observe that the probability of transition to attrition increases for employed (both WS and non-WS), unemployed and non-participant individuals. In this period, the probability of remaining FT formal WS employee is reduced and it becomes harder to find a formal job for informal sector workers. It encourages non-WS employed individuals to transit to FT formal WS employment. The probability of transition from unemployment to FT informal WS employment decreases. This could arise from the spill-over effect underscored in Basu et al. [2015] in the form of higher wages in the informal sector as well. The lack of job opportunities in the formal and informal sectors of their local labor markets is likely to be the reason behind the increase in the attrition rate of unemployed individuals. Notably, transition to attrition rates are markedly elevated in 2015-16 for all states except PT WS employment. The veil that hides some of the flows is thickened as a result of the minimum wage shock.

The results presented in this subsection suggest that T-SILC panels can be more informative about substance than HLFS, in part because we observe both forward and backward transitions. Moreover, despite its small sample sizes SILC allows us to evaluate the patterns and mechanisms that lead to changes in WS employment over a rich set of labor market states. Although aggregate level analyses point out to adverse employment effects, additional work is needed to link them with the minimum wage hike. The likelihood of job loss is not the same for all WS workers in response to a minimum wage increase. Öztürk and Tunalı [2023] examine the employment effects of the minimum wage hike using an identification strategy which exploits variation in employment risks by the position of FT WS employees under the earnings distribution.

2.6.4 Labor market turnover

In this subsection, we complete our assessment of the suitability of T-SILC for studying labor market dynamics by shifting our focus to labor market turnover and its components, hiring from non-employment, separations to non-employment and job-to-job transitions. We analyze the dynamics for aggregate employment and by employment type, to illustrate the benefits of using a large state space. Separation by employment type allows us to capture composition effects that contributed to the developments in the labor market. In our analyses we use forward transition rates and labor market stock counts obtained from fresh subsamples. Recall that we included attrition as a terminal state and ended up obtaining lower bounds for the true forward transition rates estimated for our 7 x 7 state space. Various figures reported below show magnitudes obtained by dividing the transition rates between time t and $t+1$ reported earlier (Figure 2.1 and Table B.2 in Appendix B) by a suitable stock measured at time t. Consequently, they too are lower than the true rates.

The literature has a large collection of empirical studies and some that include comparisons across countries. Unfortunately, methodologies often vary and rarely permit even ball-park comparisons with our findings. Davis and Haltiwanger [1999] offer a comprehensive review of the gross-flows methodology that we use as well as evidence from the Western hemisphere from the 1950s through the 1990s. Later literature bears the mark of search-theoretic approaches [Ridder and van den Berg, 2003; Jolivet et al., 2006; Davis et al., 2012; Elsby et al., 2013; Causa et al., 2021]. Comparative analyses and/or use of longer time windows that contain policy variation can reveal important clues about the functioning of markets and role of institutions [Shimer, 2005, 2012; Petrongolo and Pissarides, 2008; Smith, 2011; Elsby et al., 2013]. Published papers on Türkiye use aggregate data and focus on unemployment dynamics generated by job finding and job separation rates [Şengül, 2014; Şengül and Taşçı, 2020]. In a recent paper on the Turkish labor market, Polat and Ulus [2023] study turnover and its components for the period 2005-19 using retrospective information available in HLFS data and provide a useful benchmark for gauging the

suitability of T-SILC as a data source for labor turnover analysis.

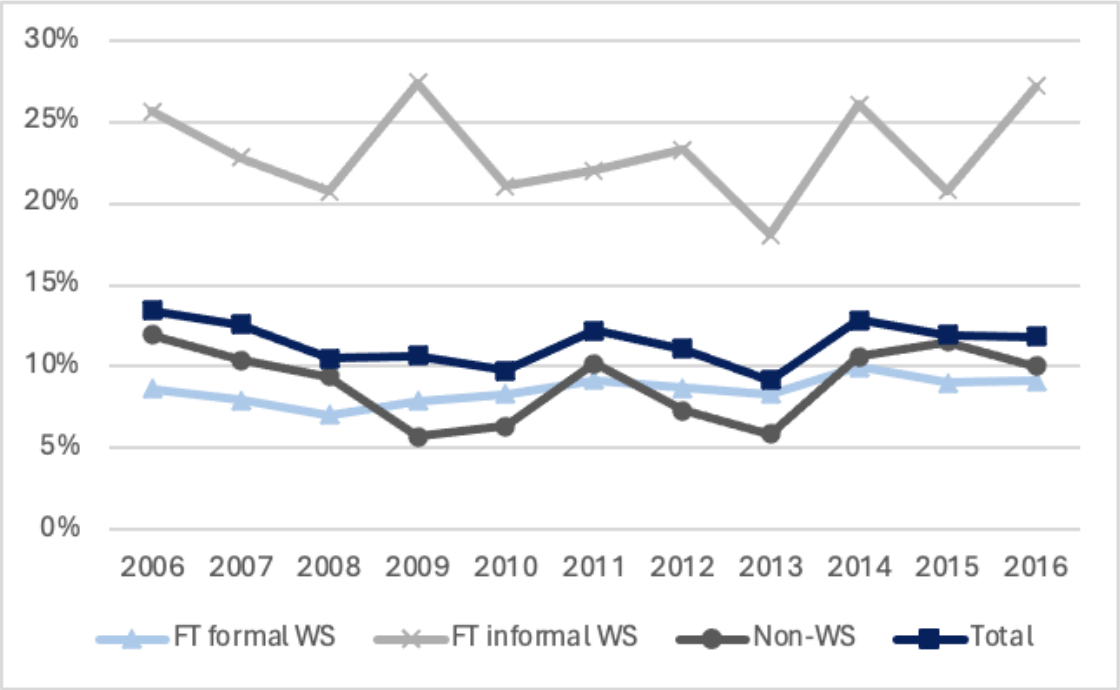
The hiring rate from non-employment includes two components, which track transitions to employment respectively from unemployment, and non-participation. We begin by studying the first component and examine the job finding rate computed as the fraction of unemployed individuals who find a job one period later, which is informative about how the rewards of search vary over time. The relevant data are shown graphically in Panel F of Figure 2.1. The aggregate rate (marked total) and the additive components associated with major employment states are collected in Figure B.6 in Appendix B. The total job finding rate from unemployment displays a mild upward trend around an average of 39.3 percent. When we examine the components, we see a strong positive trend in the case of FT formal WS employment complemented by a weak negative trend in the case of FT informal WS employment. The gap between the two widens after 2010, as recovery from the global shock of 2008-9 takes shape.

As we noted earlier (in the context of Panel G, Figure 2.1) the share of flows from non-participation to employment is sizeable in Türkiye, 7.3 percent on average for the period under investigation. The differentiated courses of the aggregate job finding rate from non-participation and its additive components can be seen in Figure B.7 in Appendix B. The fluctuations in the total reflect cyclical behavior captured by conceptual constructs such as discouraged unemployment and marginal attachment. Given the mild positive trends in the graphed transition rates to FT formal and informal WS employment, we can infer that the variability seen in the aggregate rate is attributable to variability in transitions to non-WS employment and PT WS employment. As seen in Table B.2 the latter rates are much smaller than the others but display considerably more variation.

To arrive at the hiring rates from non-employment, we combined the flows from unemployment and non-participation to employment (by type, when components are examined separately) and divided the total by the stock of employment (by type) to obtain Figure 2.5. The average annual total hiring rate from non-employment is about 11.4 percent of the employed stock. The peak rate of 13.4 percent was

attained between 2006-07. At its lowest it was 9.2 percent between 2013-14.

Figure 2.5: Hiring rate from non-employment - Fresh subsamples, 2006-2016



Source: Own calculations on T-SILC.

Denominator is the number of employed individuals in the state being studied.

Note that we used state-specific denominators to compute hiring rates by type of employment. Thus (unlike Figures B.6-B.7 in Appendix B), the total rate is not additive in its components.[11] Given our approach, apart from being an informative aggregate statistic, the total rate serves as a useful reference for identifying states that are relatively easier or more difficult to transit into. From Figure 2.5 we see that FT informal WS sector is the easiest to transit into. The average value we calculated for the informal WS sector, 23.4 percent in our time window, means that one out of four workers in that sector were hired within the past year. By contrast newly hired workers in FT formal WS and non-WS sectors are about 9 percent of

[11]Instead the total is a weighted average of the components where the weights are shares of those employed in a given state in the total stock of employment.

the respective stocks, on average.

Causa et al. [2021] calculated the annual hiring rate from non-employment for a group of OECD countries using comparable LFS data from 2019 but did not include Türkiye. They indicate that the results were similar when they looked at the period 2017-19, which links to the tail end of our time window. The average we found for 2006-16 (11.4 percent) is higher than the rate they report for Finland, which tops their list with a rate of about 10 percent. Recall that our figure is a lower bound by virtue of including attrition as a destination state. As we evaluate the relative performance of Türkiye it's worth keeping in mind that some of the individuals who are observed to transit from unemployment and non-participation to attrition may have found jobs. The share of attritors in their respective beginning of the period stocks are respectively 11.7 and 8.5 percent. If attrition is assumed to be random, the job finding rate from unemployment is boosted from 39.3 to 44.5 percent, and the job finding rate from non-participation increases from 7.3 to 8 percent.[12] Under the MAR assumption, the combined hiring rate from non-employment increases by a modest amount, from 11.4 to 12.2 percent.[13]

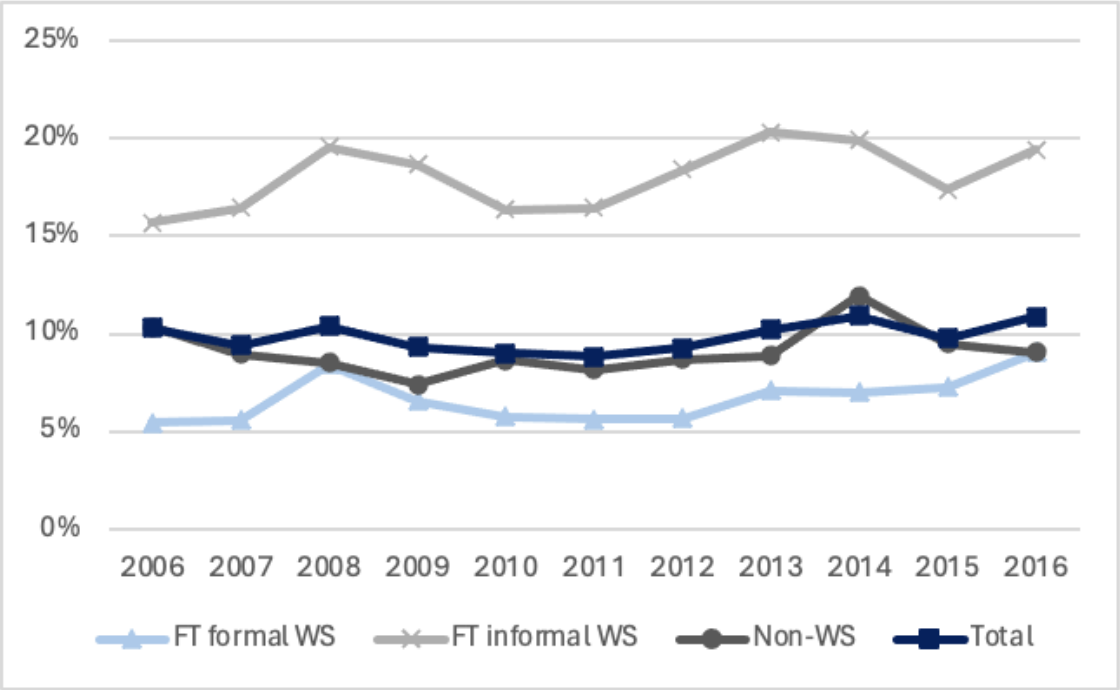
We turn to flows in the opposite direction next. The literature defines the job separation rate as the share of employed individuals who separated from their employer by the next round [Hobijn and Şahin, 2009; OECD, 2009; Bassanini and Garnero, 2013; Hyatt and Spletzer, 2013]. Separations may involve transitions to another job, or to a jobless state. T-SILC allows us to distinguish between the two. Figure 2.6 shows the annual job-to-jobless separation rates computed on our sample.

The average total rate we found, 9.8 percent, places Türkiye among countries like Denmark, Finland and the Netherlands based on the annual job-to-jobless separation rates reported by Causa et al. [2021]. Bassanini and Garnero [2013] compute the annual job-to-jobless separation rate for Türkiye as 9.5 percent using European LFS data from 2000 to 2007. It is very close to the average we found for the period 2006-

[12]To arrive at the adjusted rates we excluded attritors from the respective stocks and recomputed the job finding rates on the smaller denominators.

[13]The adjusted rate was calculated on the employed stocks minus the attritors.

Figure 2.6: Job-to-jobless separation rate - Fresh subsamples, 2006-2016



Source: Own calculations on T-SILC.

Denominator is the number of employed individuals in the state being studied.

17. According to their calculations Türkiye has the second highest job-to-jobless separation rate after Denmark, which tops the list with 9.8 percent.

Once again, it is helpful to remember that the figures we report are lower bounds, because attrition is included as an alternative to the transitions under examination. Figure 2.1 reveals that shares of attritors in the employment states we studied are not trivial. If we make a MAR adjustment and compute the exit rate on the stock of survivors, we obtain the average total job-to-jobless transition rate as 10.5 percent, a modest increase. To get a sense of the broader impact of the hiring and exit rates on employment, we may compute the difference between the average hiring rate from non-employment (11.4 percent), and the average job-to-jobless separation rate (9.8 percent), which is 1.6 percent. When the adjusted rates are used, the difference increases to 1.7 percent per annum. The implied growth rates calculated on T-SILC

are below the average growth rate of total employment using HLFS data. During the 2006-17 period, the annualized growth rate computed on the latter is 3.1 percent. Thus, there is reason to believe that downward bias in the hiring rate is larger than that in the exit rate.

Returning to Figure 2.6, since state-specific denominators are used in the calculations, the total rate is not additive in its components. Apart from being an informative aggregate statistic, the total rate provides a useful reference for identifying employment states that have more, or less employment stability. We see FT WS workers in the informal sector, who do not have employment protection, have the highest rate, 18 percent on average. The job-to-jobless separation rate for non-WS workers is 9.1 percent, while it is 6.7 percent for FT formal WS employees. The gap between the averages for informal and formal WS workers and the still sizeable share of the former, help to explain Türkiye's poor relative ranking among OECD countries.

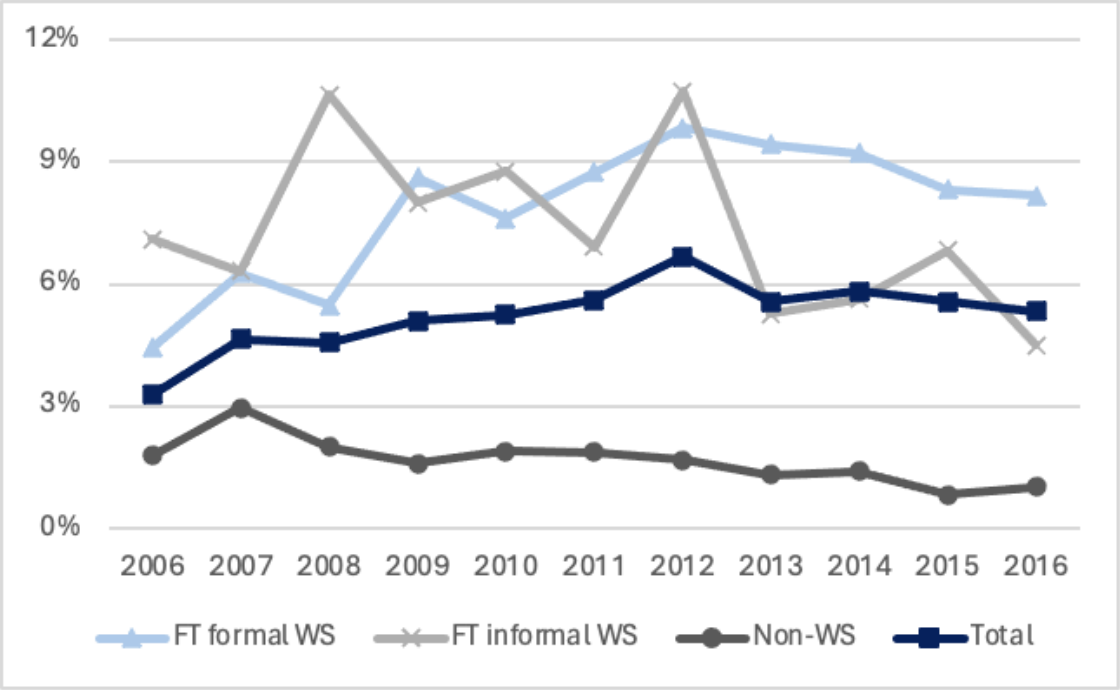
Next, we turn to separations that involve transitions to another job. The share of individuals who are recorded as employed in both periods but are known to transit to another job between subsequent rounds, relative to the total stock, is presented in Figure 2.7.[14] The average annual job-to-job transition rate is 5.2 percent for total employment. This rate is lower than the OECD average and close to the job-to-job transition rates of Greece, Czech Republic and Slovak Republic reported in Causa et al. [2021].[15] Higher churning may increase efficiency in the labor market by generating better employer-employee matches, but also can be costly as it results in loss of firm-specific human capital and disrupts work patterns [Blinder and Krueger, 1996]. We note that the attrition-adjusted job-to-job transition rate based on the MAR assumption ushers in a modest change and increases the average value of the total to 5.7 percent per annum.

[14]The calculation of job-to-job change rate is based on the question coded as FI255 in the individual roaster which asks if the individual changed his/her job since the last visit.

[15]Bassanini and Garnero [2013] engage in a more involved calculation that uses data from 23 business-sectors that can be tracked in European LFS data from 2000 to 2007 and report the job-to-job transition rate for Türkiye as 16.3 percent.

When we turn to transition rates by employment type estimated on own stocks, we see that compared to all workers, FT WS employees in the formal and informal sectors are more likely to change their jobs between subsequent visits (7.8 percent and 7.3 percent, respectively). Job-to-job mobility declines after 2012 for WS workers which can be interpreted as a correlate of economic troubles that the Turkish economy has been experiencing since 2013. Non-WS workers, which include employers, self-employed and unpaid family workers, have much lower job-to-job transition rates, only 1.7 percent on average.

Figure 2.7: Job-to-job transition rate - Fresh subsamples, 2006-2016

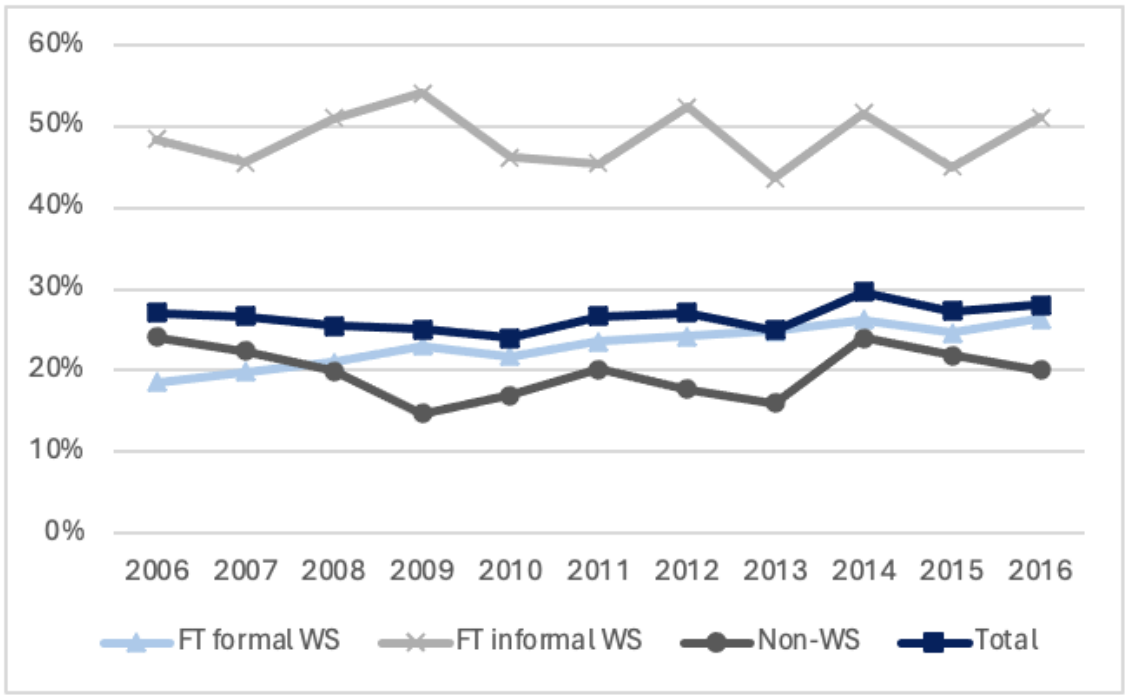


Source: Own calculations on T-SILC.
Denominator is the number of employed individuals in the state being studied.

We follow Causa et al. [2021] and combine the three components we examined. We arrive at the annual labor turnover rate which is meant to provide an aggregate statistic for tracking the magnitude of all reallocations that take place in the labor

market, relative to the employed stock. Figure 2.8 shows the labor market turnover rates for total employment, and its components for the three main labor market states we studied. Averaged over 2006-17, the total labor turnover rate is 26.5 percent. This total value places Türkiye above 20 countries but below 4 others (Switzerland, Sweden, Norway and Finland) among the OECD members studied by Causa et al. [2021]. When we examine the components, we see that informal FT WS workers have the highest average turnover rate (48.6 percent). Both FT formal WS workers and non-WS workers have average turnover rates below the aggregate rate, respectively at 23.1 and 19.8 percent. The most remarkable change over time is the increase in turnover among FT formal WS workers, from 18.5 to 26.3 percent.

Figure 2.8: Labor turnover rate - Fresh subsamples, 2006-2016



Source: Own calculations on T-SILC.

Denominator is the number of unemployed individuals in the state being studied.

We end this subsection with a brief comparison with the findings in Polat and

Ulus [2023] who rely on a retrospective question in the HLFS which inquires about labor force status a year ago at the same time. To arrive at the number of new hires they took the difference between all employed individuals at time t and those who indicated that they were working for the same employer a year ago. They divided the number of new hires by the average of the employment stock in years t-1 and t to compute the annual hiring rate. To find the separation rate they first calculated the annual rate of increase in aggregate employment, and then subtracted it from the hiring rate. Leaving aside the fluctuations, they report that the hiring rate increased from about 15 percent in 2005 to about 27 percent in 2018 and dipped to 25 percent in 2019. The indirectly estimated separation rate is a tad below the hiring rate between 2005-8, equals the latter in 2009, falls down to a minimum of about 18 percent in 2010, and fluctuates around a positive trend below the hiring rate, except for 2019 when it exceeds the hiring rate. Neither the magnitudes, nor the positive trends in the two rates estimated on the HLFS have their counterparts in T-SILC. Pursuit of the reasons for the discrepancies are beyond the scope of this chapter.

2.7 Conclusion

This paper assesses the appropriateness of SILC, the only publicly available household level panel data collected in Türkiye, for studying labor market dynamics. SILC is not a commonly used data set in investigations of the labor market either in the European Union or in Türkiye. In Türkiye, the Household Labor Force Survey has been the database of choice, arguably because it has been around since 1988. However, although it has its own handicaps, SILC has great potential to shed light on labor market dynamics. In this paper, we scrutinize the data contents of the version implemented in Türkiye, T-SILC and use data from 2006 to 2017 to assess its suitability for studying labor market dynamics. Given the common structure of individual country implementations, we are led to believe that our investigation will be helpful for users of SILC in general.

We document the shortcomings and challenges that SILC users face and offer

some fixes for proper use of the data. A key challenge in SILC as in other panel data sets is how to deal with attrition. In Chapter 1, we document that attrition in T-SILC is non-ignorable with respect to the labor market status of the household head which may lead to bias in analyses of labor market outcomes. In light of this finding, we follow a prudent strategy to side-step the attrition problem by using fresh subsamples which are not subject to attrition. In another departure from the mold we include attrition and reverse attrition as separate labor market states in our forward and backward transition analyses. This enables us to establish connections between attrition behavior and the labor market state occupied by the individual (before, or after non-response). SILC data contains household and individual weights for those who survive until the end of the survey window. We calculate our own weights based on the first round information to be able to use the fresh subsamples.

The main shortcomings of SILC panel data may be listed as the gap between the reference periods of earnings and detailed labor market information, and potential recall bias in earnings and month-by-month labor market information collected retrospectively. A questionable practice specific to T-SILC is classification of firm owners who also work in their own firms as wage and salary (WS) employees. In our work, we apply the fix that assures comparability with other SILC data sets. Moreover, there are some minor issues such as lack of public/private distinction and tenure information on the current job. Despite the drawbacks of SILC, we think it provides a great opportunity to study labor market dynamics. With careful handling of attrition and recognition of country specific practices, SILC should serve as a useful source to study dynamics, analyze labor turnover, job separation and job finding patterns across countries.

To examine the suitability of SILC for studying labor market dynamics, we analyze one period forward and backward transitions. The purpose of SILC is to collect data on income, poverty, and living conditions of households and household members. In line with these purposes, SILC attempts to identify the current labor market status by relying on self-perceptions of individuals, rather than the International Labor Organization (ILO) conventions. We use additional information on the current

job and adhere to the ILO classification. This allows us to compare our results on labor market dynamics with the outcomes obtained from HLFS. Since this rules out examination of labor market transitions at monthly and quarterly frequency, we explore dynamics at annual frequency using current labor market status.

To gauge the suitability of T-SILC for tracking the changes in the Turkish labor market, we rely on a broad set of employment states: FT formal WS, FT informal WS, PT formal WS, PT informal WS employment, non-WS employment, unemployment, non-participation, and attrition (reverse attrition). We rely on a simple error component model to test the differences in aggregate labor market stock shares obtained from fresh subsamples and subsamples that survived one and two rounds of attrition. The outcomes of the tests indicate that attrition creeps in and alters the distribution of stocks in the attrition survivor subsamples. We therefore use fresh subsamples in our empirical investigation.

The results obtained from forward transition analyses show that persistence is the dominant pattern, except for unemployed individuals. The fraction of those who remain unemployed is 22.3 percent. Only one-third of unemployed individuals become employed one-year later. While transition rates out of formal WS employment are typically low due to employment protection and better working conditions, transitions out of informal sector are more frequent. On average, only 11.3 percent of informal workers have a chance to transit to FT formal WS employment. Non-WS employment is observed as a sticky-state with 81.1 percent persistence rate, potentially because of the accumulated physical capital and expertise in self-employment. Non-participants mostly stay put: their transition rate to employment is 7.3 percent. When we account for differences in the stocks, this fraction means that for each unemployed individual who finds a job a year later, 2.4 non-participant becomes employed. Attrition emerges as the second dominant terminal state in transitions from FT formal WS employment and non-participation, which respectively account for 18 and 51 percent of the starting stock. Depending on the starting state, attrition captures between 5.6 (non-WS employment) to 11.8 percent (unemployment) of the outflows. This justifies our emphasis on careful handling of attrition in SILC.

We employ backward transition analysis to reinforce what we learned and to gain additional insights in the presence of attrition. The results confirm the persistence and flow patterns of forward transition analysis. Flows from reverse attrition constitute the second dominant channel among FT formal WS workers and non-participants. Together with transition rates into attrition obtained from forward transition analysis, we infer that exit and entry behaviours of attritors and reverse attritors are similar and attritors and reverse attritors are two sides of the same coin.

The transition rate graphs show the trends over time and help us detect changes specific to a period. During the period under investigation, Turkish economy experienced two major shocks: the 2008-09 global crisis and the 30 percent nominal, 22.6 percent real, minimum wage hike that took place at the beginning of 2016. The quarterly and annual changes in the formal and informal wage and salary (WS) employment results obtained from HLFS point out to aggregate employment losses in both sectors during the 2008-09 global crisis. However it is difficult to detect adverse outcomes after the sharp minimum wage increase. We test whether we observe similar patterns using transition rates from T-SILC. The results are consistent with the findings of HLFS for the global crisis period and offer insights about the mechanisms that led to aggregate employment losses. The global crisis increased transition rates out of FT formal WS employment and accelerated the transitions from formal to informal sector. Although the crisis encouraged non-participants to join the labor market, it slowed down the transitions from both unemployment and non-participation into FT formal WS employment.

The changes in the transition rates during the minimum wage hike period differ from the patterns that quarterly HLFS data shows. HLFS does not point to employment losses until the third quarter of 2016, an outcome which is mostly driven by dismissals in the public sector due to the coup attempt on July, 15th. Consistent with this, we observe that the probability of remaining FT formal WS employment decreases in T-SILC. In addition, we see that the minimum wage hike accelerated mobility in the labor market by increasing the transition rate to attrition for em-

ployed, unemployed and non-participant individuals. It also dampened transitions to FT formal WS employment for unemployed individuals and informal sector workers. Although transition analyses indicate adverse employment effects following the minimum wage hike, additional work is needed to establish causal links between the two.

SILC panel data also offer a great opportunity to study labor turnover, particularly job finding, job separation and job-to-job transition patterns. We track the patterns of labor reallocation by calculating turnover rates separately for total employment, FT formal and informal WS employment and non-WS employment using the information in forward transition rates. The average annual hiring rate, from unemployment and non-participation combined, is 11.4 percent of the employment stock. Conditional on being employed in the first period of 2-year panels, the share of those who changed their jobs since the last visit is 5.2 percent in fresh subsamples. It increases to 7.8 percent for FT formal WS employees. This figure is quite a bit lower than the OECD average, and puts Türkiye in the same group with Greece, Czech Republic, and Slovak Republic.

Excluding job-to-job transitions, job separation rate to unemployment and non-participation is 9.8 percent for total employment. Among OECD countries, Türkiye has one of the highest job-to-jobless separation rates with Nordic countries such as Denmark and Finland. The annual labor turnover rate, which measures the share of the sum of hirings, separations and job-to-job transitions among employed individuals [OECD, 2009], is 26.5 percent, on average. The most vulnerable group, informal WS workers, has higher labor turnover rate, at 48.6 percent, more than double of the figure for FT formal WS workers, 23.1 percent.

In conclusion, our overall assessment of the suitability of SILC for studying labor market dynamics is positive. Although it has challenges and shortcomings that SILC users should be aware of, it is a good candidate to study dynamics at annual frequency over a large set of labor market states. Moreover, it allows us to capture transition patterns into and out of attrition. Given the rich information available on individuals, SILC is a great source and offers opportunities for studying

various aspects of labor market dynamics using micro data.

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Appendix A

APPENDIX TO CH.1: HOUSEHOLD ATTRITION PATTERNS IN THE SURVEY OF INCOME AND LIVING CONDITIONS, TÜRKİYE 2006-15

Figure A.1: Türkiye-SILC rotation plan and 4-year panels (shown in boxes) contained in our time window

SILC Rotation Plan

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1st visit	4	1	1	1	1	1	1	1	1	1
2nd visit	0	3	1	1	1	1	1	1	1	1
3rd visit	0	0	2	1	1	1	1	1	1	1
4th visit	0	0	0	1	1	1	1	1	1	1
	2									
S	3	3								
U	4	4	4							
B	5	5	5	5						
S		6	6	6	6					
A			7	7	7	7				
M				8	8	8	8			
P					9	9	9	9		
L						10	10	10	10	
E							11	11	11	11
S								12	12	12
									13	13
										14

Source: TURKSTAT [2017]

Figure A.2: Türkiye-SILC rotation plan and 3-year panels (shown in boxes) contained in our time window

SILC Rotation Plan

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1st visit	4	1	1	1	1	1	1	1	1	1
2nd visit	0	3	1	1	1	1	1	1	1	1
3rd visit	0	0	2	1	1	1	1	1	1	1
4th visit	0	0	0	1	1	1	1	1	1	1
	2									
S	3	3								
U	4	4	4							
B	5	5	5	5						
S		6	6	6	6					
A			7	7	7	7				
M				8	8	8	8			
P					9	9	9	9		
L						10	10	10	10	
E							11	11	11	11
S								12	12	12
									13	13
										14

Source: TURKSTAT [2017]

Figure A.3: Türkiye-SILC rotation plan and 2-year panels (shown in boxes) contained in our time window

SILC Rotation Plan

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1st visit	4	1	1	1	1	1	1	1	1	1
2nd visit	0	3	1	1	1	1	1	1	1	1
3rd visit	0	0	2	1	1	1	1	1	1	1
4th visit	0	0	0	1	1	1	1	1	1	1
	2									
S	3	3								
U	4	4	4							
B	5	5	5	5						
S		6	6	6	6					
A			7	7	7	7				
M				8	8	8	8			
P					9	9	9	9		
L						10	10	10	10	
E							11	11	11	11
S								12	12	12
									13	13
										14

Source: TURKSTAT [2017]

Table A.1: Survey non-response in T-SILC, by subsamples

Unit of observation: households with 25-64 year-old household heads

		Subsamples											
	Row label	3	4	5	6	7	8	9	10	11	12	13	4-yr Mean
Frequency													
generalized attritors	A=B+C	190	272	488	449	512	453	400	727	625	372	163	522
attritors	B	190	272	420	333	364	317	283	534	457	291	163	387
reverse attritors	C	- -	0	68	116	148	136	117	193	168	81	- -	135
balanced panel	D	2029	2126	2232	2213	2444	2392	2346	4406	4412	4420	4485	2921
attritors after the first visit	E	190	180	192	96	148	122	118	200	182	152	163	151
attritors after the second visit	F	- -	92	141	131	132	99	86	188	158	139	- -	134
attritors after the third visit	G	- -	- -	87	112	91	105	92	152	124	- -	- -	109
total panel hh	H=B+D	2219	2398	2652	2546	2808	2709	2629	4940	4869	4711	4648	3308
total hh	J=H	2219	2398	2652	2546	2808	2709	2629	4940	4869	4711	4648	3308
total addresses	L=J	2219	2398	2652	2546	2808	2709	2629	4940	4869	4711	4648	3308
Share (%)													
generalized attritors	M=A/H	8.56	11.34	18.40	17.64	18.23	16.72	15.21	14.72	12.84	7.90	3.51	16.25
attritors	N=B/H	8.56	11.34	15.84	13.08	12.96	11.70	10.76	10.81	9.39	6.18	3.51	12.08
reverse attritors	O=C/H	- -	0.00	2.56	4.56	5.27	5.02	4.45	3.91	3.45	1.72	- -	4.17
attritors after the first visit	P=E/H	8.56	7.51	7.24	3.77	5.27	4.50	4.49	4.05	3.74	3.23	3.51	4.72
attritors after the second visit	R=F/H	- -	3.84	5.32	5.15	4.70	3.65	3.27	3.81	3.25	2.95	- -	4.16
attritors after the third visit	S=G/H	- -	- -	3.28	4.40	3.24	3.88	3.50	3.08	2.55	- -	- -	3.42

Note: The years in which the subsamples were visited can be seen in Figures A.1, A.2 and A.3. Cells that do not apply to a given subsample are marked with a double dash (- -). The last column titled '4-yr Mean' shows the mean statistics for 4-year panels identified in Figure A.1. Several rows that are present in Table 1.1 (namely I and K, and associated shares T and U) are absent here, because we rely on age information which becomes available in case of initial response.

Table A.2: Summary statistics on initial round characteristics of household heads aged between 25 and 64 in 2-year panels

	2-year panels			
	Whole Sample		Attritors after the first visit	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
Yr2006 (R)	0.20	0.40	0.33	0.47
Yr2007	0.07	0.25	0.05	0.22
Yr2008	0.07	0.26	0.08	0.27
Yr2009	0.07	0.26	0.07	0.25
Yr2010	0.07	0.26	0.07	0.25
Yr2011	0.13	0.34	0.12	0.32
Yr2012	0.13	0.34	0.11	0.31
Yr2013	0.13	0.34	0.09	0.29
Yr2014	0.13	0.34	0.10	0.29
Household Head				
Age 25-29	0.08	0.27	0.13	0.34
Age 30-34 (R)	0.13	0.34	0.15	0.36
Age 35-39	0.15	0.36	0.14	0.35
Age 40-44	0.15	0.36	0.14	0.35
Age 45-49	0.15	0.36	0.11	0.32
Age 50-54	0.14	0.34	0.12	0.33
Age 55-59	0.11	0.32	0.11	0.31
Age 60-64	0.09	0.28	0.09	0.29
Female	0.11	0.32	0.17	0.37
Illiterate	0.05	0.23	0.06	0.23
Literate w/o dip	0.05	0.22	0.05	0.23
Primary sch (R)	0.47	0.50	0.39	0.49
Middle sch	0.11	0.31	0.11	0.32
High sch	0.09	0.28	0.11	0.31
Voc high sch	0.09	0.28	0.09	0.28
University or more	0.14	0.35	0.20	0.40
Non-participant (R)	0.21	0.41	0.25	0.44
Employed	0.74	0.44	0.68	0.47
Unemployed	0.03	0.18	0.05	0.22
Single	0.03	0.16	0.06	0.24
Married (R)	0.89	0.31	0.82	0.38
Divorced	0.03	0.17	0.05	0.21
Widow	0.06	0.23	0.07	0.25
Household Type				
Single person	0.04	0.20	0.10	0.30
Two adults	0.13	0.33	0.15	0.35
Two adults with kids (R)	0.61	0.49	0.53	0.50
Single dad with kids	0.005	0.07	0.01	0.08
Single mum with kids	0.05	0.22	0.07	0.26
Extended family	0.16	0.37	0.13	0.34
Heterogenous family	0.004	0.06	0.02	0.12
Number of observations	34862		1702	
Fraction in total	(100)		(4.88)	

Note: All variables are binary indicators. The reference category is marked by (R).

Table A.3: Summary statistics on initial round characteristics of household heads aged between 25 and 64 in 3-year panels

	3-year panels					
	Whole Sample		Attritors after the first visit		Attritors after the second visit	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Yr2006 (R)	0.17	0.37	0.27	0.45	0.19	0.39
Yr2007	0.08	0.27	0.06	0.24	0.10	0.30
Yr2008	0.09	0.29	0.10	0.30	0.12	0.32
Yr2009	0.09	0.29	0.08	0.27	0.09	0.29
Yr2010	0.09	0.28	0.08	0.28	0.08	0.27
Yr2011	0.16	0.37	0.15	0.35	0.17	0.37
Yr2012	0.16	0.37	0.13	0.34	0.14	0.35
Yr2013	0.16	0.37	0.11	0.32	0.12	0.32
Household Head						
Age 25-29	0.08	0.28	0.13	0.34	0.14	0.35
Age 30-34 (R)	0.13	0.34	0.15	0.36	0.14	0.35
Age 35-39	0.15	0.36	0.14	0.35	0.14	0.34
Age 40-44	0.15	0.36	0.14	0.34	0.12	0.33
Age 45-49	0.15	0.36	0.11	0.32	0.13	0.34
Age 50-54	0.13	0.34	0.13	0.33	0.13	0.34
Age 55-59	0.11	0.32	0.11	0.32	0.11	0.31
Age 60-64	0.09	0.28	0.09	0.28	0.09	0.29
Female	0.11	0.31	0.17	0.37	0.15	0.36
Illiterate	0.05	0.23	0.06	0.23	0.06	0.23
Literate w/o dip	0.05	0.22	0.05	0.22	0.06	0.24
Primary sch (R)	0.48	0.50	0.39	0.49	0.43	0.49
Middle sch	0.11	0.31	0.11	0.32	0.10	0.30
High sch	0.09	0.28	0.11	0.31	0.10	0.30
Voc high sch	0.09	0.28	0.09	0.28	0.07	0.25
University or more	0.14	0.34	0.19	0.39	0.19	0.39
Non-participant (R)	0.21	0.41	0.26	0.44	0.22	0.41
Employed	0.74	0.44	0.68	0.47	0.73	0.44
Unemployed	0.03	0.18	0.05	0.22	0.03	0.18
Single	0.03	0.16	0.06	0.24	0.06	0.24
Married (R)	0.89	0.31	0.82	0.38	0.82	0.38
Divorced	0.03	0.17	0.04	0.20	0.05	0.22
Widow	0.05	0.23	0.07	0.26	0.06	0.24
Household Type						
Single person	0.04	0.20	0.10	0.30	0.09	0.29
Two adults	0.13	0.33	0.15	0.35	0.13	0.34
Two adults with kids (R)	0.61	0.49	0.53	0.50	0.55	0.50
Single dad with kids	0.005	0.07	0.01	0.08	0.00	0.06
Single mum with kids	0.05	0.22	0.07	0.25	0.07	0.26
Extended family	0.16	0.37	0.14	0.34	0.15	0.36
Heterogenous family	0.004	0.06	0.02	0.13	0.01	0.08
Number of observations	28122		1349		1042	
Fraction in total	(100)		(4.79)		(3.71)	

Note: All variables are binary indicators. The reference category is marked by (R).

Table A.4: Summary statistics on initial round characteristics of household heads aged between 25 and 64 in 4-year panels

	4-year panels							
	Whole Sample		Attritors after the first visit		Attritors after the second visit		Attritors after the third visit	
Variable	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Yr2006 (R)	0.11	0.32	0.18	0.39	0.14	0.35	0.12	0.32
Yr2007	0.11	0.31	0.08	0.28	0.12	0.33	0.14	0.35
Yr2008	0.12	0.32	0.13	0.34	0.15	0.35	0.12	0.33
Yr2009	0.12	0.32	0.11	0.31	0.11	0.31	0.15	0.35
Yr2010	0.11	0.32	0.11	0.32	0.10	0.29	0.11	0.32
Yr2011	0.22	0.41	0.20	0.40	0.21	0.41	0.20	0.40
Yr2012	0.21	0.41	0.18	0.38	0.17	0.38	0.16	0.37
Household Head								
Age 25-29	0.09	0.28	0.14	0.35	0.15	0.36	0.10	0.30
Age 30-34 (R)	0.13	0.34	0.16	0.37	0.14	0.35	0.15	0.36
Age 35-39	0.15	0.36	0.13	0.34	0.14	0.35	0.14	0.35
Age 40-44	0.15	0.36	0.13	0.34	0.12	0.32	0.13	0.34
Age 45-49	0.15	0.36	0.12	0.33	0.13	0.34	0.13	0.33
Age 50-54	0.13	0.34	0.12	0.33	0.13	0.34	0.15	0.36
Age 55-59	0.11	0.31	0.11	0.31	0.10	0.30	0.12	0.33
Age 60-64	0.08	0.28	0.09	0.28	0.09	0.29	0.08	0.27
Female	0.11	0.31	0.17	0.38	0.14	0.35	0.16	0.37
Illiterate	0.05	0.23	0.06	0.23	0.06	0.24	0.06	0.24
Literate w/o dip	0.05	0.22	0.06	0.23	0.06	0.23	0.08	0.28
Primary sch (R)	0.48	0.50	0.39	0.49	0.43	0.49	0.43	0.50
Middle sch	0.11	0.31	0.11	0.31	0.11	0.31	0.08	0.27
High sch	0.09	0.28	0.10	0.31	0.10	0.30	0.10	0.30
Voc high sch	0.09	0.28	0.09	0.28	0.07	0.26	0.09	0.28
University or more	0.13	0.34	0.20	0.40	0.18	0.38	0.16	0.37

Table A.4 continued

Non-participant (R)	0.21	0.41	0.26	0.44	0.21	0.41	0.25	0.43
Employed	0.74	0.44	0.68	0.47	0.74	0.44	0.69	0.46
Unemployed	0.03	0.18	0.05	0.22	0.04	0.19	0.05	0.21
Single	0.03	0.16	0.06	0.24	0.06	0.24	0.04	0.20
Married (R)	0.89	0.31	0.82	0.38	0.83	0.38	0.85	0.35
Divorced	0.03	0.17	0.05	0.21	0.05	0.21	0.04	0.19
Widow	0.05	0.23	0.07	0.25	0.06	0.24	0.07	0.25
Household Type								
Single person	0.04	0.20	0.10	0.30	0.09	0.29	0.05	0.23
Two adults	0.12	0.33	0.15	0.36	0.13	0.34	0.16	0.37
Two adults with kids (R)	0.62	0.49	0.51	0.50	0.55	0.50	0.53	0.50
Single dad with kids	0.004	0.07	0.01	0.08	0.00	0.05	0.01	0.08
Single mum with kids	0.05	0.22	0.07	0.26	0.06	0.24	0.09	0.29
Extended family	0.16	0.37	0.14	0.35	0.15	0.36	0.16	0.37
Heterogenous family	0.004	0.06	0.02	0.13	0.01	0.08	0.01	0.09
Number of observations	21363		1017		847		626	
Fraction in total	(100)		(4.76)		(3.96)		(2.93)	

Note: All variables are binary indicators. The reference category is marked by (R).

Table A.5: Attrition after the first visit in 2-year panels - FGM Probit models

Unit of observation: households with 25-64 year-old household heads

Dependent variable=1 if attrited, 0 otherwise

VARIABLES	Model 1	Model2	Model 3	Model 4	Model 5	Model 6	Model 7
Ref: NP in the first visit							
Employed			-0.122***	-0.152***	-0.142***	-0.141***	-0.143***
			(0.0342)	(0.0343)	(0.0343)	(0.0344)	(0.0347)
Unemployed			0.089	0.087	0.102*	0.104*	0.099*
			(0.0588)	(0.0592)	(0.0594)	(0.0598)	(0.0599)
Ref: Yr2006							
Yr2007	-0.392***	-0.393***	-0.394***	-0.405***	-0.407***	-0.336*	-0.261
	(0.0532)	(0.0535)	(0.0536)	(0.0538)	(0.0538)	(0.1948)	(0.2097)
Yr2008	-0.217***	-0.228***	-0.227***	-0.231***	-0.236***	-0.024	-0.009
	(0.0464)	(0.0469)	(0.0470)	(0.0473)	(0.0473)	(0.1688)	(0.1816)
Yr2009	-0.316***	-0.330***	-0.333***	-0.348***	-0.358***	-0.293*	-0.342*
	(0.0490)	(0.0493)	(0.0494)	(0.0497)	(0.0498)	(0.1738)	(0.2020)
Yr2010	-0.286***	-0.290***	-0.288***	-0.307***	-0.313***	0.045	0.103
	(0.0489)	(0.0492)	(0.0493)	(0.0495)	(0.0497)	(0.1512)	(0.1621)
Yr2011	-0.322***	-0.322***	-0.322***	-0.339***	-0.345***	-0.254*	-0.311**
	(0.0394)	(0.0396)	(0.0396)	(0.0400)	(0.0401)	(0.1355)	(0.1572)
Yr2012	-0.355***	-0.357***	-0.356***	-0.380***	-0.387***	-0.394***	-0.393**
	(0.0403)	(0.0405)	(0.0405)	(0.0408)	(0.0410)	(0.1471)	(0.1644)
Yr2013	-0.436***	-0.439***	-0.437***	-0.465***	-0.477***	-0.454***	-0.521***
	(0.0421)	(0.0423)	(0.0423)	(0.0429)	(0.0432)	(0.1413)	(0.1661)
Yr2014	-0.413***	-0.424***	-0.423***	-0.461***	-0.477***	-0.369***	-0.419***
	(0.0413)	(0.0415)	(0.0416)	(0.0422)	(0.0426)	(0.1390)	(0.1605)
Ref: Age 30-34							
Age 25-29		0.147***	0.148***	0.098**	0.066	0.132	0.126
		(0.0460)	(0.0461)	(0.0468)	(0.0475)	(0.0860)	(0.0894)
Age 35-39		-0.102**	-0.101**	-0.082*	-0.075*	-0.153*	-0.171**
		(0.0427)	(0.0427)	(0.0430)	(0.0432)	(0.0813)	(0.0862)
Age 40-44		-0.129***	-0.132***	-0.103**	-0.099**	-0.148*	-0.126
		(0.0429)	(0.0430)	(0.0434)	(0.0435)	(0.0793)	(0.0824)
Age 45-49		-0.223***	-0.237***	-0.205***	-0.204***	-0.331***	-0.315***
		(0.0447)	(0.0451)	(0.0456)	(0.0457)	(0.0859)	(0.0903)
Age 50-54		-0.145***	-0.176***	-0.140***	-0.154***	-0.309***	-0.310***
		(0.0444)	(0.0457)	(0.0465)	(0.0469)	(0.0863)	(0.0915)
Age 55-59		-0.098**	-0.146***	-0.102**	-0.135***	-0.244***	-0.230**
		(0.0461)	(0.0483)	(0.0497)	(0.0507)	(0.0911)	(0.0966)
Age 60-64		-0.090*	-0.146***	-0.096*	-0.161***	-0.318***	-0.315***
		(0.0492)	(0.0526)	(0.0545)	(0.0567)	(0.1013)	(0.1095)
Ref: Male							
Female		0.272***	0.224***	0.156***	0.079	0.023	0.005
		(0.0332)	(0.0364)	(0.0528)	(0.0603)	(0.0868)	(0.2103)

Table A.5 continued

Ref: Primary sch							
Illiterate				0.012	0.023	0.032	0.036
				(0.0559)	(0.0562)	(0.0561)	(0.0563)
Literate w/o dip				0.075	0.081	0.082	0.082
				(0.0545)	(0.0547)	(0.0547)	(0.0548)
Middle sch				0.111***	0.114***	0.120***	0.119***
				(0.0395)	(0.0396)	(0.0397)	(0.0397)
High sch				0.185***	0.181***	0.182***	0.183***
				(0.0413)	(0.0415)	(0.0417)	(0.0417)
Voc high sch				0.103**	0.103**	0.101**	0.102**
				(0.0441)	(0.0443)	(0.0445)	(0.0445)
University or more				0.280***	0.256***	0.259***	0.260***
				(0.0342)	(0.0351)	(0.0352)	(0.0352)
Ref: Married							
Single				0.310***	0.015	0.020	0.032
				(0.0622)	(0.0805)	(0.0809)	(0.0812)
Divorced				0.177**	-0.050	-0.060	-0.044
				(0.0715)	(0.0822)	(0.0821)	(0.0841)
Widow				0.027	-0.142*	-0.144*	-0.132
				(0.0667)	(0.0746)	(0.0743)	(0.0805)
Ref: 2 adults with kids							
Single person					0.498***	0.500***	0.500***
					(0.0756)	(0.0757)	(0.0759)
2 adults					0.148***	0.145***	0.146***
					(0.0373)	(0.0374)	(0.0376)
Single dad with kids					0.325*	0.330*	0.316*
					(0.1720)	(0.1719)	(0.1737)
Single mom with kids					0.234***	0.240***	0.239***
					(0.0794)	(0.0791)	(0.0812)
Extended family					0.000	-0.004	-0.006
					(0.0366)	(0.0366)	(0.0368)
Heterogenous hh					0.790***	0.815***	0.815***
					(0.1365)	(0.1361)	(0.1379)
Constant	-1.392***	-1.337***	-1.231***	-1.314***	-1.332***	-1.256***	-1.259***
	(0.0220)	(0.0359)	(0.0486)	(0.0509)	(0.0518)	(0.0670)	(0.0688)
Observations	34.862	34.862	34.862	34.862	34.862	34.862	34.862
YearxAge group	NO	NO	NO	NO	NO	YES	YES
YearxGender	NO	NO	NO	NO	NO	YES	YES
YearxAge groupxGender	NO	NO	NO	NO	NO	NO	YES

Note: Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Table A.6: Attrition after the first visit in 3-year panels - FGM Probit models

Unit of observation: households with 25-64 year-old household heads

Dependent variable=1 if attrited, 0 otherwise

VARIABLES	Model 1	Model2	Model 3	Model 4	Model 5	Model 6	Model 7
Ref: NP in the first visit							
Employed			-0.130***	-0.154***	-0.143***	-0.141***	-0.141***
			(0.0381)	(0.0382)	(0.0382)	(0.0383)	(0.0386)
Unemployed			0.087	0.091	0.107	0.110*	0.106
			(0.0656)	(0.0661)	(0.0662)	(0.0667)	(0.0668)
Ref: Yr2006							
Yr2007	-0.372***	-0.371***	-0.372***	-0.381***	-0.385***	-0.236	-0.153
	(0.0554)	(0.0557)	(0.0557)	(0.0559)	(0.0559)	(0.2073)	(0.2240)
Yr2008	-0.197***	-0.205***	-0.205***	-0.207***	-0.213***	0.077	0.098
	(0.0489)	(0.0493)	(0.0494)	(0.0497)	(0.0498)	(0.1828)	(0.1976)
Yr2009	-0.296***	-0.308***	-0.311***	-0.325***	-0.335***	-0.192	-0.231
	(0.0514)	(0.0517)	(0.0518)	(0.0520)	(0.0522)	(0.1873)	(0.2164)
Yr2010	-0.266***	-0.268***	-0.267***	-0.283***	-0.290***	0.148	0.214
	(0.0513)	(0.0516)	(0.0516)	(0.0518)	(0.0521)	(0.1670)	(0.1801)
Yr2011	-0.302***	-0.300***	-0.300***	-0.315***	-0.321***	-0.153	-0.203
	(0.0423)	(0.0425)	(0.0425)	(0.0428)	(0.0430)	(0.1527)	(0.1757)
Yr2012	-0.335***	-0.335***	-0.335***	-0.358***	-0.365***	-0.292*	-0.284
	(0.0431)	(0.0433)	(0.0434)	(0.0436)	(0.0439)	(0.1630)	(0.1821)
Yr2013	-0.416***	-0.417***	-0.416***	-0.443***	-0.454***	-0.354**	-0.412**
	(0.0448)	(0.0450)	(0.0450)	(0.0456)	(0.0460)	(0.1578)	(0.1833)
Ref: Age 30-34							
Age 25-29		0.147***	0.147***	0.098*	0.061	0.109	0.099
		(0.0512)	(0.0512)	(0.0521)	(0.0529)	(0.1005)	(0.1041)
Age 35-39		-0.106**	-0.106**	-0.086*	-0.078	-0.191*	-0.179*
		(0.0479)	(0.0480)	(0.0483)	(0.0485)	(0.0994)	(0.1036)
Age 40-44		-0.125***	-0.129***	-0.098**	-0.096*	-0.184*	-0.167*
		(0.0481)	(0.0482)	(0.0486)	(0.0488)	(0.0959)	(0.0996)
Age 45-49		-0.205***	-0.222***	-0.188***	-0.189***	-0.345***	-0.339***
		(0.0498)	(0.0501)	(0.0507)	(0.0508)	(0.1044)	(0.1097)
Age 50-54		-0.108**	-0.142***	-0.105**	-0.123**	-0.294***	-0.304***
		(0.0493)	(0.0506)	(0.0514)	(0.0520)	(0.1026)	(0.1087)
Age 55-59		-0.070	-0.122**	-0.078	-0.116**	-0.303***	-0.302**
		(0.0513)	(0.0537)	(0.0553)	(0.0566)	(0.1114)	(0.1197)
Age 60-64		-0.092*	-0.150**	-0.097	-0.168***	-0.428***	-0.430***
		(0.0555)	(0.0593)	(0.0615)	(0.0635)	(0.1292)	(0.1405)
Ref: Male							
Female		0.273***	0.222***	0.147**	0.087	0.016	0.033
		(0.0374)	(0.0408)	(0.0594)	(0.0674)	(0.1027)	(0.2736)

Table A.6 continued

Ref: Primary sch							
Illiterate				-0.004	0.006	0.016	0.020
				(0.0619)	(0.0622)	(0.0621)	(0.0624)
Literate w/o dip				0.068	0.072	0.074	0.075
				(0.0608)	(0.0611)	(0.0611)	(0.0612)
Middle sch				0.121***	0.124***	0.131***	0.131***
				(0.0437)	(0.0438)	(0.0439)	(0.0439)
High sch				0.180***	0.174***	0.173***	0.176***
				(0.0463)	(0.0466)	(0.0468)	(0.0468)
Voc high sch				0.103**	0.102**	0.101**	0.100**
				(0.0489)	(0.0492)	(0.0494)	(0.0495)
University or more				0.265***	0.238***	0.241***	0.241***
				(0.0384)	(0.0394)	(0.0394)	(0.0395)
Ref: Married							
Single				0.344***	0.055	0.061	0.072
				(0.0691)	(0.0899)	(0.0903)	(0.0907)
Divorced				0.137*	-0.088	-0.096	-0.081
				(0.0812)	(0.0922)	(0.0917)	(0.0939)
Widow				0.063	-0.105	-0.105	-0.103
				(0.0741)	(0.0828)	(0.0825)	(0.0898)
Ref: 2 adults with kids							
Single person					0.482***	0.483***	0.486***
					(0.0847)	(0.0847)	(0.0850)
2 adults					0.163***	0.160***	0.159***
					(0.0413)	(0.0414)	(0.0417)
Single dad with kids					0.392**	0.405**	0.395**
					(0.1846)	(0.1838)	(0.1859)
Single mom with kids					0.215**	0.218**	0.213**
					(0.0881)	(0.0875)	(0.0895)
Extended family					0.009	0.005	0.004
					(0.0407)	(0.0407)	(0.0408)
Heterogenous hh					0.843***	0.868***	0.881***
					(0.1488)	(0.1482)	(0.1504)
Constant	-1.412***	-1.369***	-1.256***	-1.343***	-1.363***	-1.256***	-1.259***
	(0.0268)	(0.0416)	(0.0551)	(0.0577)	(0.0586)	(0.0780)	(0.0799)
Observations	28.122	28.122	28.122	28.122	28.122	28.122	28.122
YearxAge group	NO	NO	NO	NO	NO	YES	YES
YearxGender	NO	NO	NO	NO	NO	YES	YES
YearxAge groupxGender	NO	NO	NO	NO	NO	NO	YES

Note: Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Table A.7: Attrition after the first visit in 4-year panels - FGM Probit models

Unit of observation: households with 25-64 year-old household heads

Dependent variable=1 if attrited, 0 otherwise

VARIABLES	Model 1	Model2	Model 3	Model 4	Model 5	Model 6	Model 7
Ref: NP in the first visit							
Employed			-0.127***	-0.156***	-0.145***	-0.142***	-0.141***
			(0.0441)	(0.0441)	(0.0441)	(0.0442)	(0.0447)
Unemployed			0.112	0.111	0.126*	0.136*	0.132*
			(0.0746)	(0.0751)	(0.0752)	(0.0759)	(0.0761)
Ref: Yr2006							
Yr2007	-0.366***	-0.358***	-0.360***	-0.371***	-0.372***	-0.090	-0.053
	(0.0613)	(0.0615)	(0.0615)	(0.0617)	(0.0619)	(0.2395)	(0.2592)
Yr2008	-0.192***	-0.193***	-0.193***	-0.197***	-0.201***	0.218	0.196
	(0.0555)	(0.0558)	(0.0559)	(0.0562)	(0.0564)	(0.2193)	(0.2374)
Yr2009	-0.290***	-0.296***	-0.300***	-0.316***	-0.323***	-0.045	-0.133
	(0.0577)	(0.0580)	(0.0581)	(0.0583)	(0.0586)	(0.2231)	(0.2534)
Yr2010	-0.261***	-0.255***	-0.255***	-0.273***	-0.276***	0.292	0.311
	(0.0576)	(0.0578)	(0.0579)	(0.0581)	(0.0584)	(0.2060)	(0.2228)
Yr2011	-0.296***	-0.288***	-0.288***	-0.305***	-0.308***	-0.011	-0.106
	(0.0497)	(0.0498)	(0.0499)	(0.0502)	(0.0505)	(0.1947)	(0.2191)
Yr2012	-0.329***	-0.323***	-0.324***	-0.347***	-0.351***	-0.145	-0.181
	(0.0504)	(0.0506)	(0.0507)	(0.0509)	(0.0513)	(0.2030)	(0.2243)
Ref: Age 30-34							
Age 25-29		0.138**	0.138**	0.094	0.053	0.200	0.185
		(0.0577)	(0.0577)	(0.0586)	(0.0597)	(0.1317)	(0.1376)
Age 35-39		-0.160***	-0.160***	-0.141**	-0.133**	-0.314**	-0.285*
		(0.0551)	(0.0551)	(0.0554)	(0.0557)	(0.1407)	(0.1469)
Age 40-44		-0.159***	-0.164***	-0.136**	-0.133**	-0.236*	-0.225
		(0.0554)	(0.0555)	(0.0559)	(0.0561)	(0.1347)	(0.1417)
Age 45-49		-0.185***	-0.200***	-0.167***	-0.170***	-0.335**	-0.352**
		(0.0557)	(0.0561)	(0.0566)	(0.0568)	(0.1400)	(0.1499)
Age 50-54		-0.134**	-0.168***	-0.132**	-0.159***	-0.371***	-0.403***
		(0.0565)	(0.0580)	(0.0589)	(0.0596)	(0.1431)	(0.1559)
Age 55-59		-0.109*	-0.158**	-0.115*	-0.161**	-0.543***	-0.473***
		(0.0594)	(0.0625)	(0.0642)	(0.0660)	(0.1706)	(0.1778)
Age 60-64		-0.091	-0.147**	-0.096	-0.187**	-0.610***	-0.569***
		(0.0636)	(0.0677)	(0.0701)	(0.0726)	(0.1860)	(0.2026)
Ref: Male							
Female		0.283***	0.233***	0.188***	0.105	0.092	-0.058
		(0.0424)	(0.0465)	(0.0675)	(0.0764)	(0.1345)	(0.4028)

Table A.7 continued

Ref: Primary sch							
Illiterate				-0.002	0.002	0.010	0.020
				(0.0719)	(0.0725)	(0.0723)	(0.0726)
Literate w/o dip				0.098	0.100	0.105	0.104
				(0.0691)	(0.0694)	(0.0695)	(0.0697)
Middle sch				0.092*	0.096*	0.105**	0.107**
				(0.0511)	(0.0513)	(0.0513)	(0.0513)
High sch				0.167***	0.162***	0.165***	0.169***
				(0.0533)	(0.0536)	(0.0538)	(0.0539)
Voc high sch				0.088	0.091	0.090	0.090
				(0.0560)	(0.0564)	(0.0565)	(0.0568)
University or more				0.277***	0.252***	0.254***	0.256***
				(0.0435)	(0.0447)	(0.0448)	(0.0449)
Ref: Married							
Single				0.288***	-0.036	-0.038	-0.026
				(0.0804)	(0.1035)	(0.1043)	(0.1052)
Divorced				0.132	-0.137	-0.149	-0.135
				(0.0925)	(0.1045)	(0.1041)	(0.1063)
Widow				-0.010	-0.203**	-0.204**	-0.223**
				(0.0856)	(0.0955)	(0.0950)	(0.1058)
Ref: 2 adults with kids							
Single person					0.568***	0.575***	0.587***
					(0.0966)	(0.0965)	(0.0971)
2 adults					0.197***	0.194***	0.193***
					(0.0472)	(0.0474)	(0.0477)
Single dad with kids					0.493**	0.515**	0.517**
					(0.2102)	(0.2099)	(0.2122)
Single mom with kids					0.279***	0.284***	0.285***
					(0.0996)	(0.0988)	(0.1024)
Extended family					0.059	0.056	0.054
					(0.0460)	(0.0461)	(0.0462)
Heterogenous hh					0.839***	0.873***	0.889***
					(0.1708)	(0.1697)	(0.1729)
Constant	-1.418***	-1.365***	-1.254***	-1.331***	-1.365***	-1.242***	-1.249***
	(0.0375)	(0.0518)	(0.0669)	(0.0695)	(0.0706)	(0.1011)	(0.1047)
Observations	21.363	21.363	21.363	21.363	21.363	21.363	21.363
YearxAge group	NO	NO	NO	NO	NO	YES	YES
YearxGender	NO	NO	NO	NO	NO	YES	YES
YearxAge groupxGender	NO	NO	NO	NO	NO	NO	YES

Note: Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Table A.8: Attrition after the second visit in 3-year panels - FGM Probit models

Unit of observation: households with 25-64 year-old household heads

Dependent variable=1 if attrited, 0 otherwise

VARIABLES	Model 1	Model2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Ref: NP in the first visit										
Employed			0.007	-0.015	-0.009	-0.008	-0.001	0.103**	0.106**	0.115**
			(0.0428)	(0.0427)	(0.0429)	(0.0425)	(0.0427)	(0.0520)	(0.0521)	(0.0525)
Unemployed			0.032	0.009	0.016	0.010	0.020	0.112	0.106	0.117
			(0.0781)	(0.0784)	(0.0786)	(0.0785)	(0.0789)	(0.0824)	(0.0825)	(0.0830)
Ref: NP in the second visit										
Employed								-0.187***	-0.192***	-0.195***
								(0.0473)	(0.0480)	(0.0484)
Unemployed								-0.112*	-0.107*	-0.108*
								(0.0596)	(0.0596)	(0.0598)
Reference: Yr2006										
Yr2007	0.016	0.020	0.021	0.014	0.015	-0.643**	-0.575*	0.088	-0.619**	-0.552*
	(0.0565)	(0.0568)	(0.0567)	(0.0568)	(0.0568)	(0.2966)	(0.3041)	(0.0611)	(0.2977)	(0.3057)
Yr2008	0.057	0.043	0.043	0.042	0.042	0.099	0.050	0.115*	0.131	0.080
	(0.0541)	(0.0544)	(0.0544)	(0.0546)	(0.0546)	(0.1876)	(0.2100)	(0.0591)	(0.1884)	(0.2110)
Yr2009	-0.076	-0.086	-0.087	-0.097*	-0.100*	-0.185	-0.080	-0.028	-0.146	-0.041
	(0.0573)	(0.0575)	(0.0576)	(0.0577)	(0.0579)	(0.1971)	(0.2038)	(0.0623)	(0.1979)	(0.2048)
Yr2010	-0.127**	-0.132**	-0.132**	-0.138**	-0.139**	-0.643***	-0.892**	-0.068	-0.610**	-0.865**
	(0.0595)	(0.0598)	(0.0597)	(0.0601)	(0.0602)	(0.2474)	(0.3728)	(0.0647)	(0.2477)	(0.3736)
Yr2011	-0.062	-0.060	-0.060	-0.068	-0.067	-0.076	-0.124	0.008	-0.041	-0.089
	(0.0477)	(0.0480)	(0.0480)	(0.0484)	(0.0484)	(0.1546)	(0.1741)	(0.0537)	(0.1554)	(0.1750)
Yr2012	-0.144***	-0.145***	-0.145***	-0.160***	-0.163***	-0.092	-0.005	-0.091*	-0.056	0.029
	(0.0495)	(0.0497)	(0.0497)	(0.0499)	(0.0500)	(0.1575)	(0.1669)	(0.0548)	(0.1582)	(0.1679)
Yr2013	-0.226***	-0.226***	-0.226***	-0.246***	-0.254***	-0.449***	-0.462**	-0.185***	-0.418**	-0.434**
	(0.0512)	(0.0514)	(0.0514)	(0.0519)	(0.0522)	(0.1717)	(0.1962)	(0.0568)	(0.1723)	(0.1972)
Reference: Age 30-34										
Age 25-29		0.224***	0.224***	0.191***	0.182***	0.116	0.135	0.182***	0.117	0.138
		(0.0560)	(0.0560)	(0.0567)	(0.0573)	(0.1292)	(0.1312)	(0.0574)	(0.1302)	(0.1323)
Age 35-39		-0.086	-0.085	-0.075	-0.075	-0.139	-0.165	-0.078	-0.145	-0.170
		(0.0533)	(0.0533)	(0.0535)	(0.0537)	(0.1233)	(0.1299)	(0.0537)	(0.1242)	(0.1308)
Age 40-44		-0.129**	-0.129**	-0.117**	-0.117**	-0.169	-0.214*	-0.122**	-0.184	-0.229*
		(0.0542)	(0.0542)	(0.0546)	(0.0547)	(0.1213)	(0.1286)	(0.0548)	(0.1221)	(0.1296)
Age 45-49		-0.096*	-0.095*	-0.081	-0.081	-0.196	-0.211	-0.092*	-0.204	-0.216
		(0.0535)	(0.0537)	(0.0541)	(0.0541)	(0.1266)	(0.1326)	(0.0541)	(0.1271)	(0.1332)
Age 50-54		-0.060	-0.057	-0.042	-0.044	-0.201	-0.176	-0.067	-0.208	-0.182
		(0.0544)	(0.0558)	(0.0565)	(0.0569)	(0.1285)	(0.1320)	(0.0572)	(0.1293)	(0.1329)
Age 55-59		-0.065	-0.062	-0.046	-0.053	-0.180	-0.182	-0.084	-0.183	-0.184
		(0.0576)	(0.0599)	(0.0610)	(0.0625)	(0.1392)	(0.1479)	(0.0631)	(0.1397)	(0.1484)
Age 60-64		-0.036	-0.031	-0.015	-0.035	-0.038	-0.051	-0.087	-0.046	-0.059
		(0.0611)	(0.0651)	(0.0672)	(0.0703)	(0.1413)	(0.1521)	(0.0716)	(0.1419)	(0.1529)
Ref: Male										
Female		0.213***	0.216***	0.082	-0.042	-0.146	-0.140	-0.067	-0.137	-0.125
		(0.0422)	(0.0461)	(0.0682)	(0.0795)	(0.1263)	(0.2877)	(0.0795)	(0.1269)	(0.2882)

Table A.8 continued

Ref: Primary sch										
Illiterate				0.014	0.013	0.024	0.031	0.012	0.021	0.028
				(0.0668)	(0.0669)	(0.0672)	(0.0677)	(0.0669)	(0.0673)	(0.0678)
Literate w/o dip				0.096	0.099	0.108*	0.116*	0.100	0.108*	0.118*
				(0.0642)	(0.0645)	(0.0647)	(0.0654)	(0.0646)	(0.0648)	(0.0655)
Middle sch				0.025	0.025	0.026	0.024	0.019	0.020	0.018
				(0.0489)	(0.0490)	(0.0489)	(0.0490)	(0.0491)	(0.0490)	(0.0492)
High sch				0.094*	0.094*	0.097*	0.099*	0.091*	0.095*	0.096*
				(0.0511)	(0.0512)	(0.0512)	(0.0515)	(0.0512)	(0.0513)	(0.0516)
Voc high sch				-0.081	-0.080	-0.076	-0.075	-0.085	-0.082	-0.081
				(0.0568)	(0.0569)	(0.0572)	(0.0571)	(0.0569)	(0.0572)	(0.0571)
University or more				0.179***	0.169***	0.177***	0.178***	0.166***	0.174***	0.174***
				(0.0420)	(0.0425)	(0.0427)	(0.0429)	(0.0426)	(0.0427)	(0.0429)
Ref: Married										
Single				0.359***	0.181*	0.181*	0.172*	0.192**	0.192**	0.183*
				(0.0765)	(0.0971)	(0.0979)	(0.0990)	(0.0973)	(0.0981)	(0.0992)
Divorced				0.319***	0.140	0.129	0.150	0.144	0.134	0.156
				(0.0864)	(0.0995)	(0.1000)	(0.1031)	(0.0996)	(0.1001)	(0.1032)
Widow				0.068	-0.064	-0.068	-0.051	-0.062	-0.066	-0.050
				(0.0870)	(0.0975)	(0.0975)	(0.1095)	(0.0975)	(0.0976)	(0.1097)
Ref: 2 adults with kids										
Single person					0.391***	0.399***	0.412***	0.388***	0.396***	0.409***
					(0.0960)	(0.0964)	(0.0968)	(0.0959)	(0.0964)	(0.0967)
2 adults					0.057	0.058	0.057	0.053	0.054	0.053
					(0.0472)	(0.0474)	(0.0479)	(0.0473)	(0.0475)	(0.0479)
Single dad with kids					-0.018	-0.011	-0.041	-0.026	-0.023	-0.053
					(0.2367)	(0.2359)	(0.2382)	(0.2372)	(0.2368)	(0.2391)
Single mom with kids					0.310***	0.327***	0.355***	0.309***	0.325***	0.354***
					(0.1013)	(0.1013)	(0.1042)	(0.1010)	(0.1010)	(0.1038)
Extended family					0.017	0.019	0.016	0.015	0.018	0.015
					(0.0435)	(0.0435)	(0.0437)	(0.0435)	(0.0436)	(0.0437)
Heterogenous hh					0.186	0.193	0.193	0.179	0.184	0.183
					(0.2264)	(0.2306)	(0.2356)	(0.2264)	(0.2307)	(0.2359)
Constant	-1.689***	-1.672***	-1.681***	-1.712***	-1.725***	-1.647***	-1.646***	-1.715***	-1.648***	-1.648***
	(0.0332)	(0.0488)	(0.0637)	(0.0656)	(0.0663)	(0.0960)	(0.0980)	(0.0670)	(0.0973)	(0.0993)
Observations	26.773	26.773	26.773	26.773	26.773	26.773	26.773	26.773	26.773	26.773
YearxAge group	NO	NO	NO	NO	NO	YES	YES	NO	YES	YES
YearxGender	NO	NO	NO	NO	NO	YES	YES	NO	YES	YES
YearxAge groupxGender	NO	NO	NO	NO	NO	NO	YES	NO	NO	YES

Note: Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Table A.9: Attrition after the second visit in 4-year panels - FGM Probit models

Unit of observation: households with 25-64 year-old household heads

Dependent variable=1 if attrited, 0 otherwise

VARIABLES	Model 1	Model2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Ref: NP in the first visit										
Employed			0.004	-0.013	-0.009	-0.008	-0.004	0.247***	0.258***	0.268***
			(0.0483)	(0.0484)	(0.0488)	(0.0483)	(0.0488)	(0.0680)	(0.0679)	(0.0685)
Unemployed			0.015	-0.004	-0.001	-0.006	0.000	0.187*	0.185*	0.194**
			(0.0876)	(0.0881)	(0.0884)	(0.0884)	(0.0889)	(0.0956)	(0.0957)	(0.0964)
Ref: NP in the second visit										
Employed								-0.391***	-0.405***	-0.414***
								(0.0651)	(0.0651)	(0.0656)
Unemployed								-0.152**	-0.145**	-0.148**
								(0.0632)	(0.0632)	(0.0635)
Ref: Yr2006										
Yr2007	-0.074	-0.066	-0.065	-0.069	-0.067	-0.825***	-0.751**	-0.069	-0.864***	-0.795**
	(0.0631)	(0.0634)	(0.0633)	(0.0633)	(0.0634)	(0.3107)	(0.3195)	(0.0636)	(0.3148)	(0.3254)
Yr2008	-0.033	-0.044	-0.044	-0.043	-0.041	-0.077	-0.124	-0.045	-0.094	-0.146
	(0.0609)	(0.0613)	(0.0613)	(0.0615)	(0.0615)	(0.2073)	(0.2311)	(0.0617)	(0.2089)	(0.2338)
Yr2009	-0.166***	-0.170***	-0.171***	-0.178***	-0.180***	-0.366*	-0.258	-0.185***	-0.373*	-0.266
	(0.0638)	(0.0641)	(0.0641)	(0.0643)	(0.0644)	(0.2164)	(0.2257)	(0.0647)	(0.2179)	(0.2279)
Yr2010	-0.217***	-0.216***	-0.216***	-0.220***	-0.220***	-0.821***	-1.058***	-0.227***	-0.839***	-1.092***
	(0.0658)	(0.0661)	(0.0660)	(0.0664)	(0.0665)	(0.2641)	(0.3850)	(0.0666)	(0.2651)	(0.3890)
Yr2011	-0.153***	-0.145***	-0.145***	-0.149***	-0.147***	-0.253	-0.297	-0.147***	-0.264	-0.308
	(0.0554)	(0.0556)	(0.0556)	(0.0559)	(0.0560)	(0.1780)	(0.1988)	(0.0562)	(0.1791)	(0.2006)
Yr2012	-0.234***	-0.230***	-0.230***	-0.242***	-0.246***	-0.271	-0.178	-0.249***	-0.283	-0.195
	(0.0569)	(0.0572)	(0.0571)	(0.0573)	(0.0575)	(0.1809)	(0.1928)	(0.0577)	(0.1824)	(0.1952)
Ref: Age 30-34										
Age 25-29		0.265***	0.264***	0.229***	0.220***	0.150	0.181	0.218***	0.142	0.173
		(0.0618)	(0.0617)	(0.0622)	(0.0630)	(0.1604)	(0.1641)	(0.0630)	(0.1599)	(0.1636)
Age 35-39		-0.083	-0.083	-0.070	-0.070	-0.192	-0.230	-0.077	-0.197	-0.235
		(0.0593)	(0.0593)	(0.0596)	(0.0597)	(0.1582)	(0.1688)	(0.0598)	(0.1581)	(0.1686)
Age 40-44		-0.139**	-0.139**	-0.128**	-0.128**	-0.256	-0.245	-0.136**	-0.274*	-0.258
		(0.0611)	(0.0611)	(0.0615)	(0.0616)	(0.1627)	(0.1691)	(0.0618)	(0.1627)	(0.1693)
Age 45-49		-0.112*	-0.111*	-0.097	-0.098	-0.361**	-0.353**	-0.125**	-0.388**	-0.376**
		(0.0601)	(0.0603)	(0.0607)	(0.0606)	(0.1709)	(0.1785)	(0.0609)	(0.1710)	(0.1783)
Age 50-54		-0.057	-0.056	-0.042	-0.046	-0.227	-0.202	-0.096	-0.288*	-0.262
		(0.0609)	(0.0625)	(0.0633)	(0.0638)	(0.1647)	(0.1711)	(0.0650)	(0.1669)	(0.1732)
Age 55-59		-0.084	-0.082	-0.070	-0.082	-0.253	-0.211	-0.149**	-0.319*	-0.278
		(0.0653)	(0.0679)	(0.0692)	(0.0712)	(0.1841)	(0.1928)	(0.0731)	(0.1849)	(0.1933)
Age 60-64		-0.011	-0.008	-0.002	-0.030	-0.005	0.003	-0.144*	-0.111	-0.109
		(0.0684)	(0.0727)	(0.0755)	(0.0795)	(0.1789)	(0.1943)	(0.0831)	(0.1806)	(0.1963)
Ref: Male										
Female		0.167***	0.169***	0.003	-0.106	-0.275	-0.307	-0.159*	-0.318*	-0.338
		(0.0481)	(0.0526)	(0.0797)	(0.0922)	(0.1714)	(0.3553)	(0.0923)	(0.1727)	(0.3568)

Table A.9 continued

Ref: Primary sch										
Illiterate				0.061	0.058	0.069	0.078	0.058	0.069	0.077
				(0.0752)	(0.0755)	(0.0759)	(0.0765)	(0.0757)	(0.0762)	(0.0768)
Literate w/o dip				0.094	0.096	0.100	0.104	0.101	0.105	0.112
				(0.0735)	(0.0738)	(0.0739)	(0.0749)	(0.0742)	(0.0742)	(0.0753)
Middle sch				0.056	0.054	0.057	0.056	0.047	0.049	0.049
				(0.0541)	(0.0542)	(0.0543)	(0.0544)	(0.0544)	(0.0545)	(0.0547)
High sch				0.108*	0.104*	0.107*	0.110*	0.099*	0.103*	0.105*
				(0.0568)	(0.0569)	(0.0570)	(0.0573)	(0.0571)	(0.0572)	(0.0575)
Voc high sch				-0.069	-0.069	-0.062	-0.064	-0.076	-0.070	-0.072
				(0.0628)	(0.0630)	(0.0634)	(0.0632)	(0.0630)	(0.0633)	(0.0632)
University or more				0.163***	0.148***	0.157***	0.156***	0.146***	0.155***	0.153***
				(0.0476)	(0.0483)	(0.0485)	(0.0487)	(0.0484)	(0.0485)	(0.0488)
Ref: Married										
Single				0.410***	0.224**	0.211*	0.193*	0.237**	0.224**	0.205*
				(0.0848)	(0.1087)	(0.1099)	(0.1116)	(0.1089)	(0.1102)	(0.1118)
Divorced				0.304***	0.132	0.120	0.121	0.137	0.126	0.128
				(0.0997)	(0.1158)	(0.1166)	(0.1206)	(0.1165)	(0.1174)	(0.1217)
Widow				0.140	0.014	0.008	0.028	0.013	0.006	0.027
				(0.0999)	(0.1121)	(0.1121)	(0.1275)	(0.1124)	(0.1127)	(0.1284)
Ref: 2 adults with kids										
Single person					0.417***	0.433***	0.454***	0.411***	0.427***	0.449***
					(0.1081)	(0.1086)	(0.1091)	(0.1081)	(0.1086)	(0.1091)
2 adults					0.059	0.059	0.059	0.048	0.048	0.049
					(0.0533)	(0.0536)	(0.0542)	(0.0535)	(0.0538)	(0.0544)
Single dad with kids					-0.250	-0.245	-0.269	-0.258	-0.257	-0.282
					(0.3153)	(0.3121)	(0.3136)	(0.3193)	(0.3171)	(0.3186)
Single mom with kids					0.260**	0.277**	0.291**	0.259**	0.277**	0.295**
					(0.1170)	(0.1169)	(0.1218)	(0.1165)	(0.1164)	(0.1207)
Extended family					0.007	0.011	0.009	0.003	0.007	0.006
					(0.0489)	(0.0490)	(0.0492)	(0.0491)	(0.0493)	(0.0494)
Heterogenous hh					0.140	0.156	0.173	0.113	0.125	0.142
					(0.2524)	(0.2571)	(0.2635)	(0.2519)	(0.2568)	(0.2643)
Constant	-1.598***	-1.584***	-1.589***	-1.632***	-1.639***	-1.517***	-1.530***	-1.488***	-1.362***	-1.372***
	(0.0435)	(0.0592)	(0.0746)	(0.0764)	(0.0774)	(0.1169)	(0.1206)	(0.0812)	(0.1195)	(0.1232)
Observations	20.346	20.346	20.346	20.346	20.346	20.346	20.346	20.346	20.346	20.346
YearxAge group	NO	NO	NO	NO	NO	YES	YES	NO	YES	YES
YearxGender	NO	NO	NO	NO	NO	YES	YES	NO	YES	YES
YearxAge groupxGender	NO	NO	NO	NO	NO	NO	YES	NO	NO	YES

Note: Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Table A.10: Attrition after the third visit in 4-year panels - FGM Probit models

Unit of observation: households with 25-64 year-old household heads

Dependent variable=1 if attrited, 0 otherwise

VARIABLES	Model 1	Model2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Ref: NP in the first visit										
Employed			-0.036	-0.052	-0.037	-0.039	-0.036	0.118	0.119	0.117
			(0.0525)	(0.0524)	(0.0523)	(0.0523)	(0.0523)	(0.0759)	(0.0765)	(0.0768)
Unemployed			0.038	0.031	0.045	0.038	0.042	0.107	0.103	0.104
			(0.0956)	(0.0957)	(0.0959)	(0.0960)	(0.0958)	(0.1041)	(0.1043)	(0.1044)
Ref: NP in the second visit										
Employed								-0.153*	-0.147*	-0.138
								(0.0860)	(0.0871)	(0.0874)
Unemployed								-0.196**	-0.198**	-0.202**
								(0.0971)	(0.0968)	(0.0971)
Ref: NP in the third visit										
Employed								-0.096	-0.110	-0.112
								(0.0798)	(0.0858)	(0.0868)
Unemployed								0.418***	0.412***	0.420***
								(0.1332)	(0.1349)	(0.1354)
Ref: Yr2006										
Yr2007	0.054	0.054	0.055	0.049	0.046	-0.067	-0.103	0.083	-0.062	-0.098
	(0.0720)	(0.0723)	(0.0723)	(0.0725)	(0.0726)	(0.2509)	(0.2763)	(0.0935)	(0.2525)	(0.2777)
Yr2008	-0.045	-0.052	-0.052	-0.059	-0.060	-0.491	-0.466	-0.017	-0.457	-0.434
	(0.0733)	(0.0735)	(0.0736)	(0.0738)	(0.0740)	(0.3270)	(0.3364)	(0.0936)	(0.3297)	(0.3390)
Yr2009	0.022	0.013	0.012	0.006	0.002	-0.341	-0.528	0.046	-0.325	-0.507
	(0.0712)	(0.0714)	(0.0714)	(0.0717)	(0.0717)	(0.2704)	(0.3329)	(0.0927)	(0.2721)	(0.3346)
Yr2010	-0.104	-0.108	-0.107	-0.111	-0.115	-0.149	-0.063	-0.072	-0.130	-0.049
	(0.0753)	(0.0756)	(0.0756)	(0.0759)	(0.0763)	(0.2574)	(0.2656)	(0.0962)	(0.2586)	(0.2669)
Yr2011	-0.087	-0.086	-0.086	-0.088	-0.091	-0.277	-0.279	-0.045	-0.261	-0.267
	(0.0651)	(0.0655)	(0.0655)	(0.0659)	(0.0660)	(0.2321)	(0.2474)	(0.0901)	(0.2333)	(0.2482)
Yr2012	-0.201***	-0.200***	-0.199***	-0.206***	-0.208***	-0.306	-0.331	-0.165*	-0.279	-0.306
	(0.0676)	(0.0678)	(0.0678)	(0.0683)	(0.0685)	(0.2328)	(0.2540)	(0.0902)	(0.2349)	(0.2561)
Ref: Age 30-34										
Age 25-29		0.069	0.069	0.056	0.034	-0.064	-0.041	0.035	-0.059	-0.036
		(0.0748)	(0.0748)	(0.0754)	(0.0767)	(0.2267)	(0.2308)	(0.0769)	(0.2273)	(0.2315)
Age 35-39		-0.091	-0.092	-0.080	-0.076	0.026	-0.004	-0.081	0.024	-0.003
		(0.0671)	(0.0670)	(0.0671)	(0.0673)	(0.1883)	(0.1993)	(0.0674)	(0.1882)	(0.1992)
Age 40-44		-0.128*	-0.130*	-0.115*	-0.111	0.011	-0.021	-0.116*	0.019	-0.014
		(0.0683)	(0.0683)	(0.0686)	(0.0688)	(0.1886)	(0.1996)	(0.0691)	(0.1889)	(0.1999)
Age 45-49		-0.145**	-0.150**	-0.133*	-0.135*	-0.287	-0.310	-0.148**	-0.275	-0.296
		(0.0680)	(0.0685)	(0.0690)	(0.0691)	(0.2158)	(0.2302)	(0.0696)	(0.2168)	(0.2311)
Age 50-54		0.002	-0.007	0.006	-0.008	0.066	0.046	-0.033	0.062	0.044
		(0.0668)	(0.0680)	(0.0693)	(0.0700)	(0.1870)	(0.1981)	(0.0712)	(0.1877)	(0.1988)
Age 55-59		-0.024	-0.038	-0.031	-0.056	-0.184	-0.111	-0.089	-0.183	-0.107
		(0.0715)	(0.0744)	(0.0761)	(0.0781)	(0.2248)	(0.2303)	(0.0800)	(0.2263)	(0.2317)
Age 60-64		-0.142*	-0.159*	-0.158*	-0.204**	-0.047	-0.021	-0.264***	-0.060	-0.031
		(0.0820)	(0.0850)	(0.0885)	(0.0898)	(0.2267)	(0.2418)	(0.0946)	(0.2295)	(0.2449)

Table A.10 continued

Ref: Male										
Female		0.234***	0.220***	0.227***	0.093	-0.003	-0.146	0.062	-0.006	-0.143
		(0.0527)	(0.0574)	(0.0830)	(0.1016)	(0.1901)	(0.4924)	(0.1019)	(0.1909)	(0.4927)
Ref: Primary sch										
Illiterate				0.047	0.051	0.059	0.055	0.045	0.051	0.048
				(0.0840)	(0.0842)	(0.0851)	(0.0849)	(0.0840)	(0.0849)	(0.0847)
Literate w/o dip				0.265***	0.270***	0.274***	0.272***	0.264***	0.269***	0.268***
				(0.0750)	(0.0751)	(0.0752)	(0.0751)	(0.0753)	(0.0753)	(0.0752)
Middle sch				-0.064	-0.066	-0.069	-0.070	-0.065	-0.068	-0.070
				(0.0669)	(0.0670)	(0.0667)	(0.0665)	(0.0672)	(0.0668)	(0.0667)
High sch				0.117*	0.118*	0.124*	0.126*	0.122*	0.128*	0.130**
				(0.0650)	(0.0650)	(0.0649)	(0.0646)	(0.0653)	(0.0652)	(0.0649)
Voc high sch				0.045	0.048	0.049	0.049	0.052	0.054	0.055
				(0.0677)	(0.0680)	(0.0681)	(0.0680)	(0.0682)	(0.0682)	(0.0681)
University or more				0.177***	0.170***	0.168***	0.166***	0.177***	0.174***	0.173***
				(0.0546)	(0.0556)	(0.0554)	(0.0553)	(0.0558)	(0.0556)	(0.0554)
Ref: Married										
Single				0.124	0.081	0.090	0.102	0.086	0.095	0.106
				(0.1112)	(0.1301)	(0.1291)	(0.1281)	(0.1307)	(0.1295)	(0.1287)
Divorced				-0.052	-0.165	-0.157	-0.206	-0.159	-0.149	-0.195
				(0.1187)	(0.1329)	(0.1332)	(0.1382)	(0.1336)	(0.1339)	(0.1387)
Widow				-0.073	-0.131	-0.140	-0.164	-0.134	-0.142	-0.167
				(0.1066)	(0.1171)	(0.1167)	(0.1316)	(0.1178)	(0.1174)	(0.1325)
Ref: 2 adults with kids										
Single person					0.169	0.158	0.182	0.177	0.167	0.189
					(0.1272)	(0.1275)	(0.1286)	(0.1279)	(0.1280)	(0.1292)
2 adults					0.175***	0.174***	0.170***	0.170***	0.169***	0.165***
					(0.0566)	(0.0566)	(0.0568)	(0.0567)	(0.0567)	(0.0569)
Single dad with kids					0.232	0.224	0.252	0.236	0.226	0.254
					(0.2801)	(0.2788)	(0.2843)	(0.2841)	(0.2824)	(0.2882)
Single mom with kids					0.349***	0.342***	0.338***	0.357***	0.349***	0.346***
					(0.1187)	(0.1195)	(0.1229)	(0.1190)	(0.1198)	(0.1229)
Extended family					0.043	0.043	0.040	0.039	0.039	0.036
					(0.0551)	(0.0551)	(0.0551)	(0.0551)	(0.0550)	(0.0550)
Heterogenous hh					0.479*	0.463*	0.506*	0.446*	0.431*	0.476*
					(0.2602)	(0.2625)	(0.2699)	(0.2574)	(0.2600)	(0.2673)
Constant	-1.814***	-1.782***	-1.750***	-1.793***	-1.831***	-1.838***	-1.835***	-1.794***	-1.828***	-1.830***
	(0.0520)	(0.0680)	(0.0843)	(0.0868)	(0.0877)	(0.1463)	(0.1513)	(0.1031)	(0.1629)	(0.1683)
Observations	19.499	19.499	19.499	19.499	19.499	19.499	19.499	19.499	19.499	19.499
YearxAge group	NO	NO	NO	NO	NO	YES	YES	NO	YES	YES
YearxGender	NO	NO	NO	NO	NO	YES	YES	NO	YES	YES
YearxAge groupxGender	NO	NO	NO	NO	NO	NO	YES	NO	NO	YES

Note: Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Table A.11: Labor force participation outcome in 2-year panels - BGLW Probit models

Unit of observation: households with 25-64 year-old household heads

Dependent variable=1 if participant, 0 otherwise (first visit)

VARIABLES	Model 1	Model 2	Model 3	Model 4
Attrition after the first visit	-0.145***	-0.157***	-0.157***	-0.156***
	(0.0338)	(0.0411)	(0.0411)	(0.0417)
Ref: Yr2006				
Yr2007	0.000	-0.051	0.044	0.092
	(0.0338)	(0.0402)	(0.1158)	(0.1196)
Yr2008	0.076**	0.040	-0.052	0.014
	(0.0331)	(0.0392)	(0.1157)	(0.1189)
Yr2009	-0.024	0.047	0.202*	0.268**
	(0.0325)	(0.0396)	(0.1065)	(0.1117)
Yr2010	0.026	0.080**	-0.026	0.005
	(0.0333)	(0.0402)	(0.1086)	(0.1124)
Yr2011	0.027	0.072**	0.069	0.061
	(0.0269)	(0.0326)	(0.0874)	(0.0893)
Yr2012	0.001	0.063*	0.125	0.126
	(0.0270)	(0.0325)	(0.0883)	(0.0904)
Yr2013	-0.019	0.084***	-0.030	-0.036
	(0.0269)	(0.0322)	(0.0856)	(0.0876)
Yr2014	-0.039	0.049	-0.132	-0.094
	(0.0267)	(0.0321)	(0.0874)	(0.0894)
Ref: Age 30-34				
Age 25-29		-0.008	-0.123	-0.182
		(0.0549)	(0.1167)	(0.1419)
Age 35-39		-0.098**	-0.067	-0.146
		(0.0458)	(0.1042)	(0.1295)
Age 40-44		-0.272***	-0.290***	-0.223*
		(0.0439)	(0.0948)	(0.1236)
Age 45-49		-0.864***	-1.031***	-1.120***
		(0.0410)	(0.0895)	(0.1096)
Age 50-54		-1.380***	-1.378***	-1.531***
		(0.0408)	(0.0894)	(0.1081)
Age 55-59		-1.786***	-1.703***	-1.832***
		(0.0422)	(0.0918)	(0.1106)
Age 60-64		-2.063***	-2.051***	-2.198***
		(0.0450)	(0.0967)	(0.1142)
Ref: Male				
Female		-1.417***	-1.394***	-0.691***
		(0.0488)	(0.0768)	(0.1802)

Table A.11 continued

Ref: Primary sch				
Illiterate		-0.008	-0.013	-0.061
		(0.0417)	(0.0417)	(0.0396)
Literate w/o dip		0.074*	0.067	0.058
		(0.0411)	(0.0411)	(0.0406)
Middle sch		-0.056*	-0.056*	-0.070**
		(0.0301)	(0.0302)	(0.0309)
High sch		-0.067**	-0.066**	-0.080**
		(0.0330)	(0.0331)	(0.0341)
Voc high sch		-0.037	-0.042	-0.058*
		(0.0334)	(0.0335)	(0.0344)
University or more		0.306***	0.310***	0.310***
		(0.0314)	(0.0316)	(0.0322)
Ref: Married				
Single		0.095	0.087	0.120
		(0.0808)	(0.0812)	(0.0828)
Divorced		0.320***	0.309***	0.218***
		(0.0644)	(0.0651)	(0.0615)
Widow		0.044	0.037	-0.240***
		(0.0572)	(0.0576)	(0.0567)
Ref: 2 adults with kids				
Single person		-0.045	-0.044	-0.050
		(0.0639)	(0.0641)	(0.0609)
2 adults		-0.147***	-0.143***	-0.116***
		(0.0265)	(0.0266)	(0.0271)
Single dad with kids		-0.447***	-0.445***	-0.249**
		(0.1201)	(0.1213)	(0.1263)
Single mom with kids		-0.314***	-0.319***	-0.147**
		(0.0602)	(0.0605)	(0.0574)
Extended family		0.014	0.013	0.034
		(0.0268)	(0.0268)	(0.0274)
Heterogenous hh		-0.325*	-0.331*	-0.268
		(0.1701)	(0.1699)	(0.1769)
Constant	0.787***	1.937***	1.954***	2.052***
	(0.0173)	(0.0417)	(0.0786)	(0.0989)
Observations	34.862	34.862	34.862	34.862
YearxAge group	NO	NO	YES	YES
YearxGender	NO	NO	YES	YES
YearxAge groupxGender	NO	NO	NO	YES

Note: Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Table A.12: Labor force participation outcome in 3-year panels - BGLW Probit models

Unit of observation: households with 25-64 year-old household heads

Dependent variable=1 if participant, 0 otherwise (first and second visit)

	LFP in the first visit				LFP in the second visit			
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Attrition after the first visit	-0.160***	-0.161***	-0.158***	-0.158***				
	(0.0380)	(0.0461)	(0.0462)	(0.0468)				
Attrition after the second visit	-0.043	-0.018	-0.016	-0.008	-0.095**	-0.077	-0.076	-0.066
	(0.0441)	(0.0545)	(0.0542)	(0.0547)	(0.0428)	(0.0516)	(0.0515)	(0.0518)
Ref: Yr2006								
Yr2007	-0.015	-0.040	-0.012	0.009	0.031	-0.044	0.161*	0.207**
	(0.0358)	(0.0425)	(0.1220)	(0.1264)	(0.0300)	(0.0357)	(0.0938)	(0.0964)
Yr2008	0.062*	0.049	-0.110	-0.072	0.023	-0.078*	-0.008	-0.003
	(0.0352)	(0.0417)	(0.1219)	(0.1257)	(0.0365)	(0.0427)	(0.1241)	(0.1266)
Yr2009	-0.039	0.056	0.144	0.182	0.076**	-0.042	-0.020	0.015
	(0.0346)	(0.0420)	(0.1132)	(0.1189)	(0.0358)	(0.0423)	(0.1235)	(0.1271)
Yr2010	0.010	0.089**	-0.081	-0.077	-0.017	-0.041	0.131	0.205*
	(0.0353)	(0.0425)	(0.1153)	(0.1197)	(0.0352)	(0.0421)	(0.1097)	(0.1148)
Yr2011	0.012	0.081**	0.009	-0.027	0.073**	0.060	0.032	0.074
	(0.0294)	(0.0355)	(0.0956)	(0.0982)	(0.0362)	(0.0427)	(0.1130)	(0.1167)
Yr2012	-0.015	0.072**	0.068	0.042	0.078***	0.045	0.137	0.156*
	(0.0294)	(0.0354)	(0.0964)	(0.0992)	(0.0300)	(0.0358)	(0.0918)	(0.0942)
Yr2013	-0.034	0.094***	-0.087	-0.120	0.019	0.003	0.057	0.070
	(0.0294)	(0.0351)	(0.0941)	(0.0968)	(0.0299)	(0.0353)	(0.0922)	(0.0942)
Ref: Age 30-34								
Age 25-29		0.011	-0.188	-0.274*		0.043	-0.149	0.035
		(0.0614)	(0.1345)	(0.1624)		(0.0641)	(0.1612)	(0.2689)
Age 35-39		-0.092*	-0.006	-0.214		-0.146***	-0.271**	-0.423**
		(0.0515)	(0.1333)	(0.1553)		(0.0506)	(0.1366)	(0.1765)
Age 40-44		-0.293***	-0.372***	-0.295**		-0.260***	-0.289**	-0.332*
		(0.0490)	(0.1114)	(0.1481)		(0.0489)	(0.1310)	(0.1788)
Age 45-49		-0.896***	-1.064***	-1.174***		-0.798***	-0.751***	-0.888***
		(0.0456)	(0.1071)	(0.1328)		(0.0455)	(0.1227)	(0.1642)
Age 50-54		-1.405***	-1.432***	-1.601***		-1.351***	-1.445***	-1.602***
		(0.0456)	(0.1063)	(0.1306)		(0.0451)	(0.1192)	(0.1590)
Age 55-59		-1.805***	-1.752***	-1.901***		-1.695***	-1.812***	-2.006***
		(0.0471)	(0.1092)	(0.1340)		(0.0468)	(0.1203)	(0.1592)
Age 60-64		-2.037***	-2.005***	-2.141***		-2.020***	-2.173***	-2.367***
		(0.0502)	(0.1150)	(0.1387)		(0.0496)	(0.1243)	(0.1620)
Ref: Male								
Female		-1.393***	-1.337***	-0.865***		-1.515***	-1.491***	-0.815***
		(0.0551)	(0.0913)	(0.2315)		(0.0501)	(0.0867)	(0.2017)

Table A.12 continued

Ref: Primary sch								
Illiterate		-0.050	-0.053	-0.100**		-0.064	-0.066	-0.112**
		(0.0462)	(0.0464)	(0.0440)		(0.0484)	(0.0485)	(0.0461)
Literate w/o dip		0.086*	0.080*	0.072		0.046	0.037	0.022
		(0.0458)	(0.0457)	(0.0452)		(0.0476)	(0.0477)	(0.0471)
Middle sch		-0.066*	-0.067**	-0.080**		-0.104***	-0.105***	-0.123***
		(0.0337)	(0.0339)	(0.0346)		(0.0339)	(0.0339)	(0.0348)
High sch		-0.072*	-0.073**	-0.093**		-0.056	-0.057	-0.072*
		(0.0370)	(0.0371)	(0.0381)		(0.0382)	(0.0382)	(0.0392)
Voc high sch		-0.042	-0.046	-0.062		-0.026	-0.026	-0.050
		(0.0372)	(0.0373)	(0.0383)		(0.0372)	(0.0374)	(0.0383)
University or more		0.273***	0.274***	0.277***		0.308***	0.307***	0.312***
		(0.0349)	(0.0351)	(0.0358)		(0.0351)	(0.0352)	(0.0361)
Ref: Married								
Single		0.063	0.050	0.083		0.105	0.097	0.116
		(0.0889)	(0.0892)	(0.0916)		(0.0929)	(0.0923)	(0.0934)
Divorced		0.330***	0.314***	0.212***		0.316***	0.311***	0.207***
		(0.0720)	(0.0728)	(0.0689)		(0.0743)	(0.0746)	(0.0703)
Widow		0.057	0.043	-0.246***		0.080	0.079	-0.209***
		(0.0639)	(0.0644)	(0.0637)		(0.0642)	(0.0646)	(0.0635)
Ref: 2 adults with kids								
Single person		-0.027	-0.028	-0.036		-0.065	-0.064	-0.111
		(0.0705)	(0.0707)	(0.0674)		(0.0762)	(0.0764)	(0.0721)
2 adults		-0.158***	-0.155***	-0.128***		-0.132***	-0.127***	-0.101***
		(0.0296)	(0.0297)	(0.0303)		(0.0314)	(0.0315)	(0.0320)
Single dad with kids		-0.479***	-0.477***	-0.257*		-0.287**	-0.291**	-0.097
		(0.1317)	(0.1326)	(0.1373)		(0.1309)	(0.1315)	(0.1402)
Single mom with kids		-0.331***	-0.337***	-0.171***		-0.100	-0.100	-0.044
		(0.0674)	(0.0677)	(0.0643)		(0.0670)	(0.0672)	(0.0624)
Extended family		0.030	0.030	0.053*		0.024	0.026	0.038
		(0.0297)	(0.0297)	(0.0304)		(0.0287)	(0.0287)	(0.0292)
Heterogenous hh		-0.400**	-0.404**	-0.347*		-0.016	-0.011	0.064
		(0.1892)	(0.1882)	(0.1978)		(0.1743)	(0.1750)	(0.1752)
Constant	0.805***	1.943***	1.974***	2.088***	0.751***	1.957***	2.034***	2.183***
	(0.0210)	(0.0475)	(0.0929)	(0.1197)	(0.0211)	(0.0477)	(0.1074)	(0.1488)
Observations	28.122	28.122	28.122	28.122	26.755	26.755	26.755	26.755
YearxAge group	NO	NO	YES	YES	NO	NO	YES	YES
YearxGender	NO	NO	YES	YES	NO	NO	YES	YES
YearxAge groupxGender	NO	NO	NO	YES	NO	NO	NO	YES

Note: Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Table A.13: Labor force participation outcome in 4-year panels - BGLW Probit models

Unit of observation: households with 25-64 year-old household heads

Dependent variable=1 if participant, 0 otherwise

	LFP in the first visit				LFP in the second visit				LFP in the third visit			
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Attrition after the first visit	-0.162***	-0.158***	-0.155***	-0.154***								
	(0.0437)	(0.0536)	(0.0537)	(0.0546)								
Attrition after the second visit	-0.030	-0.025	-0.019	-0.017	-0.064	-0.074	-0.073	-0.066				
	(0.0494)	(0.0614)	(0.0612)	(0.0619)	(0.0485)	(0.0591)	(0.0591)	(0.0594)				
Attrition after the third visit	-0.149***	-0.089	-0.089	-0.093	-0.120**	-0.084	-0.086	-0.082	-0.111**	-0.062	-0.059	-0.050
	(0.0550)	(0.0666)	(0.0667)	(0.0671)	(0.0563)	(0.0674)	(0.0674)	(0.0679)	(0.0554)	(0.0678)	(0.0675)	(0.0678)
Ref: Yr2006												
Yr2007	-0.033	-0.052	0.017	0.079	0.030	-0.025	0.176	0.176				
	(0.0411)	(0.0488)	(0.1413)	(0.1454)	(0.0366)	(0.0439)	(0.1179)	(0.1209)				
Yr2008	0.042	0.036	-0.079	-0.000	0.006	-0.079*	-0.064	-0.073	0.001	-0.042	0.152	0.128
	(0.0406)	(0.0481)	(0.1414)	(0.1450)	(0.0366)	(0.0428)	(0.1256)	(0.1286)	(0.0342)	(0.0409)	(0.1207)	(0.1240)
Yr2009	-0.058	0.044	0.173	0.253*	0.058	-0.044	-0.078	-0.057	0.028	-0.020	-0.046	-0.089
	(0.0401)	(0.0483)	(0.1341)	(0.1392)	(0.0359)	(0.0425)	(0.1251)	(0.1290)	(0.0343)	(0.0407)	(0.1278)	(0.1310)
Yr2010	-0.010	0.077	-0.045	0.001	-0.034	-0.043	0.074	0.133	0.040	-0.041	-0.058	-0.075
	(0.0407)	(0.0489)	(0.1357)	(0.1399)	(0.0352)	(0.0422)	(0.1116)	(0.1170)	(0.0330)	(0.0389)	(0.1225)	(0.1253)
Yr2011	-0.009	0.066	0.039	0.044	0.055	0.058	-0.019	0.008	-0.040	-0.009	0.147	0.136
	(0.0357)	(0.0429)	(0.1195)	(0.1220)	(0.0363)	(0.0428)	(0.1149)	(0.1188)	(0.0325)	(0.0396)	(0.1101)	(0.1154)
Yr2012	-0.036	0.058	0.099	0.115	0.059**	0.042	0.079	0.084	0.018	0.004	0.055	-0.017
	(0.0357)	(0.0428)	(0.1201)	(0.1228)	(0.0301)	(0.0358)	(0.0942)	(0.0969)	(0.0335)	(0.0400)	(0.1160)	(0.1189)
Ref: Age 30-34												
Age 25-29		0.048	-0.111	-0.195		0.093	0.051	0.003		-0.011	-0.145	-0.125
		(0.0693)	(0.1859)	(0.2314)		(0.0751)	(0.1762)	(0.2427)		(0.0809)	(0.1829)	(0.2807)
Age 35-39		-0.057	0.003	-0.243		-0.150***	-0.131	0.013		-0.029	-0.059	-0.040
		(0.0576)	(0.1854)	(0.2162)		(0.0569)	(0.1232)	(0.1855)		(0.0604)	(0.1334)	(0.1993)
Age 40-44		-0.280***	-0.347**	-0.264		-0.274***	-0.310**	-0.417**		-0.266***	-0.407***	-0.488***
		(0.0551)	(0.1530)	(0.2129)		(0.0559)	(0.1231)	(0.1625)		(0.0567)	(0.1235)	(0.1757)
Age 45-49		-0.876***	-1.109***	-1.203***		-0.814***	-0.736***	-0.882***		-0.789***	-0.721***	-0.854***
		(0.0509)	(0.1435)	(0.1852)		(0.0517)	(0.1131)	(0.1505)		(0.0529)	(0.1169)	(0.1651)
Age 50-54		-1.365***	-1.469***	-1.625***		-1.351***	-1.344***	-1.512***		-1.338***	-1.417***	-1.659***
		(0.0511)	(0.1439)	(0.1833)		(0.0516)	(0.1118)	(0.1473)		(0.0524)	(0.1152)	(0.1598)
Age 55-59		-1.776***	-1.693***	-1.826***		-1.687***	-1.689***	-1.845***		-1.737***	-1.827***	-2.043***
		(0.0531)	(0.1486)	(0.1881)		(0.0536)	(0.1131)	(0.1481)		(0.0545)	(0.1178)	(0.1611)
Age 60-64		-1.999***	-2.068***	-2.242***		-2.009***	-2.035***	-2.195***		-2.022***	-2.104***	-2.266***
		(0.0567)	(0.1586)	(0.1948)		(0.0568)	(0.1187)	(0.1526)		(0.0578)	(0.1212)	(0.1652)
Ref: Male												
Female		-1.453***	-1.415***	-0.680**		-1.557***	-1.554***	-0.959***		-1.570***	-1.609***	-1.345***
		(0.0627)	(0.1195)	(0.2933)		(0.0574)	(0.0883)	(0.2160)		(0.0581)	(0.0890)	(0.2567)

Table A.13 continued

Ref: Primary sch												
Illiterate		-0.035	-0.038	-0.082		-0.030	-0.031	-0.076		-0.107*	-0.103*	-0.154***
		(0.0527)	(0.0529)	(0.0501)		(0.0555)	(0.0556)	(0.0527)		(0.0562)	(0.0563)	(0.0533)
Literate w/o dip		0.103*	0.099*	0.090*		0.032	0.023	0.011		-0.014	-0.022	-0.047
		(0.0527)	(0.0527)	(0.0523)		(0.0544)	(0.0545)	(0.0539)		(0.0573)	(0.0574)	(0.0565)
Middle sch		-0.058	-0.056	-0.069*		-0.090**	-0.093**	-0.108***		-0.107***	-0.108***	-0.120***
		(0.0388)	(0.0389)	(0.0397)		(0.0390)	(0.0391)	(0.0400)		(0.0392)	(0.0393)	(0.0405)
High sch		-0.026	-0.030	-0.046		-0.051	-0.053	-0.069		-0.030	-0.027	-0.044
		(0.0431)	(0.0431)	(0.0443)		(0.0440)	(0.0440)	(0.0452)		(0.0449)	(0.0450)	(0.0462)
Voc high sch		-0.042	-0.048	-0.066		-0.001	-0.000	-0.025		-0.020	-0.017	-0.037
		(0.0426)	(0.0427)	(0.0439)		(0.0430)	(0.0432)	(0.0443)		(0.0444)	(0.0444)	(0.0457)
University or more		0.236***	0.238***	0.240***		0.259***	0.258***	0.262***		0.288***	0.287***	0.292***
		(0.0398)	(0.0399)	(0.0409)		(0.0401)	(0.0403)	(0.0415)		(0.0413)	(0.0414)	(0.0425)
Ref: Married												
Single		0.060	0.046	0.085		0.177	0.165	0.192*		0.074	0.076	0.110
		(0.1037)	(0.1040)	(0.1078)		(0.1082)	(0.1077)	(0.1085)		(0.1104)	(0.1104)	(0.1106)
Divorced		0.359***	0.340***	0.236***		0.311***	0.304***	0.212***		0.327***	0.313***	0.214***
		(0.0813)	(0.0820)	(0.0786)		(0.0847)	(0.0850)	(0.0804)		(0.0828)	(0.0827)	(0.0775)
Widow		0.094	0.077	-0.210***		0.100	0.098	-0.191***		0.165**	0.159**	-0.182**
		(0.0723)	(0.0729)	(0.0729)		(0.0732)	(0.0737)	(0.0724)		(0.0738)	(0.0742)	(0.0726)
Ref: 2 adults with kids												
Single person		0.018	0.018	-0.002		-0.040	-0.039	-0.096		-0.097	-0.105	-0.170**
		(0.0821)	(0.0820)	(0.0788)		(0.0887)	(0.0890)	(0.0836)		(0.0894)	(0.0896)	(0.0839)
2 adults		-0.152***	-0.150***	-0.126***		-0.144***	-0.141***	-0.115***		-0.154***	-0.152***	-0.124***
		(0.0343)	(0.0344)	(0.0349)		(0.0364)	(0.0365)	(0.0371)		(0.0378)	(0.0380)	(0.0385)
Single dad with kids		-0.545***	-0.531***	-0.329**		-0.384***	-0.383**	-0.213		-0.538***	-0.540***	-0.357**
		(0.1497)	(0.1508)	(0.1563)		(0.1490)	(0.1504)	(0.1607)		(0.1452)	(0.1465)	(0.1597)
Single mom with kids		-0.307***	-0.315***	-0.158**		-0.069	-0.070	-0.014		-0.052	-0.053	0.025
		(0.0763)	(0.0765)	(0.0735)		(0.0761)	(0.0764)	(0.0709)		(0.0756)	(0.0757)	(0.0699)
Extended family		0.051	0.051	0.074**		0.036	0.039	0.051		0.074**	0.074**	0.088**
		(0.0344)	(0.0345)	(0.0352)		(0.0333)	(0.0333)	(0.0339)		(0.0334)	(0.0335)	(0.0342)
Heterogenous hh		-0.264	-0.259	-0.187		-0.074	-0.048	0.036		0.005	0.018	0.098
		(0.2153)	(0.2147)	(0.2223)		(0.1906)	(0.1904)	(0.1898)		(0.1988)	(0.1986)	(0.2000)
Constant	0.829***	1.926***	1.994***	2.109***	0.771***	1.963***	1.955***	2.085***	0.767***	1.974***	2.004***	2.170***
	(0.0294)	(0.0563)	(0.1238)	(0.1664)	(0.0213)	(0.0525)	(0.0992)	(0.1369)	(0.0153)	(0.0510)	(0.1029)	(0.1505)
Observations	21.363	21.363	21.363	21.363	20.322	20.322	20.322	20.322	19.422	19.422	19.422	19.422
YearxAge group	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES
YearxGender	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES
YearxAge groupxGender	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES

Note: Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Table A.14: Unemployment outcome in 2-year panels - BGLW Probit models

Unit of observation: households with 25-64 year-old participating household heads

Dependent variable=1 if unemployed, 0 otherwise (first visit)

VARIABLES	Model 1	Model 2	Model 3	Model 4
Attrition after the first visit	0.221***	0.243***	0.240***	0.234***
	(0.0532)	(0.0544)	(0.0547)	(0.0547)
Ref: Yr2006				
Yr2007	-0.040	-0.041	-0.135	-0.143
	(0.0577)	(0.0584)	(0.3491)	(0.3501)
Yr2008	0.015	0.022	0.100	0.090
	(0.0534)	(0.0543)	(0.3197)	(0.3203)
Yr2009	0.171***	0.185***	0.071	0.083
	(0.0509)	(0.0518)	(0.2866)	(0.2877)
Yr2010	-0.022	0.011	0.145	0.162
	(0.0557)	(0.0567)	(0.3231)	(0.3256)
Yr2011	-0.001	0.018	0.002	0.038
	(0.0447)	(0.0455)	(0.2479)	(0.2491)
Yr2012	-0.039	-0.006	-0.029	-0.002
	(0.0458)	(0.0467)	(0.2586)	(0.2603)
Yr2013	-0.018	0.015	0.210	0.202
	(0.0456)	(0.0465)	(0.2381)	(0.2459)
Yr2014	0.011	0.058	0.346	0.348
	(0.0449)	(0.0460)	(0.2355)	(0.2373)
Ref: Age 30-34				
Age 25-29		-0.001	-0.078	-0.085
		(0.0522)	(0.1062)	(0.1075)
Age 35-39		-0.097**	-0.237**	-0.231**
		(0.0443)	(0.0953)	(0.0964)
Age 40-44		-0.055	-0.188**	-0.194**
		(0.0438)	(0.0915)	(0.0923)
Age 45-49		-0.055	-0.285***	-0.312***
		(0.0456)	(0.1038)	(0.1061)
Age 50-54		-0.010	-0.372***	-0.386***
		(0.0499)	(0.1176)	(0.1196)
Age 55-59		0.051	-0.172	-0.167
		(0.0574)	(0.1235)	(0.1246)
Age 60-64		-0.221***	-0.450**	-0.449**
		(0.0802)	(0.1772)	(0.1787)
Ref: Male				
Female		0.047	-0.341*	-0.202
		(0.0926)	(0.1967)	(0.4894)

Table A.14 continued

Ref: Primary sch				
Illiterate		0.269***	0.293***	0.315***
		(0.0638)	(0.0637)	(0.0641)
Literate w/o dip		0.348***	0.362***	0.364***
		(0.0529)	(0.0532)	(0.0537)
Middle sch		0.017	0.020	0.022
		(0.0400)	(0.0400)	(0.0400)
High sch		-0.069	-0.062	-0.060
		(0.0452)	(0.0450)	(0.0450)
Voc high sch		-0.311***	-0.307***	-0.309***
		(0.0528)	(0.0528)	(0.0528)
University or more		-0.533***	-0.521***	-0.525***
		(0.0502)	(0.0500)	(0.0504)
Ref: Married				
Single		0.244**	0.246**	0.214**
		(0.1016)	(0.1026)	(0.1053)
Divorced		0.556***	0.525***	0.541***
		(0.1027)	(0.1040)	(0.1078)
Widow		-0.363**	-0.385***	-0.317*
		(0.1442)	(0.1463)	(0.1637)
Ref: 2 adults with kids				
Single person		-0.068	-0.054	-0.048
		(0.1063)	(0.1073)	(0.1100)
2 adults		-0.121**	-0.121**	-0.122**
		(0.0491)	(0.0492)	(0.0493)
Single dad with kids		0.028	0.026	-0.002
		(0.2079)	(0.2072)	(0.2090)
Single mom with kids		0.002	0.038	0.057
		(0.1264)	(0.1279)	(0.1385)
Extended family		-0.031	-0.028	-0.031
		(0.0378)	(0.0377)	(0.0378)
Heterogenous hh		-0.206	-0.198	-0.213
		(0.2363)	(0.2363)	(0.2426)
Constant	-1.626***	-1.556***	-1.398***	-1.393***
	(0.0289)	(0.0450)	(0.0661)	(0.0665)
Observations	27.285	27.285	27.285	27.069
YearxAge group	NO	NO	YES	YES
YearxGender	NO	NO	YES	YES
YearxAge groupxGender	NO	NO	NO	YES

Note: Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Table A.15: Unemployment outcome in 3-year panels - BGLW Probit models

Unit of observation: households with 25-64 year-old participating household heads

Dependent variable=1 if unemployed, 0 otherwise (first and second visit)

	Unemp in the first visit				Unemp in the second visit			
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Attrition after the first visit	0.228***	0.250***	0.246***	0.238***				
	(0.0596)	(0.0609)	(0.0612)	(0.0615)				
Attrition after the second visit	0.037	0.034	0.030	0.031	0.194***	0.185***	0.187***	0.181**
	(0.0728)	(0.0752)	(0.0753)	(0.0756)	(0.0694)	(0.0711)	(0.0716)	(0.0716)
Ref: Yr2006								
Yr2007	-0.050	-0.052	0.168	0.168	-0.026	-0.052	0.177	0.253
	(0.0607)	(0.0615)	(0.3910)	(0.3918)	(0.0533)	(0.0543)	(0.2794)	(0.2998)
Yr2008	0.004	0.008	0.405	0.403	-0.023	-0.045	0.701**	0.801**
	(0.0566)	(0.0577)	(0.3674)	(0.3679)	(0.0651)	(0.0661)	(0.3034)	(0.3236)
Yr2009	0.161***	0.175***	0.381	0.401	0.140**	0.111*	0.313	0.424
	(0.0542)	(0.0553)	(0.3397)	(0.3406)	(0.0587)	(0.0595)	(0.3506)	(0.3661)
Yr2010	-0.033	0.000	0.458	0.484	0.092	0.070	0.105	0.194
	(0.0588)	(0.0599)	(0.3718)	(0.3740)	(0.0604)	(0.0612)	(0.3282)	(0.3457)
Yr2011	-0.011	0.009	0.312	0.358	0.029	0.025	0.057	0.153
	(0.0485)	(0.0495)	(0.3067)	(0.3076)	(0.0619)	(0.0630)	(0.3752)	(0.3913)
Yr2012	-0.049	-0.015	0.278	0.311	-0.101*	-0.120**	-0.261	-0.172
	(0.0495)	(0.0506)	(0.3161)	(0.3174)	(0.0543)	(0.0550)	(0.3416)	(0.3593)
Yr2013	-0.028	0.006	0.519*	0.520*	-0.004	-0.006	0.378	0.468
	(0.0494)	(0.0505)	(0.2994)	(0.3055)	(0.0529)	(0.0540)	(0.2667)	(0.2882)
Ref: Age 30-34								
Age 25-29		0.036	-0.075	-0.085		0.121*	0.125	0.023
		(0.0568)	(0.1247)	(0.1261)		(0.0667)	(0.1694)	(0.1818)
Age 35-39		-0.069	-0.148	-0.146		0.101*	-0.013	-0.015
		(0.0491)	(0.1124)	(0.1138)		(0.0546)	(0.1420)	(0.1457)
Age 40-44		-0.032	-0.162	-0.152		0.034	0.070	0.048
		(0.0490)	(0.1097)	(0.1106)		(0.0555)	(0.1356)	(0.1395)
Age 45-49		-0.027	-0.247**	-0.237*		0.159***	0.000	0.002
		(0.0506)	(0.1253)	(0.1264)		(0.0554)	(0.1408)	(0.1445)
Age 50-54		-0.024	-0.397***	-0.382***		0.140**	0.217	0.217
		(0.0562)	(0.1439)	(0.1450)		(0.0605)	(0.1442)	(0.1470)
Age 55-59		0.050	-0.133	-0.124		0.069	0.058	0.084
		(0.0643)	(0.1495)	(0.1509)		(0.0721)	(0.1686)	(0.1702)
Age 60-64		-0.304***	-0.773***	-0.772***		-0.113	-0.344	-0.435*
		(0.0929)	(0.2580)	(0.2591)		(0.0925)	(0.2330)	(0.2570)
Ref: Male								
Female		0.015	-0.635**	-0.645		0.073	0.198	0.893
		(0.1039)	(0.2734)	(0.4640)		(0.0955)	(0.1632)	(0.5841)

Table A.15 continued

Ref: Primary sch								
Illiterate		0.314***	0.336***	0.366***		0.133	0.155*	0.167**
		(0.0698)	(0.0698)	(0.0703)		(0.0820)	(0.0828)	(0.0846)
Literate w/o dip		0.351***	0.363***	0.366***		0.248***	0.245***	0.256***
		(0.0589)	(0.0593)	(0.0599)		(0.0672)	(0.0683)	(0.0687)
Middle sch		0.043	0.046	0.051		-0.038	-0.039	-0.036
		(0.0439)	(0.0440)	(0.0440)		(0.0487)	(0.0487)	(0.0487)
High sch		-0.059	-0.056	-0.052		-0.099*	-0.093*	-0.093*
		(0.0503)	(0.0502)	(0.0502)		(0.0548)	(0.0549)	(0.0548)
Voc high sch		-0.302***	-0.298***	-0.301***		-0.271***	-0.276***	-0.277***
		(0.0584)	(0.0583)	(0.0584)		(0.0601)	(0.0603)	(0.0602)
University or more		-0.583***	-0.577***	-0.581***		-0.533***	-0.536***	-0.541***
		(0.0587)	(0.0583)	(0.0590)		(0.0578)	(0.0581)	(0.0588)
Ref: Married								
Single		0.284***	0.284**	0.249**		0.542***	0.557***	0.548***
		(0.1103)	(0.1110)	(0.1144)		(0.1133)	(0.1141)	(0.1165)
Divorced		0.548***	0.516***	0.563***		0.588***	0.595***	0.645***
		(0.1128)	(0.1146)	(0.1180)		(0.1111)	(0.1136)	(0.1174)
Widow		-0.323**	-0.361**	-0.256		-0.287*	-0.286*	-0.235
		(0.1556)	(0.1575)	(0.1813)		(0.1693)	(0.1710)	(0.1935)
Ref: 2 adults with kids								
Single person		-0.056	-0.045	-0.043		-0.224*	-0.220	-0.238*
		(0.1155)	(0.1161)	(0.1182)		(0.1337)	(0.1348)	(0.1394)
2 adults		-0.054	-0.054	-0.055		0.030	0.038	0.035
		(0.0539)	(0.0540)	(0.0541)		(0.0578)	(0.0579)	(0.0581)
Single dad with kids		0.050	0.054	-0.004		-0.029	-0.024	-0.057
		(0.2376)	(0.2365)	(0.2396)		(0.2295)	(0.2280)	(0.2307)
Single mom with kids		0.054	0.097	0.115		-0.251*	-0.274*	-0.315**
		(0.1371)	(0.1389)	(0.1528)		(0.1428)	(0.1472)	(0.1556)
Extended family		-0.014	-0.012	-0.017		-0.049	-0.045	-0.044
		(0.0419)	(0.0418)	(0.0419)		(0.0437)	(0.0439)	(0.0439)
Heterogenous hh		-0.405	-0.404	-0.433		0.029	0.032	0.062
		(0.3131)	(0.3122)	(0.3193)		(0.2055)	(0.2077)	(0.2101)
Constant	-1.618***	-1.573***	-1.416***	-1.420***	-1.689***	-1.697***	-1.670***	-1.659***
	(0.0348)	(0.0516)	(0.0782)	(0.0789)	(0.0375)	(0.0585)	(0.1071)	(0.1086)
Observations	22.087	22.087	22.087	22.087	20.936	20.936	20.936	20.627
YearxAge group	NO	NO	YES	YES	NO	NO	YES	YES
YearxGender	NO	NO	YES	YES	NO	NO	YES	YES
YearxAge groupxGender	NO	NO	NO	YES	NO	NO	NO	YES

Note: Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Table A.16: Unemployment outcome in 4-year panels - BGLW Probit models

Unit of observation: households with 25-64 year-old participating household heads

Dependent variable=1 if unemployed, 0 otherwise

	Unemp in the first visit				Unemp in the second visit				Unemp in the third visit			
VARIABLES	Model 1	Model 2	Model 3	Model 4	Model 1	model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
Attrition after the first visit	0.250***	0.275***	0.278***	0.266***								
	(0.0675)	(0.0689)	(0.0692)	(0.0699)								
Attrition after the second visit	0.027	0.024	0.023	0.022	0.233***	0.230***	0.232***	0.231***				
	(0.0809)	(0.0832)	(0.0833)	(0.0835)	(0.0755)	(0.0775)	(0.0781)	(0.0785)				
Attrition after the third visit	0.128	0.113	0.106	0.113	0.164*	0.158*	0.150	0.152	0.401***	0.416***	0.424***	0.436***
	(0.0890)	(0.0900)	(0.0902)	(0.0908)	(0.0938)	(0.0950)	(0.0953)	(0.0965)	(0.0804)	(0.0821)	(0.0822)	(0.0830)
Ref: Yr2006												
Yr2007	-0.054	-0.063	-0.176	-0.181	-0.023	-0.044	-0.224	-0.237				
	(0.0690)	(0.0700)	(0.4101)	(0.4116)	(0.0645)	(0.0655)	(0.3124)	(0.3138)				
Yr2008	-0.001	-0.003	0.050	0.044	-0.020	-0.041	0.345	0.357	-0.007	-0.036	-0.678	-0.674
	(0.0653)	(0.0666)	(0.3864)	(0.3878)	(0.0652)	(0.0661)	(0.2784)	(0.2805)	(0.0591)	(0.0600)	(0.4262)	(0.4286)
Yr2009	0.155**	0.163**	0.030	0.043	0.142**	0.117**	-0.050	-0.028	0.146***	0.120**	0.067	0.081
	(0.0632)	(0.0645)	(0.3603)	(0.3623)	(0.0587)	(0.0594)	(0.3313)	(0.3308)	(0.0541)	(0.0551)	(0.3041)	(0.3071)
Yr2010	-0.037	-0.012	0.103	0.124	0.094	0.074	-0.269	-0.270	0.023	0.005	-0.313	-0.298
	(0.0672)	(0.0685)	(0.3910)	(0.3942)	(0.0604)	(0.0614)	(0.3047)	(0.3054)	(0.0552)	(0.0560)	(0.3582)	(0.3592)
Yr2011	-0.015	-0.002	-0.049	-0.010	0.031	0.026	-0.320	-0.313	0.001	-0.017	-0.337	-0.334
	(0.0584)	(0.0596)	(0.3296)	(0.3317)	(0.0619)	(0.0630)	(0.3552)	(0.3562)	(0.0568)	(0.0577)	(0.3017)	(0.3038)
Yr2012	-0.052	-0.026	-0.079	-0.054	-0.098*	-0.120**	-0.618*	-0.619*	-0.162***	-0.150**	-0.218	-0.342
	(0.0593)	(0.0606)	(0.3389)	(0.3411)	(0.0543)	(0.0551)	(0.3218)	(0.3237)	(0.0624)	(0.0637)	(0.3168)	(0.3578)
Ref: Age 30-34												
Age 25-29		0.060	0.023	0.011		0.101	0.050	0.030		0.066	-0.064	-0.149
		(0.0648)	(0.1740)	(0.1778)		(0.0775)	(0.1823)	(0.1898)		(0.0879)	(0.2123)	(0.2265)
Age 35-39		-0.050	-0.038	-0.000		0.130**	0.083	0.059		0.000	0.053	0.019
		(0.0563)	(0.1601)	(0.1619)		(0.0624)	(0.1398)	(0.1440)		(0.0628)	(0.1336)	(0.1359)
Age 40-44		0.013	0.090	0.113		0.050	0.006	0.003		0.090	0.070	0.008
		(0.0563)	(0.1535)	(0.1559)		(0.0642)	(0.1424)	(0.1459)		(0.0614)	(0.1330)	(0.1372)
Age 45-49		-0.022	-0.312	-0.290		0.198***	0.206	0.203		0.074	0.027	0.014
		(0.0584)	(0.1935)	(0.1959)		(0.0633)	(0.1356)	(0.1394)		(0.0633)	(0.1329)	(0.1348)
Age 50-54		0.040	-0.075	-0.048		0.140**	0.011	0.024		0.059	-0.199	-0.195
		(0.0638)	(0.1909)	(0.1935)		(0.0701)	(0.1569)	(0.1594)		(0.0695)	(0.1602)	(0.1618)
Age 55-59		0.078	0.118	0.136		0.102	0.267*	0.254		0.100	0.102	0.070
		(0.0747)	(0.2037)	(0.2064)		(0.0826)	(0.1559)	(0.1594)		(0.0795)	(0.1602)	(0.1634)
Age 60-64		-0.250**	-0.265	-0.252		-0.064	0.056	0.065		-0.086	0.016	-0.000
		(0.1067)	(0.2978)	(0.3009)		(0.1060)	(0.2010)	(0.2033)		(0.1042)	(0.1963)	(0.1976)
Ref: Male												
Female		-0.013	-0.577	-0.098		0.163	-0.042	0.145		0.089	-0.080	-0.151
		(0.1217)	(0.3520)	(0.5777)		(0.1054)	(0.1938)	(0.5817)		(0.1197)	(0.2003)	(0.5448)

Table A.16 continued

Ref: Primary sch												
Illiterate		0.270***	0.284***	0.323***		0.049	0.063	0.072		0.259***	0.278***	0.295***
		(0.0813)	(0.0809)	(0.0814)		(0.0970)	(0.0976)	(0.1002)		(0.0887)	(0.0888)	(0.0909)
Literate w/o dip		0.312***	0.317***	0.329***		0.233***	0.233***	0.240***		0.120	0.128	0.130
		(0.0688)	(0.0694)	(0.0700)		(0.0776)	(0.0788)	(0.0794)		(0.0835)	(0.0843)	(0.0851)
Middle sch		0.039	0.041	0.047		-0.087	-0.090	-0.089		-0.132**	-0.134**	-0.135**
		(0.0505)	(0.0506)	(0.0508)		(0.0567)	(0.0566)	(0.0566)		(0.0581)	(0.0581)	(0.0580)
High sch		-0.062	-0.061	-0.058		-0.161**	-0.160**	-0.162**		-0.218***	-0.218***	-0.226***
		(0.0568)	(0.0568)	(0.0568)		(0.0638)	(0.0638)	(0.0637)		(0.0660)	(0.0661)	(0.0665)
Voc high sch		-0.289***	-0.289***	-0.289***		-0.331***	-0.341***	-0.339***		-0.254***	-0.259***	-0.266***
		(0.0660)	(0.0660)	(0.0663)		(0.0700)	(0.0701)	(0.0698)		(0.0672)	(0.0669)	(0.0674)
University or more		-0.601***	-0.598***	-0.601***		-0.553***	-0.559***	-0.558***		-0.588***	-0.599***	-0.611***
		(0.0677)	(0.0672)	(0.0680)		(0.0663)	(0.0665)	(0.0669)		(0.0700)	(0.0702)	(0.0713)
Ref: Married												
Single		0.326***	0.325***	0.274**		0.642***	0.655***	0.650***		0.427***	0.423***	0.440***
		(0.1242)	(0.1255)	(0.1304)		(0.1299)	(0.1309)	(0.1329)		(0.1345)	(0.1348)	(0.1364)
Divorced		0.490***	0.467***	0.509***		0.639***	0.650***	0.688***		0.435***	0.463***	0.527***
		(0.1252)	(0.1270)	(0.1311)		(0.1273)	(0.1306)	(0.1353)		(0.1328)	(0.1330)	(0.1380)
Widow		-0.347*	-0.383**	-0.206		-0.192	-0.183	-0.160		-0.089	-0.092	0.020
		(0.1769)	(0.1781)	(0.2019)		(0.1840)	(0.1863)	(0.2139)		(0.1689)	(0.1677)	(0.1907)
Ref: 2 adults with kids												
Single person		-0.011	-0.002	0.015		-0.338**	-0.333**	-0.358**		-0.403**	-0.408**	-0.434**
		(0.1302)	(0.1309)	(0.1327)		(0.1561)	(0.1574)	(0.1620)		(0.1649)	(0.1642)	(0.1708)
2 adults		-0.092	-0.091	-0.095		0.040	0.048	0.042		-0.077	-0.081	-0.089
		(0.0628)	(0.0628)	(0.0629)		(0.0656)	(0.0658)	(0.0661)		(0.0741)	(0.0741)	(0.0747)
Single dad with kids		0.020	0.014	-0.054		-0.051	-0.058	-0.084		-0.353	-0.333	-0.385
		(0.2788)	(0.2760)	(0.2788)		(0.2620)	(0.2603)	(0.2641)		(0.2884)	(0.2894)	(0.2922)
Single mom with kids		0.152	0.188	0.196		-0.490***	-0.530***	-0.627***		-0.099	-0.103	-0.065
		(0.1538)	(0.1549)	(0.1708)		(0.1641)	(0.1694)	(0.1756)		(0.1497)	(0.1512)	(0.1715)
Extended family		-0.019	-0.018	-0.022		-0.126**	-0.125**	-0.126**		-0.011	-0.011	-0.011
		(0.0479)	(0.0477)	(0.0478)		(0.0514)	(0.0516)	(0.0518)		(0.0473)	(0.0469)	(0.0470)
Heterogenous hh		-0.535	-0.529	-0.553		-0.158	-0.163	-0.137		-0.184	-0.210	-0.215
		(0.4206)	(0.4189)	(0.4307)		(0.2526)	(0.2573)	(0.2592)		(0.2510)	(0.2550)	(0.2779)
Constant	-1.618***	-1.583***	-1.538***	-1.555***	-1.699***	-1.694***	-1.675***	-1.668***	-1.659***	-1.605***	-1.560***	-1.533***
	(0.0481)	(0.0641)	(0.1128)	(0.1153)	(0.0376)	(0.0624)	(0.1078)	(0.1098)	(0.0264)	(0.0563)	(0.1045)	(0.1046)
Observations	16.829	16.829	16.829	16.598	15.958	15.958	15.958	15.72	15.126	15.126	15.126	14.869
YearxAge group	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES
YearxGender	NO	NO	YES	YES	NO	NO	YES	YES	NO	NO	YES	YES
YearxAge groupxGender	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES

Note: Significance levels are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Appendix B

APPENDIX TO CH.2: IS THE SURVEY OF INCOME AND LIVING CONDITIONS SUITABLE FOR STUDYING LABOR MARKET DYNAMICS?

B.1 The definition of labor market status

EUROSTAT launched EU-SILC in 2003 to collect comparable cross-section and longitudinal data on income distribution, poverty and living conditions across European countries. The survey instrument records the individuals' self-perception on their labor market status, and includes additional questions that can be used in defining labor market status according to norms recommended by the International Labor Organization (ILO). We rely on the latter to ensure the comparability of our findings with studies that use other household surveys. The flowchart that shows the details on the labor market state determination is presented in Figure B.1.

Following the ILO convention, we start with the information that records if the individual worked in the previous full-week or not. Those who worked in the previous week are classified as employed, others as non-employed. The survey instrument divides employed individuals into 4 groups according to their employment type: Wage and salary (WS) employees, employers, self-employed individuals, and unpaid family workers. We group employers, self-employed individuals, and unpaid family workers together and aggregate them as non-WS workers.

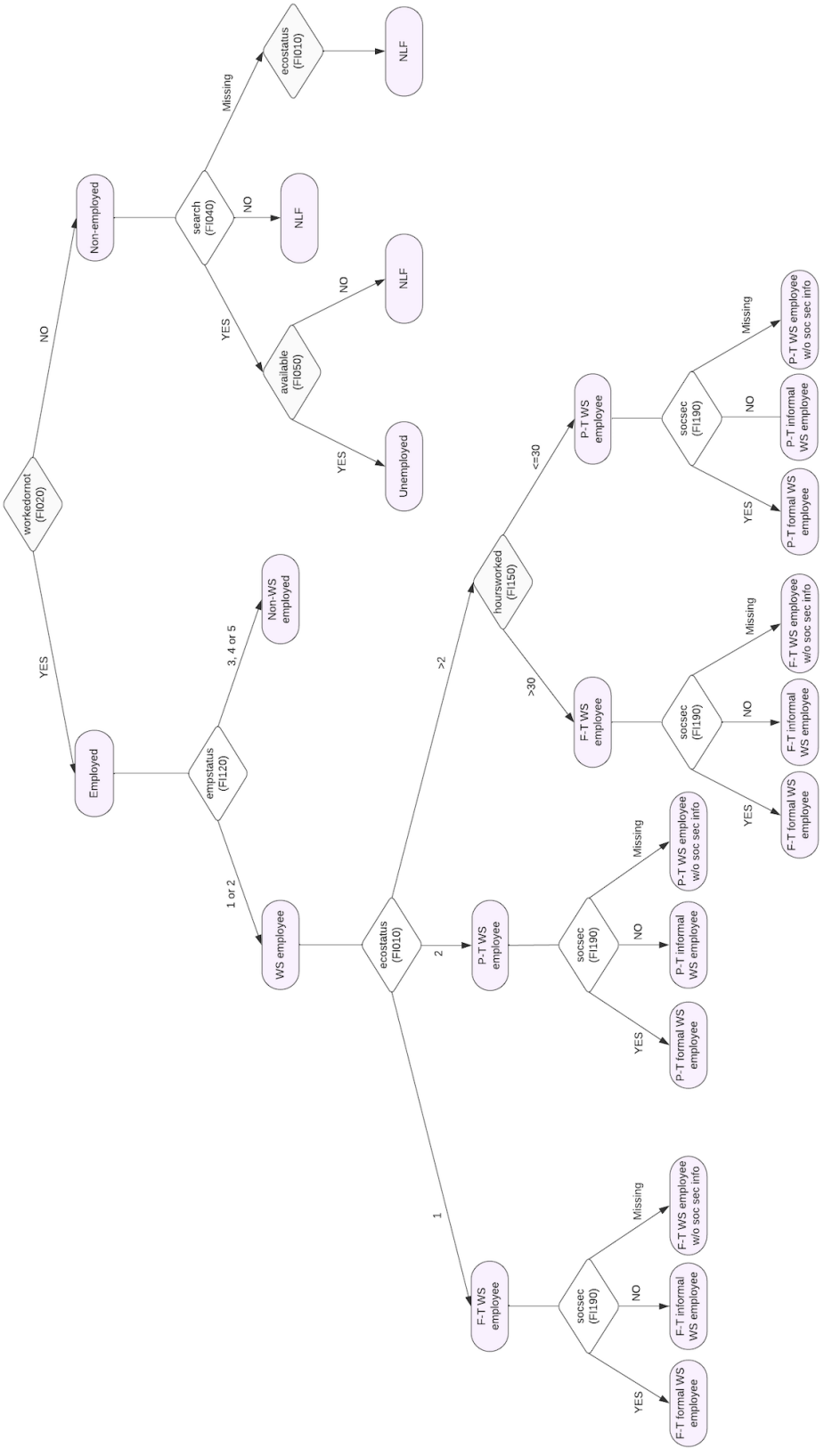
We turn back to self-defined economic activity question to make full-time (FT) and part-time distinction among WS employees. Those who perceive themselves as FT employed are FT WS workers, and as PT employed are PT WS workers. However, a small fraction of individuals among WS employees (0.8 percent in fresh

subsamples) perceive themselves as looking for a job or non-participant in the self-defined economic activity. For these individuals, we use 'number of hours worked' information and classify those who worked for less than 30 hours as PT WS employees, more than or equal to 30 hours as FT WS employees. When we cross-checked the consistency in the FT/PT distinction for self-defined economic activity, we found that only 0.5 percent of WS workers who perceive themselves as FT workers report less than 30 working hours. On the other hand, the inconsistency is greater for PT WS employees: 22.2 percent of WS employees who perceive themselves as PT workers report their working hours as more than 30 hours. This share declines to 5.4 percent when we classify those who worked for exactly 30 hours as PT WS workers.

At the final stage, we use access to social security question to make formal/informal distinction. WS workers who have access to social security are categorized as formal sector workers, those who do not have access are informal sector workers. The survey roaster does not contain data on access to social security in the first round when the survey was first launched in 2006. Therefore, the information on those who are contained in the survey for the first two rounds only (subsamples 3, see Chapter 1 for the rotation plan) is missing. We leave them as FT or PT WS employees without social security information (4.15 percent in fresh subsamples).

Jumping to the second branch of the flowchart, non-employed individuals who search for a job within the last month are subjected to the availability for work condition. Those who are available to start working within 15 days are classified as unemployed. Individuals who search for a job but are not available to work within 15 days are non-participants. Those who do not search for a job are non-participants, as well. The self-defined economic activity of individuals whose search information is missing are checked and they are also categorized as non-participants. The labor market status definition process followed here is compatible with the ILO guidelines.

Figure B.1: Flowchart for labor market state definition



B.2 Weight calculation

SILC data set includes household and individual weights calculated conditionally on terminal period observables for 2-year, 3-year and 4-year balanced panels. The target population in the weight calculation is the non-institutional population. TURKSTAT obtains non-institutional population by using administrative data, Address Based Population Registration System (ABPRS) that covers the full population and deleting the institutional segments of the population. The weights are calculated based on observables from the last period of each panel. Let X be the vector of observables that TURKSTAT uses in the weight calculation. The X vector includes age group, gender and region (NUTS II classification) information. However, since these variables are not sufficient to reconcile the non-institutional population at the aggregate level, additional information on household type, household size and urban/rural designation is used to calibrate the weights, so that these variables are also included in the X vector [EUROSTAT, 2020].

Let $P^{NI}(\cdot)$ denote the non-institutional population which is available at the level of disaggregation provided in the ABPRS and $P^{P}(\cdot)$ the sample frequency in the first period of 2-year panels. TURKSTAT combines this with administrative information and additional data gathered from other national surveys (for variables used in the calibration) to arrive at calibrated weights:

$$w^{*}(X) = \frac{P^{NI}(X)}{P^{P}(X)} \tag{B.2}$$

As we discussed earlier, attrition is the one of the major concerns in T-SILC. We rely on fresh subsamples and compute transition rates from the first and second round information only in our analyses to side-track the attrition problem. Since the household and individual weights furnished by TURKSTAT are only available for those who survived until the end of the panel window, we calculate our own weights. We do this for fresh subsamples and the subsamples that survived one and two rounds of attrition to be able to pursue weighted analyses using these subsamples.

We also follow the MAR approach for non-response, which is innocuous in the fresh subsamples, and questionable in the case of others.

T-SILC panel data do not contain information on region, urban/rural designation and household type. Additional information used in the calibration is also not available to users. Moreover, neither the definitions of variables used in the calibration, nor the methodology is shared publicly. Users get to observe a subset of variables contained in the X vector (X_1 vector that includes age group and gender information only). We rely on education information which varies substantially by region to exploit the variation excluded due to lack of region information and use the vector $Z = X_1 + education$ in our calculations. The target non-institutional population is obtained from the cross-section version of T-SILC. Let $P^{NI}(Z)$ be the target non-institutional population that we arrive at using cross-section SILC data. We calculate our own weights as follows:

$$\tilde{w}(Z) = \frac{P^{NI}(Z)}{P^{P}(Z)} \tag{B.2}$$

B.3 Supplementary tables and figures

Table B.1: Marginal distributions by labor market states in fresh and attrition survivor subsamples

Weighted fractions	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**Mean**
Fresh subsamples											
FT formal WS	0.181	0.169	0.159	0.170	0.183	0.191	0.199	0.220	0.231	0.227	0.184
FT informal WS	0.036	0.063	0.063	0.065	0.066	0.064	0.059	0.048	0.051	0.046	0.055
PT formal WS	0.001	0.003	0.003	0.005	0.004	0.004	0.005	0.005	0.005	0.005	0.004
PT informal WS	0.004	0.010	0.009	0.010	0.010	0.010	0.013	0.009	0.008	0.010	0.009
Non-WS	0.230	0.214	0.221	0.204	0.191	0.188	0.186	0.163	0.155	0.153	0.189
Unemployment	0.034	0.040	0.049	0.039	0.040	0.036	0.039	0.037	0.034	0.029	0.037
NP	0.513	0.503	0.495	0.508	0.506	0.507	0.499	0.516	0.517	0.530	0.510
1-round attrition survivors											
FT formal WS	0.147***	0.170	0.170*	0.164	0.182	0.196	0.199	0.209**	0.231	0.241***	0.195***
FT informal WS	0.082***	0.067	0.064	0.067	0.066	0.065	0.067***	0.056***	0.052	0.050	0.063***
PT formal WS	0.002**	0.003	0.003	0.004	0.005*	0.003	0.004*	0.004	0.004	0.005	0.004
PT informal WS	0.009***	0.011	0.009	0.010	0.008	0.008	0.009***	0.010	0.008	0.007*	0.009
Non-WS	0.226	0.224*	0.209*	0.214	0.197	0.192	0.181	0.177***	0.156	0.156	0.190
Unemployment	0.030	0.034**	0.052	0.037	0.036	0.031**	0.038	0.032**	0.032	0.030	0.034***
NP	0.503	0.491*	0.494	0.505	0.506	0.505	0.502	0.513	0.518	0.512***	0.506**
2-rounds attrition survivors											
FT formal WS		0.163	0.161	0.181**	0.177	0.197	0.209**	0.202***	0.218***	0.241***	0.201***
FT informal WS		0.075***	0.067	0.064	0.068	0.067	0.062	0.058***	0.057**	0.045	0.061***
PT formal WS		0.003	0.003	0.004	0.004	0.003	0.004*	0.004	0.004	0.004	0.004
PT informal WS		0.010	0.009	0.009	0.007**	0.008	0.008***	0.009	0.007	0.009*	0.008**
Non-WS		0.212	0.223	0.202	0.200	0.189	0.181	0.174**	0.169***	0.146	0.183***
Unemployment		0.032***	0.045	0.043	0.039	0.029***	0.034**	0.032**	0.032	0.032	0.035***
NP		0.505	0.491	0.498	0.504	0.507	0.502	0.521	0.513	0.523	0.509

Table B.1 continued

3-rounds attrition survivors											
FT formal WS			0.155	0.166	0.194**	0.194	0.206	0.213	0.215***	0.230	0.202***
FT informal WS			0.074**	0.071	0.060*	0.064	0.060	0.057***	0.057**	0.050	0.060***
PT formal WS			0.002	0.004	0.004	0.003	0.004	0.004	0.004*	0.004	0.004
PT informal WS			0.008	0.008	0.008**	0.007**	0.007***	0.007**	0.008	0.007**	0.007***
Non-WS			0.213	0.212	0.186	0.188	0.176**	0.170	0.164**	0.159	0.179***
Unemployment			0.047	0.040	0.038	0.033	0.032***	0.031***	0.031	0.028	0.034***
NP			0.503	0.499	0.509	0.510	0.516**	0.517	0.521	0.522	0.514*
Number of observation	30,266	31,144	32,534	32,874	40,677	47,493	53,497	60,516	59,662	57,940	446,603

Note: Significant differences in means across subsamples are shown with asterisks: 1% (***), 5% (**) and 10% (*).

Source: Own calculations on T-SILC.

Table B.2: Forward transition rates - Fresh subsamples, 2006-2016

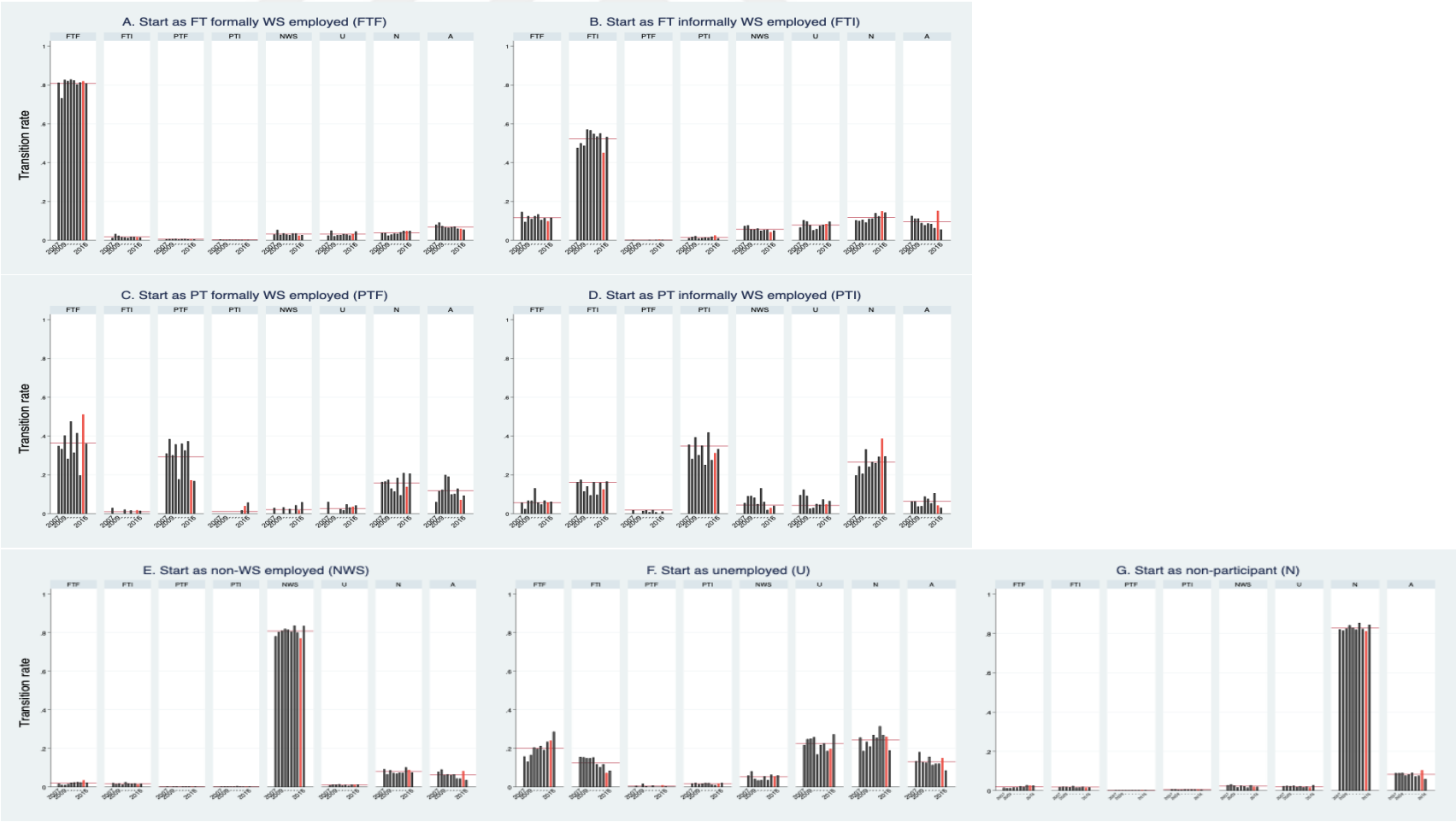
Weighted Fractions	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Mean
Transition from FT formal employment to												
FT formal employment	0.774	0.832	0.752	0.801	0.818	0.828	0.821	0.831	0.815	0.805	0.818	0.809
FT informal employment	0.021	0.018	0.043	0.019	0.012	0.021	0.026	0.015	0.015	0.013	0.014	0.020
PT formal employment	0.004	0.007	0.006	0.004	0.007	0.004	0.004	0.003	0.004	0.006	0.003	0.005
PT informal employment	0.001	0.001	0.003	0.001	0.002	0.001	0.001	0.001	0.001	0.002	0.000	0.001
non-WS employment	0.035	0.030	0.030	0.030	0.035	0.025	0.025	0.022	0.033	0.029	0.029	0.029
unemployment	0.022	0.024	0.052	0.028	0.022	0.022	0.029	0.032	0.024	0.030	0.044	0.030
non-participation	0.033	0.032	0.033	0.037	0.036	0.034	0.027	0.039	0.046	0.043	0.046	0.037
attrition	0.110	0.056	0.082	0.079	0.067	0.064	0.066	0.055	0.062	0.073	0.046	0.069
Total at risk	5,033,963	8,342,174	9,235,404	8,885,715	9,523,496	10,592,874	11,380,582	12,014,545	12,954,028	13,965,874	14,341,737	10,570,036
Transition from FT informal employment to												
FT formal employment	0.131	0.129	0.094	0.103	0.119	0.133	0.119	0.107	0.108	0.088	0.107	0.113
FT informal employment	0.487	0.505	0.470	0.553	0.553	0.529	0.569	0.554	0.523	0.517	0.555	0.529
PT formal employment	0.001	0.002	0.002	0.000	0.000	0.001	0.002	0.000	0.003	0.001	0.000	0.001
PT informal employment	0.016	0.025	0.021	0.017	0.023	0.020	0.010	0.015	0.014	0.021	0.016	0.018
non-WS employment	0.086	0.090	0.115	0.057	0.067	0.055	0.053	0.054	0.060	0.073	0.063	0.070
unemployment	0.059	0.082	0.094	0.082	0.073	0.067	0.066	0.068	0.067	0.049	0.090	0.073
non-participation	0.098	0.082	0.101	0.105	0.090	0.097	0.118	0.135	0.132	0.124	0.104	0.108
attrition	0.123	0.084	0.102	0.084	0.074	0.096	0.063	0.068	0.093	0.126	0.066	0.089
Total at risk	2,713,255	3,650,723	3,146,332	3,488,610	3,532,123	3,532,921	3,555,229	3,359,756	2,849,253	2,993,454	2,763,828	3,235,044
Transition from PT formal employment to												
FT formal employment	0.361	0.305	0.425	0.328	0.264	0.500	0.342	0.327	0.347	0.483	0.462	0.377
FT informal employment	0.028	0.066	0.000	0.000	0.000	0.000	0.067	0.013	0.000	0.015	0.000	0.017
PT formal employment	0.197	0.323	0.249	0.423	0.477	0.267	0.294	0.281	0.260	0.233	0.162	0.288
PT informal employment	0.000	0.000	0.043	0.082	0.000	0.000	0.020	0.000	0.000	0.000	0.023	0.015
non-WS employment	0.000	0.053	0.042	0.000	0.033	0.000	0.018	0.012	0.011	0.026	0.000	0.018
unemployment	0.033	0.054	0.036	0.000	0.050	0.034	0.000	0.014	0.029	0.014	0.066	0.030
non-participation	0.239	0.132	0.037	0.095	0.080	0.079	0.153	0.243	0.175	0.216	0.233	0.153
attrition	0.141	0.066	0.167	0.071	0.097	0.120	0.106	0.109	0.179	0.014	0.053	0.102
Total at risk	82,045	110,887	168,557	156,738	260,012	215,207	244,082	297,819	283,675	285,878	316,250	220,105
Transition from PT informal employment to												
FT formal employment	0.042	0.052	0.038	0.048	0.026	0.062	0.062	0.046	0.069	0.107	0.046	0.054
FT informal employment	0.187	0.162	0.162	0.113	0.201	0.199	0.128	0.137	0.195	0.188	0.192	0.169
PT formal employment	0.000	0.019	0.000	0.000	0.013	0.000	0.020	0.017	0.000	0.000	0.030	0.009
PT informal employment	0.284	0.284	0.353	0.354	0.330	0.257	0.337	0.410	0.270	0.254	0.327	0.315
non-WS employment	0.059	0.104	0.113	0.066	0.133	0.062	0.063	0.043	0.047	0.040	0.059	0.072
unemployment	0.061	0.038	0.024	0.076	0.027	0.061	0.069	0.045	0.048	0.035	0.029	0.047
non-participation	0.241	0.306	0.237	0.264	0.203	0.258	0.278	0.234	0.317	0.293	0.296	0.266
attrition	0.126	0.036	0.074	0.079	0.068	0.102	0.042	0.068	0.055	0.084	0.021	0.069
Total at risk	409,857	394,572	517,865	505,591	502,742	546,486	522,614	703,713	542,257	480,718	556,510	516,630

Table B.2 continued

Transition from non-WS employment to												
FT formal employment	0.011	0.025	0.014	0.015	0.017	0.025	0.020	0.024	0.032	0.030	0.023	0.021
FT informal employment	0.022	0.019	0.021	0.016	0.025	0.017	0.016	0.013	0.021	0.019	0.016	0.019
PT formal employment	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000
PT informal employment	0.002	0.004	0.002	0.001	0.001	0.003	0.001	0.001	0.002	0.001	0.001	0.002
non-WS employment	0.774	0.801	0.815	0.847	0.805	0.825	0.823	0.823	0.775	0.787	0.847	0.811
unemployment	0.012	0.012	0.012	0.003	0.008	0.008	0.009	0.009	0.011	0.009	0.013	0.010
non-participation	0.091	0.077	0.073	0.071	0.079	0.073	0.078	0.080	0.109	0.086	0.077	0.081
attrition	0.088	0.061	0.062	0.046	0.065	0.049	0.052	0.050	0.050	0.067	0.022	0.056
Total at risk	10,270,237	10,541,168	9,836,496	11,068,478	10,418,040	9,596,035	9,775,843	9,827,072	8,853,704	8,412,720	8,382,351	9,725,649
Transition from unemployment to												
FT formal employment	0.104	0.152	0.161	0.154	0.162	0.218	0.182	0.218	0.252	0.223	0.256	0.189
FT informal employment	0.162	0.164	0.113	0.168	0.137	0.119	0.139	0.116	0.112	0.084	0.081	0.127
PT formal employment	0.000	0.005	0.006	0.000	0.006	0.000	0.000	0.009	0.004	0.002	0.005	0.003
PT informal employment	0.011	0.053	0.006	0.021	0.022	0.011	0.019	0.009	0.011	0.012	0.004	0.016
non-WS employment	0.057	0.076	0.068	0.044	0.037	0.081	0.035	0.054	0.059	0.071	0.048	0.057
unemployment	0.199	0.188	0.253	0.230	0.251	0.192	0.249	0.207	0.199	0.179	0.305	0.223
non-participation	0.282	0.236	0.279	0.255	0.273	0.273	0.279	0.298	0.276	0.255	0.216	0.266
attrition	0.184	0.125	0.115	0.128	0.111	0.107	0.095	0.089	0.087	0.174	0.085	0.118
Total at risk	1,737,030	1,642,353	2,229,518	2,703,946	2,181,084	2,218,446	2,053,048	2,330,857	2,187,964	2,080,447	1,827,226	2,108,356
Transition from non-participation to												
FT formal employment	0.011	0.017	0.011	0.011	0.017	0.019	0.023	0.018	0.026	0.027	0.028	0.019
FT informal employment	0.018	0.023	0.016	0.020	0.017	0.020	0.020	0.013	0.017	0.015	0.020	0.018
PT formal employment	0.001	0.002	0.001	0.003	0.001	0.003	0.002	0.002	0.002	0.003	0.003	0.002
PT informal employment	0.004	0.007	0.006	0.006	0.003	0.006	0.007	0.004	0.007	0.006	0.004	0.005
non-WS employment	0.048	0.039	0.031	0.020	0.022	0.030	0.024	0.017	0.028	0.028	0.025	0.028
unemployment	0.019	0.022	0.032	0.018	0.023	0.016	0.025	0.016	0.021	0.017	0.027	0.021
non-participation	0.793	0.810	0.817	0.829	0.824	0.826	0.820	0.850	0.821	0.796	0.831	0.820
attrition	0.107	0.081	0.087	0.093	0.092	0.080	0.078	0.079	0.077	0.108	0.062	0.086
Total at risk	23,391,556	24,771,711	25,067,183	25,339,532	25,765,508	26,255,991	26,724,774	26,602,190	28,605,175	29,065,383	29,974,900	26,505,809

Source: Own calculations on T-SILC.

Figure B.2: Forward transition rates - Subsamples that survived one round of attrition, 2007-2016.



Source: Own calculations on T-SILC.

Table B.3: Forward transition rates - Subsamples that survived one round of attrition, 2007-2016

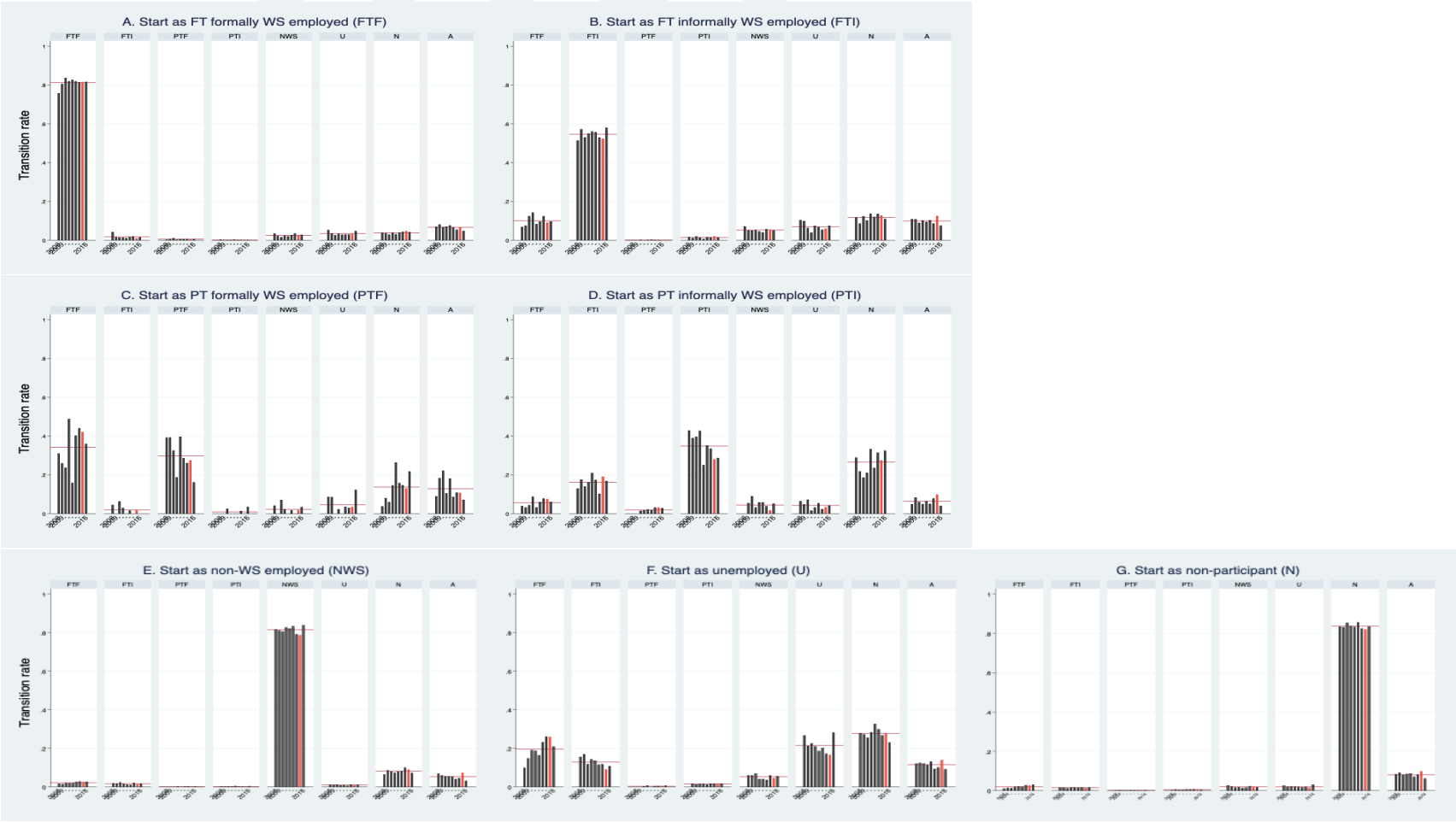
Weighted Fractions	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Mean
Transition from FT formal employment to											
FT formal employment	0.812	0.732	0.827	0.821	0.829	0.824	0.803	0.813	0.820	0.808	0.809
FT informal employment	0.012	0.032	0.023	0.015	0.014	0.011	0.017	0.016	0.015	0.014	0.017
PT formal employment	0.005	0.005	0.006	0.007	0.003	0.005	0.006	0.004	0.003	0.003	0.005
PT informal employment	0.003	0.001	0.001	0.002	0.002	0.002	0.001	0.001	0.002	0.001	0.002
non-WS employment	0.029	0.053	0.027	0.035	0.028	0.026	0.034	0.034	0.024	0.027	0.032
unemployment	0.024	0.049	0.021	0.026	0.026	0.031	0.029	0.024	0.032	0.045	0.031
non-participation	0.036	0.037	0.024	0.029	0.034	0.033	0.040	0.048	0.047	0.048	0.038
attrition	0.080	0.091	0.072	0.066	0.064	0.067	0.069	0.059	0.059	0.054	0.068
Total at risk	8,129,733	9,158,494	9,243,353	9,293,733	10,326,988	11,793,832	12,113,468	12,711,128	13,927,642	14,894,125	11,159,250
Transition from FT informal employment to											
FT formal employment	0.146	0.094	0.124	0.109	0.124	0.133	0.104	0.114	0.097	0.116	0.116
FT informal employment	0.477	0.500	0.487	0.571	0.567	0.548	0.535	0.550	0.451	0.532	0.522
PT formal employment	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.003	0.002	0.001
PT informal employment	0.011	0.016	0.021	0.008	0.011	0.014	0.012	0.018	0.024	0.009	0.014
non-WS employment	0.073	0.076	0.055	0.055	0.060	0.049	0.053	0.053	0.041	0.050	0.056
unemployment	0.066	0.103	0.097	0.077	0.051	0.057	0.074	0.078	0.084	0.095	0.078
non-participation	0.103	0.099	0.105	0.091	0.110	0.111	0.139	0.123	0.149	0.142	0.117
attrition	0.125	0.111	0.112	0.088	0.077	0.087	0.084	0.062	0.151	0.055	0.095
Total at risk	4,202,597	3,483,338	3,252,776	3,652,437	3,662,370	3,549,291	3,765,546	3,179,008	3,070,541	2,946,806	3,476,471
Transition from PT formal employment to											
FT formal employment	0.349	0.333	0.403	0.283	0.475	0.315	0.415	0.197	0.512	0.360	0.364
FT informal employment	0.029	0.000	0.000	0.000	0.021	0.000	0.016	0.000	0.018	0.014	0.010
PT formal employment	0.310	0.385	0.301	0.357	0.177	0.361	0.325	0.373	0.172	0.168	0.293
PT informal employment	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.039	0.057	0.011
non-WS employment	0.029	0.000	0.000	0.032	0.000	0.024	0.000	0.043	0.016	0.059	0.020
unemployment	0.060	0.000	0.000	0.000	0.023	0.017	0.047	0.031	0.035	0.042	0.026
non-participation	0.163	0.166	0.174	0.129	0.114	0.184	0.094	0.209	0.138	0.206	0.158
attrition	0.060	0.116	0.123	0.199	0.191	0.099	0.101	0.129	0.070	0.093	0.118
Total at risk	116,205	169,493	155,060	194,100	306,799	195,466	233,992	248,351	232,390	269,576	212,143
Transition from PT informal employment to											
FT formal employment	0.056	0.024	0.067	0.066	0.131	0.057	0.047	0.068	0.058	0.061	0.063
FT informal employment	0.162	0.174	0.115	0.141	0.094	0.162	0.097	0.159	0.125	0.166	0.139
PT formal employment	0.017	0.000	0.000	0.014	0.017	0.007	0.018	0.007	0.000	0.010	0.009
PT informal employment	0.356	0.282	0.394	0.302	0.350	0.251	0.419	0.276	0.312	0.333	0.327
non-WS employment	0.055	0.090	0.091	0.082	0.049	0.131	0.060	0.018	0.029	0.040	0.065
unemployment	0.095	0.123	0.092	0.026	0.029	0.049	0.046	0.073	0.047	0.065	0.065
non-participation	0.197	0.244	0.205	0.331	0.241	0.266	0.261	0.293	0.386	0.295	0.272
attrition	0.062	0.063	0.037	0.039	0.088	0.076	0.053	0.105	0.042	0.030	0.059
Total at risk	454,832	555,344	472,926	528,589	436,998	455,550	510,847	547,528	465,202	440,684	486,850

Table B.3 continued

Transition from non-WS employment to											
FT formal employment	0.017	0.011	0.010	0.015	0.022	0.023	0.025	0.023	0.034	0.023	0.020
FT informal employment	0.020	0.015	0.018	0.012	0.024	0.018	0.017	0.018	0.012	0.016	0.017
PT formal employment	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000
PT informal employment	0.002	0.002	0.002	0.001	0.001	0.004	0.000	0.002	0.001	0.003	0.002
non-WS employment	0.781	0.804	0.810	0.820	0.815	0.805	0.837	0.801	0.770	0.835	0.808
unemployment	0.009	0.013	0.012	0.014	0.007	0.010	0.005	0.012	0.011	0.013	0.010
non-participation	0.092	0.066	0.086	0.072	0.069	0.074	0.073	0.101	0.088	0.075	0.080
attrition	0.079	0.090	0.062	0.066	0.061	0.065	0.044	0.043	0.082	0.035	0.063
Total at risk	10,651,516	10,634,465	10,361,257	10,711,002	10,112,787	9,923,612	9,602,704	9,404,052	8,589,935	8,593,851	9,858,518
Transition from unemployment to											
FT formal employment	0.157	0.131	0.166	0.204	0.198	0.213	0.191	0.234	0.240	0.286	0.202
FT informal employment	0.155	0.153	0.149	0.149	0.153	0.118	0.102	0.118	0.072	0.084	0.125
PT formal employment	0.004	0.000	0.016	0.003	0.000	0.007	0.000	0.000	0.009	0.002	0.004
PT informal employment	0.018	0.021	0.014	0.017	0.020	0.019	0.011	0.009	0.017	0.021	0.017
non-WS employment	0.059	0.081	0.042	0.034	0.035	0.056	0.035	0.063	0.054	0.060	0.052
unemployment	0.217	0.248	0.251	0.258	0.169	0.218	0.225	0.186	0.198	0.273	0.224
non-participation	0.256	0.186	0.234	0.209	0.270	0.256	0.315	0.269	0.260	0.189	0.244
attrition	0.133	0.181	0.128	0.125	0.156	0.114	0.120	0.121	0.150	0.085	0.131
Total at risk	1,592,112	1,816,627	2,724,791	2,040,840	2,054,868	1,739,356	2,209,495	1,948,106	1,936,571	1,834,237	1,989,700
Transition from non-participation to											
FT formal employment	0.015	0.013	0.013	0.016	0.016	0.023	0.019	0.028	0.026	0.026	0.019
FT informal employment	0.018	0.019	0.019	0.018	0.023	0.015	0.016	0.019	0.015	0.017	0.018
PT formal employment	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.003	0.002	0.002
PT informal employment	0.006	0.007	0.004	0.004	0.006	0.005	0.005	0.005	0.005	0.004	0.005
non-WS employment	0.028	0.032	0.025	0.017	0.025	0.022	0.015	0.027	0.019	0.019	0.023
unemployment	0.023	0.024	0.023	0.025	0.018	0.022	0.017	0.020	0.015	0.028	0.021
non-participation	0.821	0.814	0.824	0.841	0.828	0.819	0.854	0.822	0.812	0.844	0.828
attrition	0.089	0.089	0.090	0.077	0.082	0.091	0.072	0.076	0.104	0.059	0.083
Total at risk	24,472,730	24,265,506	25,973,996	25,630,603	26,091,803	26,576,930	26,727,591	28,237,818	29,206,495	29,153,328	26,633,680

Source: Own calculations on T-SILC.

Figure B.3: Forward transition rates - Subsamples that survived two rounds of attrition, 2008-2016



Source: Own calculations on T-SILC.

Table B.4: Forward transition rates - Subsamples that survived two rounds of attrition, 2008-2016

Weighted Fractions	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Mean
Transition from FT formal employment to										
FT formal employment	0.758	0.806	0.837	0.820	0.827	0.819	0.814	0.816	0.816	0.813
FT informal employment	0.042	0.015	0.014	0.013	0.010	0.016	0.019	0.010	0.015	0.017
PT formal employment	0.003	0.006	0.011	0.003	0.005	0.005	0.005	0.005	0.005	0.005
PT informal employment	0.003	0.001	0.001	0.001	0.003	0.000	0.001	0.000	0.001	0.001
non-WS employment	0.034	0.022	0.015	0.023	0.020	0.026	0.034	0.024	0.028	0.025
unemployment	0.052	0.034	0.025	0.032	0.028	0.029	0.029	0.031	0.047	0.034
non-participation	0.039	0.036	0.029	0.039	0.031	0.039	0.043	0.047	0.041	0.038
attrition	0.069	0.081	0.068	0.070	0.076	0.065	0.054	0.067	0.047	0.066
Total at risk	8,989,586	9,182,162	9,827,767	10,248,638	11,627,443	12,693,832	12,516,031	13,595,730	14,700,107	11,486,811
Transition from FT informal employment to										
FT formal employment	0.068	0.075	0.124	0.142	0.083	0.096	0.123	0.091	0.096	0.100
FT informal employment	0.514	0.572	0.530	0.550	0.560	0.557	0.530	0.524	0.580	0.546
PT formal employment	0.000	0.000	0.002	0.000	0.002	0.002	0.001	0.001	0.000	0.001
PT informal employment	0.016	0.010	0.019	0.013	0.006	0.015	0.014	0.020	0.014	0.014
non-WS employment	0.071	0.051	0.050	0.052	0.045	0.040	0.057	0.053	0.050	0.052
unemployment	0.104	0.098	0.063	0.039	0.074	0.067	0.054	0.059	0.074	0.070
non-participation	0.118	0.086	0.123	0.102	0.136	0.120	0.136	0.127	0.109	0.117
attrition	0.109	0.108	0.089	0.102	0.094	0.103	0.086	0.125	0.075	0.099
Total at risk	3,776,560	3,594,755	3,338,609	3,762,545	3,780,787	3,411,892	3,348,453	3,272,097	2,717,372	3,444,786
Transition from PT formal employment to										
FT formal employment	0.310	0.259	0.237	0.488	0.158	0.402	0.441	0.421	0.360	0.342
FT informal employment	0.044	0.000	0.063	0.030	0.000	0.015	0.000	0.017	0.000	0.019
PT formal employment	0.392	0.393	0.325	0.187	0.397	0.286	0.261	0.275	0.161	0.297
PT informal employment	0.000	0.000	0.025	0.000	0.000	0.000	0.013	0.000	0.034	0.008
non-WS employment	0.041	0.000	0.070	0.023	0.000	0.017	0.000	0.017	0.034	0.022
unemployment	0.086	0.085	0.000	0.022	0.000	0.035	0.030	0.034	0.122	0.046
non-participation	0.037	0.080	0.059	0.145	0.264	0.157	0.147	0.130	0.217	0.137
attrition	0.090	0.183	0.221	0.105	0.181	0.086	0.109	0.106	0.071	0.128
Total at risk	158,581	169,147	221,253	247,299	157,275	212,767	243,549	228,371	233,730	207,997
Transition from PT informal employment to										
FT formal employment	0.040	0.032	0.043	0.087	0.032	0.060	0.078	0.075	0.060	0.056
FT informal employment	0.129	0.176	0.140	0.163	0.209	0.173	0.102	0.191	0.168	0.161
PT formal employment	0.000	0.000	0.014	0.017	0.021	0.017	0.031	0.031	0.028	0.018
PT informal employment	0.429	0.389	0.396	0.427	0.250	0.352	0.335	0.280	0.287	0.349
non-WS employment	0.000	0.055	0.090	0.031	0.058	0.058	0.038	0.017	0.051	0.044
unemployment	0.065	0.048	0.072	0.015	0.031	0.053	0.023	0.033	0.041	0.042
non-participation	0.289	0.218	0.186	0.211	0.333	0.236	0.315	0.275	0.325	0.265
attrition	0.048	0.084	0.059	0.049	0.065	0.050	0.078	0.098	0.040	0.063
Total at risk	497,351	513,057	449,580	368,224	447,604	423,884	475,935	426,424	499,794	455,761

Table B.4 continued

Transition from non-WS employment to										
FT formal employment	0.017	0.014	0.021	0.019	0.020	0.026	0.028	0.025	0.027	0.022
FT informal employment	0.019	0.018	0.023	0.016	0.012	0.010	0.020	0.014	0.017	0.017
PT formal employment	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.001	0.000
PT informal employment	0.001	0.002	0.003	0.001	0.004	0.001	0.001	0.001	0.004	0.002
non-WS employment	0.818	0.811	0.806	0.827	0.822	0.834	0.792	0.788	0.839	0.815
unemployment	0.012	0.010	0.012	0.008	0.009	0.006	0.013	0.009	0.010	0.010
non-participation	0.065	0.086	0.080	0.073	0.079	0.081	0.100	0.090	0.072	0.081
attrition	0.069	0.060	0.055	0.055	0.054	0.041	0.045	0.073	0.031	0.054
Total at risk	10,125,384	11,046,178	10,031,987	10,184,166	9,972,139	9,630,623	9,370,698	9,121,183	8,147,651	9,736,668
Transition from unemployment to										
FT formal employment	0.099	0.148	0.191	0.188	0.164	0.232	0.261	0.259	0.209	0.195
FT informal employment	0.156	0.170	0.118	0.143	0.137	0.115	0.118	0.090	0.108	0.128
PT formal employment	0.000	0.000	0.003	0.006	0.000	0.004	0.004	0.004	0.006	0.003
PT informal employment	0.017	0.013	0.015	0.015	0.012	0.017	0.017	0.016	0.017	0.016
non-WS employment	0.060	0.061	0.070	0.041	0.041	0.036	0.060	0.046	0.056	0.052
unemployment	0.267	0.212	0.226	0.210	0.186	0.203	0.172	0.166	0.281	0.214
non-participation	0.279	0.272	0.256	0.283	0.327	0.299	0.267	0.278	0.231	0.277
attrition	0.121	0.124	0.121	0.114	0.132	0.094	0.101	0.139	0.092	0.115
Total at risk	1,681,453	2,478,716	2,283,434	2,196,034	1,679,825	1,980,347	1,939,472	2,006,532	1,977,335	2,024,794
Transition from non-participation to										
FT formal employment	0.010	0.014	0.013	0.019	0.022	0.019	0.028	0.027	0.031	0.020
FT informal employment	0.016	0.015	0.012	0.016	0.017	0.015	0.017	0.012	0.017	0.015
PT formal employment	0.002	0.003	0.001	0.002	0.003	0.002	0.002	0.003	0.003	0.002
PT informal employment	0.002	0.005	0.003	0.004	0.005	0.005	0.006	0.005	0.004	0.004
non-WS employment	0.027	0.021	0.015	0.018	0.013	0.015	0.023	0.019	0.018	0.019
unemployment	0.026	0.019	0.022	0.021	0.019	0.017	0.019	0.014	0.031	0.021
non-participation	0.834	0.831	0.854	0.837	0.833	0.856	0.825	0.821	0.835	0.836
attrition	0.083	0.091	0.080	0.084	0.088	0.071	0.081	0.099	0.061	0.082
Total at risk	24,960,062	24,990,234	25,933,382	25,903,443	26,627,105	26,802,911	28,389,324	28,680,655	30,008,025	26,921,682

Source: Own calculations on T-SILC.

Table B.5: Backward transition rates - Fresh subsamples, 2007-2017

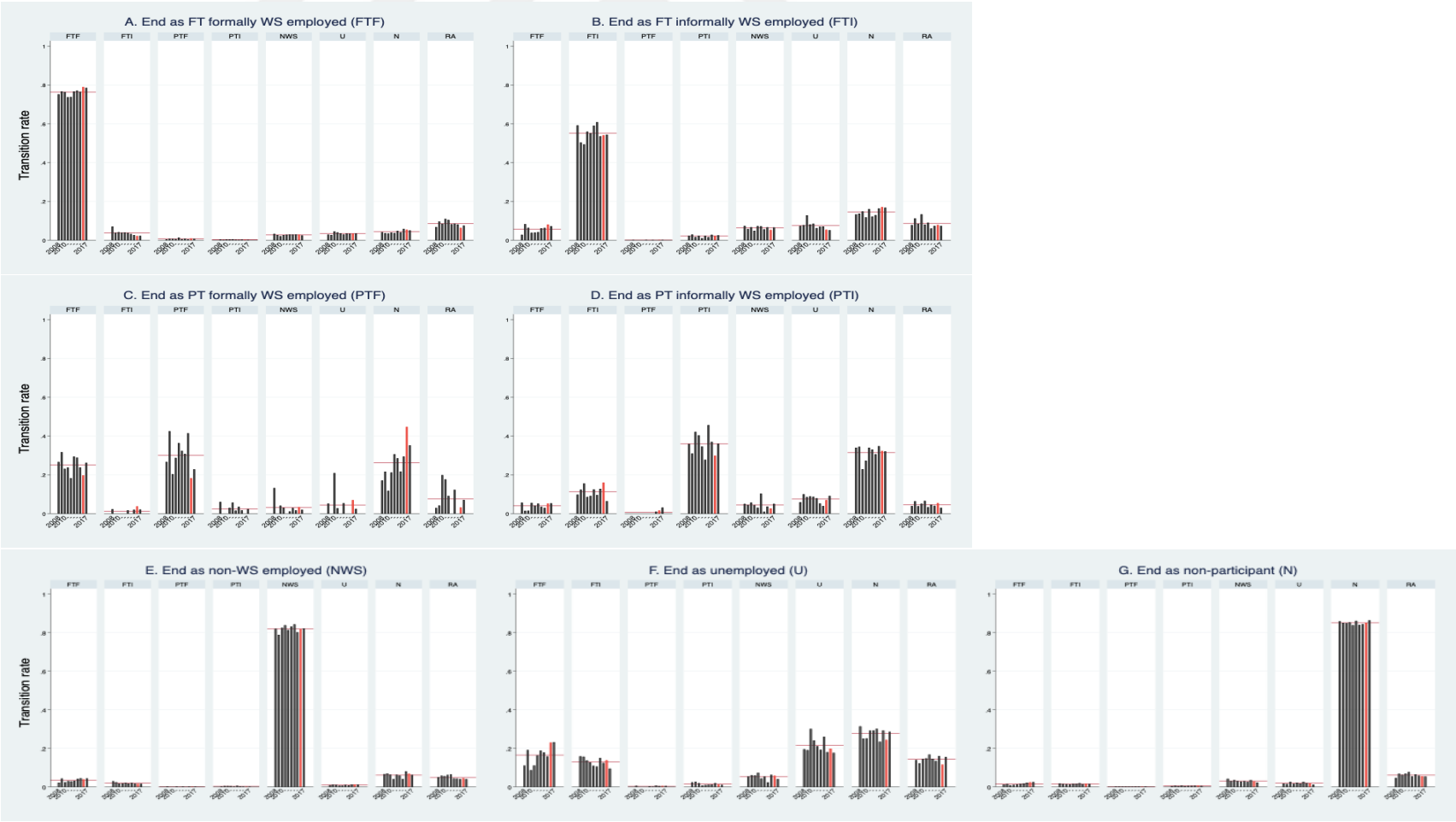
Weighted Fractions	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Mean
Transition to FT formal employment from												
FT formal employment	0.738	0.752	0.776	0.784	0.764	0.768	0.788	0.784	0.775	0.790	0.797	0.774
FT informal employment	0.064	0.050	0.032	0.038	0.041	0.041	0.036	0.028	0.022	0.018	0.020	0.036
PT formal employment	0.006	0.003	0.008	0.006	0.007	0.010	0.007	0.008	0.008	0.010	0.010	0.007
PT informal employment	0.003	0.002	0.002	0.003	0.001	0.003	0.003	0.003	0.003	0.004	0.002	0.003
non-WS employment	0.029	0.044	0.030	0.030	0.027	0.034	0.028	0.028	0.034	0.031	0.024	0.031
unemployment	0.034	0.028	0.039	0.044	0.036	0.042	0.031	0.040	0.041	0.033	0.032	0.036
non-participation	0.049	0.047	0.031	0.030	0.044	0.041	0.052	0.039	0.055	0.058	0.056	0.046
reverse attrition	0.077	0.073	0.084	0.065	0.080	0.062	0.057	0.070	0.063	0.056	0.060	0.068
Total at risk	5,645,006	9,151,752	9,230,065	9,276,292	10,314,766	11,787,084	12,103,331	12,699,965	13,922,055	14,879,249	14,761,506	11,251,916
Transition to FT informal employment from												
FT formal employment	0.040	0.045	0.124	0.048	0.033	0.065	0.082	0.057	0.066	0.065	0.070	0.063
FT informal employment	0.481	0.543	0.465	0.540	0.560	0.551	0.551	0.601	0.495	0.557	0.514	0.532
PT formal employment	0.001	0.002	0.000	0.000	0.000	0.000	0.004	0.001	0.000	0.002	0.000	0.001
PT informal employment	0.028	0.018	0.026	0.016	0.028	0.032	0.019	0.032	0.035	0.032	0.036	0.028
non-WS employment	0.091	0.071	0.070	0.062	0.079	0.061	0.054	0.047	0.078	0.069	0.063	0.068
unemployment	0.102	0.080	0.081	0.126	0.088	0.078	0.078	0.089	0.082	0.062	0.051	0.083
non-participation	0.157	0.166	0.127	0.140	0.128	0.151	0.147	0.109	0.165	0.161	0.204	0.151
reverse attrition	0.100	0.075	0.108	0.067	0.083	0.061	0.065	0.063	0.079	0.051	0.063	0.074
Total at risk	2,824,835	3,408,600	3,157,776	3,586,382	3,573,008	3,468,852	3,709,335	3,125,292	3,031,466	2,902,621	2,997,577	3,253,249
Transition to PT formal employment from												
FT formal employment	0.313	0.313	0.349	0.177	0.234	0.225	0.205	0.158	0.242	0.309	0.153	0.244
FT informal employment	0.027	0.040	0.040	0.000	0.000	0.024	0.034	0.000	0.038	0.015	0.000	0.020
PT formal employment	0.212	0.209	0.277	0.350	0.403	0.311	0.334	0.335	0.346	0.259	0.212	0.295
PT informal employment	0.000	0.040	0.000	0.000	0.023	0.000	0.045	0.050	0.000	0.000	0.066	0.020
non-WS employment	0.000	0.000	0.000	0.027	0.000	0.019	0.020	0.067	0.016	0.034	0.070	0.023
unemployment	0.000	0.048	0.093	0.000	0.044	0.000	0.000	0.082	0.039	0.017	0.037	0.033
non-participation	0.320	0.229	0.125	0.338	0.129	0.378	0.275	0.267	0.301	0.302	0.371	0.276
reverse attrition	0.128	0.122	0.116	0.108	0.167	0.042	0.086	0.041	0.018	0.063	0.091	0.089
Total at risk	81,802	169,493	155,060	194,100	306,799	195,466	233,992	248,351	232,390	265,515	237,782	210,977
Transition to PT informal employment from												
FT formal employment	0.013	0.023	0.056	0.014	0.056	0.031	0.025	0.023	0.025	0.048	0.018	0.030
FT informal employment	0.141	0.167	0.159	0.114	0.191	0.161	0.073	0.093	0.087	0.147	0.121	0.132
PT formal employment	0.000	0.000	0.013	0.022	0.000	0.000	0.011	0.000	0.000	0.000	0.019	0.006
PT informal employment	0.399	0.197	0.392	0.345	0.394	0.320	0.362	0.539	0.318	0.285	0.479	0.366
non-WS employment	0.055	0.090	0.042	0.038	0.017	0.058	0.030	0.014	0.037	0.039	0.010	0.039
unemployment	0.063	0.165	0.026	0.112	0.114	0.051	0.080	0.037	0.054	0.058	0.017	0.071
non-participation	0.298	0.323	0.284	0.314	0.194	0.356	0.386	0.227	0.453	0.402	0.284	0.320
reverse attrition	0.030	0.036	0.027	0.041	0.034	0.023	0.033	0.067	0.026	0.021	0.052	0.035
Total at risk	307,755	542,814	472,926	516,119	430,076	452,176	493,952	536,320	461,287	436,623	392,600	458,423

Table B.5 continued

Transition to non-WS employment from												
FT formal employment	0.017	0.022	0.027	0.025	0.032	0.027	0.029	0.026	0.048	0.048	0.045	0.032
FT informal employment	0.022	0.031	0.034	0.018	0.024	0.019	0.019	0.018	0.019	0.025	0.019	0.023
PT formal employment	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000
PT informal employment	0.002	0.004	0.005	0.003	0.007	0.003	0.003	0.003	0.003	0.002	0.004	0.004
non-WS employment	0.783	0.798	0.789	0.874	0.828	0.808	0.845	0.856	0.798	0.784	0.808	0.816
unemployment	0.009	0.011	0.014	0.010	0.008	0.018	0.007	0.013	0.014	0.017	0.009	0.012
non-participation	0.109	0.087	0.073	0.046	0.056	0.078	0.064	0.046	0.091	0.094	0.082	0.075
reverse attrition	0.056	0.048	0.058	0.023	0.044	0.047	0.033	0.037	0.027	0.029	0.033	0.040
Total at risk	10,899,420	11,134,212	10,699,687	11,070,154	10,492,458	10,307,143	9,984,187	9,880,151	8,980,123	9,133,197	9,202,007	10,162,067
Transition to unemployment from												
FT formal employment	0.075	0.112	0.177	0.132	0.107	0.141	0.155	0.194	0.164	0.236	0.235	0.157
FT informal employment	0.108	0.172	0.111	0.144	0.129	0.143	0.109	0.121	0.098	0.088	0.093	0.120
PT formal employment	0.002	0.003	0.002	0.000	0.007	0.004	0.000	0.002	0.005	0.002	0.008	0.003
PT informal employment	0.017	0.008	0.004	0.017	0.007	0.020	0.017	0.016	0.013	0.011	0.006	0.012
non-WS employment	0.082	0.071	0.045	0.023	0.042	0.048	0.046	0.049	0.055	0.053	0.045	0.051
unemployment	0.235	0.177	0.215	0.315	0.280	0.253	0.239	0.251	0.229	0.213	0.205	0.238
non-participation	0.306	0.309	0.298	0.225	0.302	0.252	0.315	0.228	0.321	0.281	0.295	0.285
reverse attrition	0.175	0.148	0.148	0.144	0.125	0.140	0.119	0.139	0.116	0.116	0.113	0.135
Total at risk	1,529,937	1,784,243	2,658,357	2,009,665	2,013,956	1,714,348	2,169,211	1,935,120	1,934,899	1,811,369	2,731,993	2,026,645
Transition to non-participation from												
FT formal employment	0.008	0.011	0.013	0.013	0.014	0.014	0.013	0.018	0.022	0.023	0.023	0.016
FT informal employment	0.012	0.013	0.014	0.015	0.013	0.014	0.017	0.017	0.013	0.014	0.010	0.014
PT formal employment	0.001	0.001	0.000	0.000	0.001	0.001	0.002	0.003	0.002	0.002	0.003	0.001
PT informal employment	0.004	0.005	0.005	0.005	0.004	0.006	0.006	0.006	0.006	0.005	0.006	0.005
non-WS employment	0.043	0.036	0.030	0.033	0.033	0.028	0.031	0.030	0.036	0.028	0.023	0.032
unemployment	0.022	0.017	0.026	0.028	0.025	0.025	0.023	0.026	0.022	0.020	0.014	0.022
non-participation	0.843	0.870	0.850	0.857	0.866	0.865	0.871	0.862	0.857	0.868	0.880	0.863
reverse attrition	0.067	0.047	0.063	0.048	0.046	0.047	0.039	0.039	0.042	0.039	0.041	0.047
Total at risk	23,576,091	23,276,740	24,766,675	24,477,873	25,029,284	25,464,899	25,469,672	27,024,140	27,919,992	27,825,493	28,234,049	25,733,173

Source: Own calculations on T-SILC.

Figure B.4: Backward transition rates - Subsamples that survived one round of attrition, 2008-2017



Source: Own calculation on T-SILC.

Table B.6: Backward transition rates - Subsamples that survived one round of attrition, 2008-2017

Weighted Fractions	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Mean
Transition to FT formal employment from											
FT formal employment	0.753	0.767	0.765	0.737	0.739	0.767	0.771	0.765	0.790	0.785	0.764
FT informal employment	0.070	0.038	0.041	0.039	0.040	0.037	0.031	0.026	0.021	0.022	0.037
PT formal employment	0.004	0.007	0.007	0.005	0.013	0.005	0.008	0.004	0.008	0.007	0.007
PT informal employment	0.003	0.002	0.003	0.003	0.005	0.002	0.002	0.003	0.002	0.002	0.003
non-WS employment	0.033	0.026	0.021	0.026	0.028	0.029	0.029	0.030	0.028	0.024	0.027
unemployment	0.029	0.027	0.045	0.040	0.035	0.029	0.034	0.033	0.033	0.034	0.034
non-participation	0.040	0.036	0.034	0.039	0.037	0.048	0.040	0.058	0.054	0.050	0.044
reverse attrition	0.068	0.097	0.084	0.110	0.104	0.082	0.085	0.081	0.063	0.075	0.085
Total at risk	8,961,241	9,168,670	9,822,033	10,235,772	11,621,119	12,683,956	12,509,408	13,581,273	14,688,017	15,135,106	11,840,660
Transition to FT informal employment from											
FT formal employment	0.028	0.083	0.064	0.038	0.039	0.041	0.061	0.063	0.081	0.072	0.057
FT informal employment	0.592	0.504	0.494	0.560	0.551	0.591	0.609	0.536	0.541	0.544	0.552
PT formal employment	0.001	0.000	0.000	0.000	0.002	0.000	0.001	0.000	0.002	0.002	0.001
PT informal employment	0.022	0.029	0.016	0.022	0.010	0.022	0.015	0.028	0.021	0.025	0.021
non-WS employment	0.073	0.057	0.067	0.049	0.072	0.072	0.056	0.066	0.053	0.065	0.063
unemployment	0.073	0.078	0.128	0.081	0.085	0.062	0.069	0.071	0.054	0.051	0.075
non-participation	0.133	0.137	0.148	0.118	0.160	0.122	0.129	0.163	0.171	0.168	0.145
reverse attrition	0.078	0.112	0.084	0.133	0.080	0.090	0.060	0.074	0.078	0.074	0.086
Total at risk	3,426,941	3,483,834	3,247,239	3,694,082	3,709,881	3,322,928	3,296,631	3,200,178	2,667,697	2,844,897	3,289,431
Transition to PT formal employment from											
FT formal employment	0.266	0.317	0.231	0.238	0.183	0.294	0.289	0.238	0.197	0.262	0.251
FT informal employment	0.023	0.000	0.000	0.000	0.000	0.017	0.000	0.020	0.037	0.021	0.012
PT formal employment	0.267	0.425	0.204	0.287	0.364	0.324	0.308	0.414	0.183	0.228	0.300
PT informal employment	0.060	0.000	0.000	0.030	0.057	0.015	0.035	0.017	0.000	0.023	0.024
non-WS employment	0.132	0.000	0.041	0.030	0.000	0.011	0.029	0.017	0.034	0.020	0.031
unemployment	0.052	0.000	0.209	0.028	0.000	0.053	0.000	0.000	0.070	0.024	0.044
non-participation	0.171	0.216	0.117	0.212	0.306	0.285	0.217	0.294	0.448	0.352	0.262
reverse attrition	0.029	0.042	0.199	0.176	0.091	0.000	0.123	0.000	0.032	0.070	0.076
Total at risk	139,902	169,147	221,253	247,299	151,435	212,767	243,549	228,371	233,730	195,082	204,254
Transition to PT informal employment from											
FT formal employment	0.056	0.014	0.015	0.055	0.041	0.052	0.035	0.030	0.052	0.053	0.040
FT informal employment	0.098	0.123	0.155	0.086	0.091	0.125	0.096	0.128	0.160	0.064	0.113
PT formal employment	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.016	0.031	0.006
PT informal employment	0.359	0.310	0.421	0.404	0.346	0.278	0.457	0.370	0.299	0.360	0.360
non-WS employment	0.050	0.044	0.056	0.043	0.030	0.103	0.009	0.036	0.027	0.050	0.045
unemployment	0.059	0.100	0.085	0.089	0.087	0.079	0.052	0.039	0.069	0.091	0.075
non-participation	0.340	0.345	0.229	0.272	0.340	0.331	0.306	0.348	0.323	0.321	0.315
reverse attrition	0.039	0.064	0.038	0.051	0.065	0.033	0.045	0.040	0.054	0.030	0.046
Total at risk	460,103	506,246	442,940	368,224	447,604	417,349	469,205	419,254	488,550	405,381	442,486

Table B.6 continued

Transition to non-WS employment from											
FT formal employment	0.022	0.043	0.024	0.030	0.028	0.031	0.042	0.045	0.039	0.044	0.035
FT informal employment	0.029	0.024	0.017	0.018	0.021	0.018	0.020	0.017	0.016	0.016	0.020
PT formal employment	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.001	0.002	0.000
PT informal employment	0.002	0.004	0.004	0.004	0.002	0.006	0.003	0.001	0.001	0.002	0.003
non-WS employment	0.820	0.789	0.825	0.838	0.814	0.832	0.843	0.802	0.818	0.822	0.820
unemployment	0.009	0.012	0.010	0.006	0.007	0.010	0.008	0.013	0.013	0.012	0.010
non-participation	0.066	0.070	0.063	0.041	0.063	0.059	0.041	0.080	0.068	0.062	0.061
reverse attrition	0.051	0.058	0.056	0.062	0.065	0.044	0.043	0.040	0.045	0.041	0.050
Total at risk	10,642,228	11,567,626	10,384,780	10,657,170	10,310,001	10,030,204	9,844,421	9,596,150	8,565,265	9,027,095	10,062,494
Transition to unemployment from											
FT formal employment	0.110	0.191	0.087	0.111	0.163	0.188	0.179	0.158	0.230	0.232	0.165
FT informal employment	0.159	0.157	0.137	0.127	0.109	0.105	0.150	0.124	0.138	0.095	0.130
PT formal employment	0.005	0.000	0.000	0.000	0.003	0.002	0.007	0.004	0.004	0.004	0.003
PT informal employment	0.024	0.027	0.019	0.007	0.010	0.011	0.012	0.019	0.012	0.010	0.015
non-WS employment	0.054	0.061	0.060	0.073	0.043	0.054	0.023	0.062	0.058	0.041	0.053
unemployment	0.195	0.191	0.301	0.241	0.211	0.192	0.260	0.180	0.199	0.177	0.215
non-participation	0.314	0.251	0.252	0.292	0.293	0.301	0.234	0.293	0.244	0.286	0.276
reverse attrition	0.139	0.123	0.145	0.147	0.168	0.146	0.134	0.160	0.116	0.155	0.143
Total at risk	1,767,753	2,418,630	2,257,780	2,159,309	1,654,529	1,951,172	1,916,841	1,977,390	1,954,603	2,825,846	2,088,385
Transition to non-participation from											
FT formal employment	0.012	0.015	0.009	0.011	0.013	0.015	0.018	0.022	0.024	0.025	0.016
FT informal employment	0.018	0.015	0.014	0.013	0.016	0.016	0.019	0.014	0.017	0.015	0.016
PT formal employment	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001
PT informal employment	0.004	0.006	0.004	0.007	0.004	0.005	0.005	0.006	0.006	0.005	0.005
non-WS employment	0.042	0.030	0.036	0.031	0.028	0.029	0.026	0.035	0.028	0.023	0.031
unemployment	0.017	0.015	0.026	0.016	0.022	0.018	0.026	0.019	0.018	0.012	0.019
non-participation	0.858	0.850	0.849	0.853	0.839	0.861	0.840	0.844	0.850	0.864	0.851
reverse attrition	0.047	0.068	0.062	0.069	0.077	0.055	0.065	0.058	0.056	0.054	0.061
Total at risk	24,059,059	23,825,931	24,700,136	24,770,496	25,355,460	25,623,774	27,143,614	27,446,711	28,728,845	28,088,824	25,974,285

Source: Own calculations on T-SILC.

Figure B.5: Backward transition rates - Subsamples that survived two rounds of attrition, 2009-2017

Source: Own calculations on T-SILC.

Table B.7: Backward transition rates - Subsamples that survived two rounds of attrition, 2009-2017

Weighted Fractions	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	Mean
Transition to FT formal employment from										
FT formal employment	0.780	0.765	0.759	0.738	0.794	0.789	0.751	0.783	0.803	0.774
FT informal employment	0.029	0.028	0.038	0.047	0.026	0.025	0.030	0.021	0.018	0.029
PT formal employment	0.006	0.004	0.005	0.010	0.002	0.007	0.008	0.007	0.005	0.006
PT informal employment	0.002	0.002	0.002	0.003	0.001	0.002	0.003	0.002	0.002	0.002
non-WS employment	0.032	0.029	0.028	0.029	0.029	0.030	0.034	0.029	0.023	0.029
unemployment	0.021	0.038	0.041	0.036	0.024	0.035	0.038	0.037	0.027	0.033
non-participation	0.030	0.035	0.033	0.044	0.051	0.040	0.060	0.055	0.063	0.046
reverse attrition	0.099	0.100	0.094	0.093	0.073	0.072	0.076	0.067	0.059	0.081
Total at risk	8,925,345	9,503,290	10,683,957	11,535,243	12,244,921	13,105,236	13,599,312	14,593,231	14,956,555	12,127,454
Transition to FT informal employment from										
FT formal employment	0.097	0.038	0.043	0.038	0.036	0.065	0.074	0.049	0.075	0.057
FT informal employment	0.518	0.553	0.558	0.590	0.635	0.599	0.554	0.622	0.537	0.574
PT formal employment	0.002	0.000	0.006	0.002	0.000	0.001	0.000	0.001	0.000	0.001
PT informal employment	0.018	0.024	0.023	0.019	0.028	0.024	0.015	0.030	0.030	0.023
non-WS employment	0.061	0.067	0.081	0.064	0.042	0.037	0.069	0.057	0.053	0.059
unemployment	0.068	0.115	0.085	0.086	0.071	0.071	0.072	0.063	0.072	0.078
non-participation	0.107	0.102	0.097	0.122	0.140	0.126	0.149	0.127	0.178	0.128
reverse attrition	0.129	0.101	0.107	0.078	0.048	0.077	0.067	0.051	0.054	0.079
Total at risk	3,696,053	3,683,140	3,120,642	3,489,256	3,422,703	3,172,008	3,167,836	2,863,000	2,932,144	3,282,976
Transition to PT formal employment from										
FT formal employment	0.174	0.226	0.462	0.163	0.277	0.261	0.306	0.235	0.329	0.270
FT informal employment	0.000	0.000	0.024	0.000	0.032	0.030	0.012	0.012	0.000	0.012
PT formal employment	0.444	0.301	0.308	0.279	0.286	0.262	0.283	0.241	0.165	0.285
PT informal employment	0.000	0.000	0.026	0.028	0.034	0.031	0.064	0.051	0.060	0.033
non-WS employment	0.000	0.000	0.000	0.043	0.000	0.068	0.023	0.065	0.019	0.024
unemployment	0.000	0.000	0.027	0.078	0.000	0.032	0.039	0.030	0.053	0.029
non-participation	0.271	0.400	0.074	0.250	0.337	0.280	0.250	0.358	0.341	0.285
reverse attrition	0.112	0.072	0.079	0.159	0.034	0.035	0.023	0.009	0.034	0.062
Total at risk	162,895	206,396	242,724	169,153	226,713	244,204	229,545	267,993	229,188	219,868
Transition to PT informal employment from										
FT formal employment	0.071	0.020	0.030	0.020	0.084	0.008	0.017	0.011	0.028	0.032
FT informal employment	0.160	0.092	0.162	0.127	0.061	0.127	0.107	0.171	0.092	0.122
PT formal employment	0.000	0.000	0.015	0.000	0.000	0.000	0.007	0.000	0.019	0.005
PT informal employment	0.537	0.454	0.436	0.441	0.291	0.374	0.349	0.307	0.352	0.393
non-WS employment	0.019	0.053	0.065	0.032	0.127	0.035	0.024	0.026	0.075	0.051
unemployment	0.074	0.074	0.079	0.091	0.059	0.079	0.072	0.086	0.082	0.077
non-participation	0.114	0.265	0.183	0.241	0.359	0.360	0.380	0.400	0.320	0.291
reverse attrition	0.025	0.042	0.028	0.047	0.018	0.017	0.044	0.000	0.033	0.029
Total at risk	391,658	432,228	410,363	377,478	399,881	399,562	460,636	402,550	407,518	409,097

Table B.7 continued

Transition to non-WS employment from										
FT formal employment	0.029	0.017	0.015	0.022	0.024	0.035	0.046	0.037	0.048	0.030
FT informal employment	0.025	0.017	0.017	0.019	0.018	0.014	0.020	0.020	0.016	0.018
PT formal employment	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.000
PT informal employment	0.000	0.002	0.004	0.001	0.003	0.003	0.002	0.001	0.003	0.002
non-WS employment	0.799	0.834	0.852	0.854	0.877	0.859	0.815	0.831	0.825	0.838
unemployment	0.009	0.013	0.016	0.009	0.008	0.007	0.012	0.010	0.013	0.011
non-participation	0.064	0.049	0.042	0.043	0.038	0.042	0.070	0.063	0.061	0.053
reverse attrition	0.073	0.068	0.053	0.051	0.032	0.040	0.035	0.038	0.032	0.047
Total at risk	10,792,966	11,015,694	9,721,794	10,313,846	9,764,440	9,564,281	9,411,530	9,204,051	8,598,454	9,820,784
Transition to unemployment from										
FT formal employment	0.190	0.147	0.121	0.175	0.177	0.202	0.199	0.243	0.230	0.187
FT informal employment	0.156	0.164	0.103	0.082	0.150	0.128	0.095	0.114	0.066	0.117
PT formal employment	0.007	0.007	0.000	0.003	0.000	0.004	0.004	0.005	0.010	0.004
PT informal employment	0.014	0.011	0.015	0.003	0.006	0.013	0.006	0.008	0.007	0.009
non-WS employment	0.052	0.054	0.068	0.043	0.064	0.033	0.072	0.058	0.033	0.053
unemployment	0.186	0.245	0.248	0.245	0.169	0.231	0.186	0.193	0.187	0.210
non-participation	0.268	0.232	0.271	0.293	0.284	0.257	0.300	0.238	0.314	0.273
reverse attrition	0.127	0.141	0.174	0.156	0.150	0.131	0.140	0.141	0.154	0.146
Total at risk	2,507,188	2,083,849	2,052,168	1,845,562	1,874,658	1,788,107	1,831,054	1,787,750	2,997,033	2,085,263
Transition to non-participation from										
FT formal employment	0.014	0.013	0.011	0.016	0.014	0.019	0.020	0.023	0.021	0.017
FT informal employment	0.018	0.012	0.015	0.015	0.020	0.015	0.016	0.015	0.010	0.015
PT formal employment	0.000	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.002	0.001
PT informal employment	0.006	0.004	0.003	0.003	0.006	0.004	0.005	0.004	0.006	0.005
non-WS employment	0.027	0.039	0.031	0.030	0.032	0.029	0.034	0.030	0.021	0.030
unemployment	0.019	0.027	0.022	0.025	0.021	0.022	0.019	0.021	0.016	0.021
non-participation	0.848	0.836	0.849	0.853	0.861	0.848	0.848	0.860	0.879	0.854
reverse attrition	0.068	0.068	0.068	0.057	0.045	0.062	0.056	0.045	0.045	0.057
Total at risk	25,052,213	24,163,253	25,853,631	25,675,982	26,305,700	27,232,586	27,837,799	28,172,208	28,470,118	26,529,277

Source: Own calculations on T-SILC.

Table B.8: Labor market impacts of economic crises: Differences in means tests - Forward transitions, 2006-17

Forward transition rates-Fresh subsamples			
	2008-09	**2009-10**	**2015-16**
Transition from FT formal employment to			
FT formal employment	(-)***	0	(-)**
FT informal employment	(+)***	0	(-)**
PT formal employment	0	0	0
PT informal employment	0	0	0
non-WS employment	0	0	0
unemployment	(+)***	0	0
non-participation	0	0	0
attrition	(+)***	(+)**	(+)**
Number of observations	25,962		
Transition from FT informal employment to			
FT formal employment	(-)*	0	(-)***
FT informal employment	(-)***	0	0
PT formal employment	0	(-)**	0
PT informal employment	0	0	0
non-WS employment	(+)***	0	0
unemployment	0	0	(-)**
non-participation	0	0	0
attrition	0	0	(+)***
Number of observations	8,281		
Transition from PT formal employment to			
FT formal employment	0	0	(+)*
FT informal employment	(-)**	(-)**	0
PT formal employment	0	0	0
PT informal employment	0	0	(-)*
non-WS employment	0	(-)**	0
unemployment	0	(-)***	0
non-participation	(-)***	0	0
attrition	0	0	(-)***
Number of observations	554		
Transition from PT informal employment to			
FT formal employment	0	0	(+)*
FT informal employment	0	0	0
PT formal employment	(-)***	(-)***	(-)***
PT informal employment	0	0	0
non-WS employment	0	0	0
unemployment	0	0	0
non-participation	0	0	0
attrition	0	0	0
Number of observations	1,377		

Table B.9: Labor market impacts of economic crises: Differences in means tests - Backward transitions, 2006-17

Backward transition rates-Fresh subsamples			
Differences in means test	**2008-09**	**2009-10**	**2015-16**
Transition to FT formal employment from			
FT formal employment	0	0	(+)*
FT informal employment	0	0	(-)***
PT formal employment	0	0	0
PT informal employment	0	0	0
non-WS employment	0	0	0
unemployment	0	0	0
non-participation	(-)***	(-)***	(+)**
reverse attrition	(+)**	0	(-)**
Number of observations	27,074		
Transition to FT informal employment from			
FT formal employment	(+)***	0	0
FT informal employment	(-)***	0	0
PT formal employment	(-)**	(-)**	0
PT informal employment	0	(-)**	0
non-WS employment	0	0	0
unemployment	0	(+)***	(-)*
non-participation	0	0	0
reverse attrition	(+)**	0	(-)**
Number of observations	8,250		
Transition to PT formal employment from			
FT formal employment	0	0	0
FT informal employment	0	(-)**	0
PT formal employment	0	0	0
PT informal employment	(-)***	(-)***	(-)***
non-WS employment	(-)***	0	0
unemployment	0	(-)***	0
non-participation	(-)**	0	0
reverse attrition	0	0	0
Number of observations	502		
Transition to PT informal employment from			
FT formal employment	0	0	0
FT informal employment	0	0	0
PT formal employment	0	0	(-)*
PT informal employment	0	0	(-)*
non-WS employment	0	0	0
unemployment	(-)**	0	0
non-participation	0	0	(+)*
reverse attrition	0	0	0
Number of observations	1,154		

Table B.8 continued

Transition from non-WS employment to			
FT formal employment	(-)*	(-)**	(+)***
FT informal employment	0	0	0
PT formal employment	(-)***	0	0
PT informal employment	0	0	0
non-WS employment	0	(-)***	(+)***
unemployment	0	(-)***	0
non-participation	0	(-)*	0
attrition	0	0	(+)**
Number of observations	27,407		
Transition from unemployment to			
FT formal employment	(-)*	(-)**	0
FT informal employment	0	(+)**	(-)***
PT formal employment	0	(-)***	0
PT informal employment	(-)**	0	0
non-WS employment	0	0	0
unemployment	0	0	(-)**
non-participation	0	0	0
attrition	0	0	+***
Number of observations	5,267		
Transition from non-participation to			
FT formal employment	(-)***	(-)***	(+)***
FT informal employment	0	0	(-)**
PT formal employment	(-)***	0	0
PT informal employment	0	0	0
non-WS employment	0	(-)***	0
unemployment	(+)***	(-)*	(-)***
non-participation	0	0	(-)***
attrition	0	(+)**	(+)***
Number of observations	73,308		

Table B.9 continued

Transition to non-WS employment from			
FT formal employment	0	0	(+)***
FT informal employment	(+)***	0	0
PT formal employment	0	(-)**	0
PT informal employment	0	0	0
non-WS employment	(-)**	(+)***	(-)***
unemployment	0	0	(+)**
non-participation	0	(-)***	(+)***
reverse attrition	(+)***	(-)***	(-)***
Number of observations	26,795		
Transition to unemployment from			
FT formal employment	0	0	(+)***
FT informal employment	0	0	(-)**
PT formal employment	0	(-)***	0
PT informal employment	(-)**	0	0
non-WS employment	0	(-)***	0
unemployment	0	(+)***	0
non-participation	0	(-)***	0
reverse attrition	0	0	0
Number of observations	4,929		
Transition to non-participation from			
FT formal employment	0	0	(+)***
FT informal employment	0	0	0
PT formal employment	(-)***	(-)***	0
PT informal employment	0	0	0
non-WS employment	0	0	(-)**
unemployment	0	(+)**	0
non-participation	(-)**	0	0
reverse attrition	(+)***	0	(-)**
Number of observations	69,773		

Note: Plus (+) and minus (-) signs denote the direction of deviation from the average while asterisks denote the level of significance (1 percent ***, 5 percent **, 10 percent *) in two sided tests. Zeros (0) denote absence of a significant change. Number of observations is the total recorded in the origin state during the time window.

Source: Own calculations on T-SILC.

Table B.10: Labor market impact of the minimum wage hike in 2016: Differences in means tests - Forward transitions, 2006-17

Forward transition rates-Fresh subsamples	
	2015-16
Transition from FT formal employment to	
FT formal employment	(-)*
FT informal employment	(-)*
PT formal employment	0
PT informal employment	0
non-WS employment	0
unemployment	0
non-participation	0
attrition	(+)*
Number of observations	21,178
Transition from FT informal employment to	
FT formal employment	(-)**
FT informal employment	0
PT formal employment	0
PT informal employment	0
non-WS employment	0
unemployment	(-)***
non-participation	0
attrition	(+)***
Number of observations	5,515
Transition from PT formal employment to	
FT formal employment	(+)*
FT informal employment	0
PT formal employment	0
PT informal employment	(-)**
non-WS employment	0
unemployment	0
non-participation	0
attrition	(-)***
Number of observations	477
Transition from PT informal employment to	
FT formal employment	(+)*
FT informal employment	0
PT formal employment	(-)***
PT informal employment	(-)*
non-WS employment	0
unemployment	0
non-participation	0
attrition	0
Number of observations	1,039

Table B.11: Labor market impact of the minimum wage hike in 2016: Differences in means tests - Backward transitions

Backward transition rates-Fresh subsamples	
	2015-16
Transition to FT formal employment from	
FT formal employment	0
FT informal employment	(-)***
PT formal employment	0
PT informal employment	0
non-WS employment	0
unemployment	0
non-participation	(+)***
reverse attrition	(-)**
Number of observations	22,094
Transition to FT informal employment from	
FT formal employment	0
FT informal employment	0
PT formal employment	0
PT informal employment	0
non-WS employment	0
unemployment	(-)**
non-participation	0
reverse attrition	(-)*
Number of observations	5,993
Transition to PT formal employment from	
FT formal employment	(+)*
FT informal employment	0
PT formal employment	0
PT informal employment	(-)***
non-WS employment	0
unemployment	0
non-participation	0
reverse attrition	0
Number of observations	421
Transition to PT informal employment from	
FT formal employment	0
FT informal employment	0
PT formal employment	(-)**
PT informal employment	(-)**
non-WS employment	0
unemployment	0
non-participation	(+)*
reverse attrition	0
Number of observations	861

Table B.10 continued

Transition from non-WS employment to	
FT formal employment	(+)***
FT informal employment	0
PT formal employment	0
PT informal employment	0
non-WS employment	(-)***
unemployment	0
non-participation	0
attrition	(+)***
Number of observations	18,856
Transition from unemployment to	
FT formal employment	0
FT informal employment	(-)***
PT formal employment	0
PT informal employment	0
non-WS employment	0
unemployment	(-)***
non-participation	0
attrition	(+)***
Number of observations	3,914
Transition from non-participation to	
FT formal employment	(+)***
FT informal employment	(-)*
PT formal employment	0
PT informal employment	0
non-WS employment	(+)**
unemployment	(-)***
non-participation	(-)***
attrition	(+)***
Number of observations	53,721

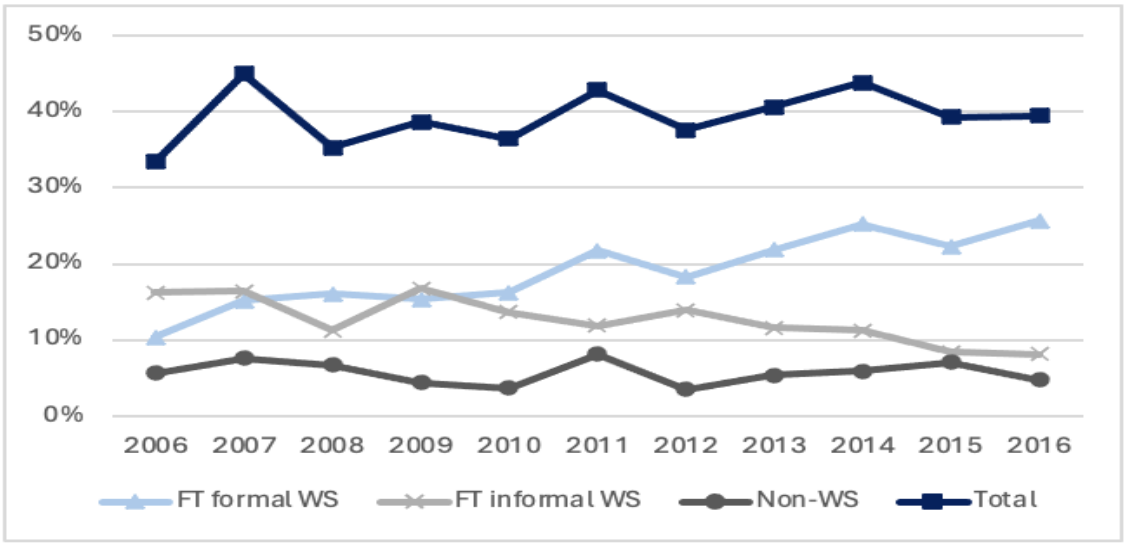
Table B.11 continued

Transition to non-WS employment from	
FT formal employment	(+)***
FT informal employment	0
PT formal employment	0
PT informal employment	0
non-WS employment	(-)***
unemployment	(+)*
non-participation	(+)***
reverse attrition	0
Number of observations	18,316
Transition to unemployment from	
FT formal employment	(+)***
FT informal employment	(-)*
PT formal employment	0
PT informal employment	0
non-WS employment	0
unemployment	(-)*
non-participation	0
reverse attrition	0
Number of observations	3,599
Transition to non-participation from	
FT formal employment	(+)***
FT informal employment	0
PT formal employment	0
PT informal employment	0
non-WS employment	0
unemployment	0
non-participation	0
reverse attrition	0
Number of observations	51,184

Note: Plus (+) and minus (-) signs denote the direction of deviation from the average while asterisks denote the level of significance (1 percent ***, 5 percent **, 10 percent *) in two sided tests. Zeros (0) denote absence of a significant change. Number of observations is the total recorded in the origin state during the time window.

Source: Own calculations on T-SILC.

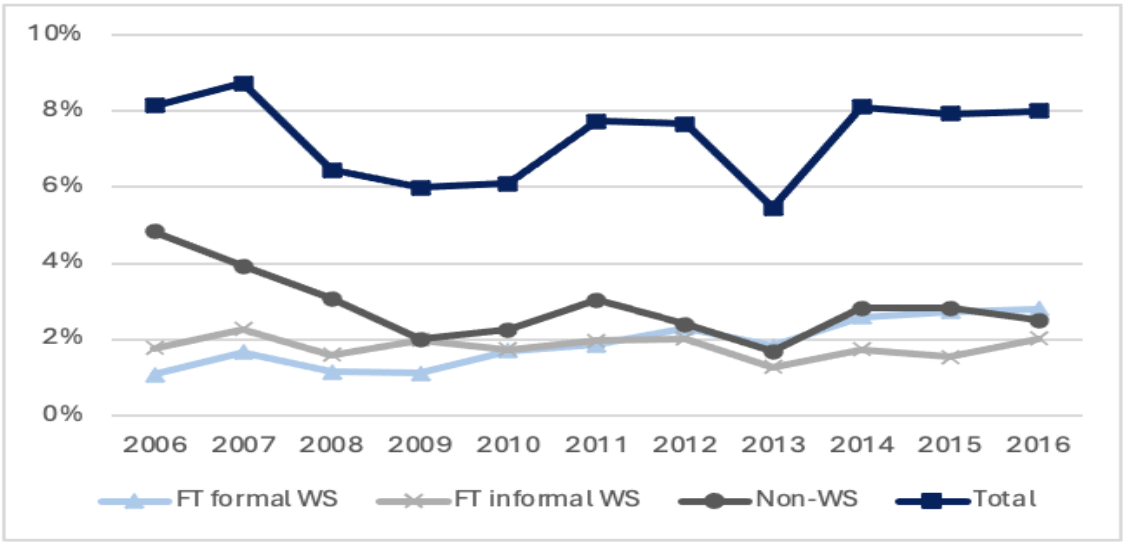
Figure B.6: Job finding rate from unemployment - Fresh subsamples, 2006-2017



Source: Own calculations on T-SILC

Denominator is the number of unemployed individuals.

Figure B.7: Job finding rate from non-participation - Fresh subsamples, 2006-2017



Source: Own calculations on T-SILC

Denominator is the number of non-participants.