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INSTITUTE FOR EVALUATION OF LABOUR MARKET AND EDUCATION POLICY

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The financial situation of people with severe mental illness in an advanced welfare state[a]

Marcus Eliason[b,c]

Abstract

Schizophrenia spectrum, bipolar, and major depressive disorders are severe mental illnesses (SMIs) that not only entail great suffering for those affected but also major societal costs. In this study, I use administrative register data to provide a detailed picture of the economic situation of people with SMI in Sweden during a period of ± 10 years around first-time in-patient diagnosis. First-time in-patient diagnosis was associated with a considerable drop in earnings, which was largely compensated for by social transfers: mainly sickness and disability insurance. However, there were also large and increasing pre-diagnosis earnings gaps, relative to matched comparison groups, especially among those with schizophrenia spectrum disorders. This gap was to lesser extent compensated for by social transfers. Consequently, there was a permanent and increasing – due to lost earnings growth – income differential. Hence, findings in previous studies are confirmed: even in an advanced welfare state, people with SMI – especially those with schizophrenia – have an extremely weak position on the labour market and an equally difficult financial situation.

Keywords: Schizophrenia spectrum disorder, bipolar disorder, major depressive disorder, social insurances, labour market situation

JEL Codes: I13, I14, J14, J65

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Contents

1 Introduction

Schizophrenia spectrum, bipolar, and major depressive disorders are severe mental illnesses (SMIs) considered to be among the top-ten leading causes of disability in terms of years of healthy life lost due to disability (World Health Organization, 2001),[1] and a large number of cost-of-illness studies have reported immense societal costs (e.g., Löthgren, 2004*a*,*b*; Andlin-Sobocki and Wittchen, 2005; Fajutrao et al., 2009; Jin and McCrone, 2015; Chong et al., 2016; Jin and Mosweu, 2017; Coretti et al., 2019).[2] These costs are mainly related to productivity losses and it is well documented that the employment rate of individuals with SMI is well below that of the general population (e.g., Marwaha and Johnson, 2004; Marwaha et al., 2013; Evensen et al., 2016; Hakulinen et al., 2019b). Not only do people with SMI face considerable persistent barriers to employment due to the chronic or recurrent nature of the disorder, but also due to stigmatizing views of employers, educational disadvantage, etc.

Hence, that people with SMI experience a difficult employment situation is a stylised fact, but the exact implications for their own financial situation are not fully established. A few previous studies (e.g., Falk et al., 2016; Topor et al., 2019; Hastrup et al., 2020; Hakulinen et al., 2019b, 2020) have documented the financial situation – in terms of earnings, social transfers, or total income – among people with various SMIs. However, no single study has provided a comprehensive picture of the financial situation (i.e., including earnings, social transfers, and total income) of people with schizophrenia spectrum, bipolar, or major depressive disorders in a unified framework. The objective of the present study is to fill this gap in the literature by using administrative register data to provide a detailed picture of the financial situation – in terms of earnings, social transfers, and total income – of people with SMI in Sweden during ±10 years surrounding first-time hospital in-patient diagnosis of schizophrenia spectrum, bipolar, or major depressive disorder. The inclusion of social transfers and total income, not only earnings, is important given that a considerable percentage of people with SMI are unlikely to earn their own living. Hence, social transfers have also been disaggregated into sickness, disability, and unemployment insurance, as well as means-tested social assistance.

Previous studies have, to lesser or greater extent, provided estimates of the average financial situation of people with SMI, but no study is likely to have provided unbiased estimates of the counterfactual case; that is, their financial situation had they not become ill. Although the onset of a psychiatric disorder is likely to weaken the position on the labour market and worsen the financial situation, the reverse is also true (Paul and Moser, 2009). Hence, there is a situation of causal pathways going in both directions, which are difficult to isolate. In addition, there are factors, typically unobserved to the researcher, that independently affect both individuals' likelihood to become ill and their labour market situation, which leads to selection, or omitted variable, bias. Poor cognitive ability and substance abuse are prominent examples of such factors. What complicates the situation further is that the onset of disease cannot be observed with certainty but only when a particular diagnosis is received during in-patient care. There are several reasons to believe that, in some cases, the onset of disease may have occurred much earlier. The approach taken here is rather pragmatic: Even though it may not be possible to estimate an unbiased causal effect of becoming severely mentally ill, that is not to say that we cannot, or should not, ask how the labour market and financial situation of people with SMI evolves, surrounding their first-time diagnosis of these disorders, in comparison to individuals that do not have such a diagnosis but are comparable in other dimensions. I attempt to answer this question using two different methods: First, an exact covariate matching design, i.e., matching of each individual with any of the psychiatric diagnoses to a number of individuals discordant to the particular diagnosis but with the same (arguably) pre-determined sociodemographic characteristics. Second, a discordant sibling-pair design, i.e., limiting the analysis to sibling-pairs discordant to the particular diagnosis. Although neither the matched individuals nor the discordant siblings are likely to provide an accurate measure of the counterfactual case of becoming severely mentally ill and receive an in-patient diagnosis of schizophrenia spectrum,

[1] Unipolar depressive disorder is the leading cause, while schizophrenia and bipolar disorders are the 7th and 9th leading causes.

[2] See Christensen et al. (2020) for a review of the literature.

bipolar, or major depressive disorders, I will nevertheless argue that they serve as informative contrasts.

The rest of the paper is structured as follows. In the next section, I give a very brief account of the three categories of psychiatric disorders, followed by an equally brief review of related studies. In Section 3, the data are introduced, including definitions of study populations and outcome measures. In the same section, the empirical strategy is described (i.e., the exact covariate matching and discordant sibling-pair design) This section concludes with summary statistics of the samples. In Section 4, the results are presented. These include comparisons of the trajectories of various income measures (i.e., mainly earnings, total social transfers, and total income, but also sickness, disability, and unemployment insurance, as well as means-tested social assistance) between those diagnosed with schizophrenia spectrum, bipolar, or major depressive disorders and (to some extent) comparable individuals (i.e., individuals with the same basic pre-determined sociodemographic characteristics, or their siblings) without such diagnosis. Moreover, also the results from two additional analyses are presented: The objective of the first is to quantify to what extent the measure of first-time in-patient diagnosis of a particular disorder correspond to onset of the same disorder, while the objective of the other is to give a sense of the magnitude of the problem associated with attrition (here, due only to premature death and emigration). In Section 5, the strengths and limitations of the study are discussed, thereafter Section 6 concludes.

2 Background

2.1 Severe mental illness

Severe mental illness (SMI) usually contain schizophrenia spectrum, bipolar, and major depressive disorders.[3] These three (groups) of disorders are all among the top-ten leading causes of disability in terms of years of healthy life lost due to disability (YLD) (World Health Organization, 2001): Major depressive disorders are the leading cause, while schizophrenia and bipolar disorders are the 7th and 9th leading causes. The YLD is a product of total years lived with a particular health state and a disability weight associated with the same health state.[4] Among 235 health states, the acute state of schizophrenia is ranked as the most disabling health state (i.e., has the largest disability weight) and its residual state is ranked as the tenth, while severe and mild episodes of major depressive disorders are ranked 5th and 107th, and manic and residual episodes of bipolar disorders are ranked 24th and 185th (Salomon et al., 2015). Hence, these disorders are in their most severe representations utterly disabling, but there is considerable heterogeneity both within and across disorders. Moreover, although they will be treated as three distinct groups of disorders, there are overlaps regarding both symptoms and genetic and environmental risk factors (e.g., Laursen et al., 2007; Uher and Zwicker, 2017).

Schizophrenia spectrum disorders (SSD) are a cluster of psychotic disorders including schizophrenia, schizotypal disorder, persistent delusional disorders, acute and transient psychotic disorders, induced delusional disorder, schizoaffective disorders, and other or unspecified non-organic psychotic disorders. Of these disorders schizophrenia is viewed as "the final and most severe endpoint" (Waldeck and Miller, 2000). Schizophrenia spectrum disorders have one or more of the following core features: delusions, hallucinations, disorganised speech and behaviour, abnormal motor behavior (including catatonia), and negative symptoms such as anhedonia/amotivation and blunted affect. Impaired cognition (e.g., memory problems and poor executive functioning) is a major source of loss of functional capacity (e.g., Bowie and Harvey, 2006; Elvevag and Goldberg, 2000; Keefe and Harvey, 2012; Schaefer et al., 2013). Cognitive impairments are often present prior to onset of disease, which may indicate that they also constitute risk factors of developing the disorder rather than only being a consequence of the disorder (David et al., 1997). Disease onset most often occur in the 20s (e.g., Miettunen et al., 2019), and lifetime prevalence of schizophrenia spectrum disorders have been estimated to about 0.8 percent (Simeone et al., 2015).

[3]Previous studies using the same definition of severe mental illness include (Rasic et al., 2014; Vancampfort et al., 2016; Minero et al., 2017; Sandstrom et al., 2019; Altunkaya et al., 2022; Hassan et al., 2022).

[4]The disability weights range from 0 to 1, where 0 correspond to a state of perfect health and 1 represents a state equivalent to death.

Although the exact aetiology of schizophrenia spectrum disorders is unknown, it seems to be the result of an interaction between genetic and environmental factors (e.g., Cunningham and Peters, 2014). Antipsychotic medication is the primary treatment for schizophrenia spectrum disorder. Medication may be needed during a first psychotic episode only but is more often life-long.[5] Although antipsychotics may reduce hallucinations and delusions, they do not improve cognitive deficits and can also be associated with disturbing side effects (e.g., Minzenberg and Carter, 2012).

Bipolar disorders (BPD) contain manic episodes and bipolar affective disorder. They are chronic or recurrent mental disorders characterised by single or recurrent depressive and manic or hypomanic (milder form of manic) episodes. The manic or hypomanic episodes are distinct periods of abnormally elevated or irritable mood including several of the following symptoms: inflated self-esteem or grandiosity, rapid speaking, decreased need for sleep, distractibility, racing thoughts, increased goal-oriented activities, agitation, and excessive involvement in impulsive or risky behaviours. Disease onset most often occur between ages 15 and 35 years (e.g., Dagani et al., 2019), and lifetime prevalence of bipolar disorders is about 2 percent (e.g., Miller et al., 2014; Merikangas et al., 2007). The exact aetiology of bipolar disorders is also largely unknown. Many genetic and environmental factors have been associated with the disorders, but their causal roles have not been revealed (e.g., Bortolato et al., 2017; Rowland and Marwaha, 2018). Medications used to treat bipolar disorders include mood stabilisers for long-term use and antipsychotics for short-term treatment of manic episodes. Such medication may reduce symptoms and recurrent episodes of relapse, and in periods in-between episodes full or partial symptom remission may be attained. However, in many cases full symptom remission does not imply return to premorbid functioning (e.g., Gitlin and Miklowitz, 2017). major depressive disorder *Major depressive disorders (MDD)* are characterised by one or more episodes of depressed mood causing significant distress or impaired functioning. Apart from depressed mood or lack of interest in activities that used to provide pleasure, the symptoms include loss or gain of weight, increased or decreased appetite, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, feeling of worthlessness, diminished ability to concentrate and executive functioning, recurrent thoughts of death, suicidal ideation, or suicide attempts. Onset of disease can occur at any age, but most commonly from mid-adolescence to early 40s (e.g., Yalin and Young, 2019). Epidemiological studies report lifetime prevalence of 15–18 percent (e.g., Hasin et al., 2005). Major depressive disorders are likely caused by both genetic and environmental factors and their interactions (e.g., Sullivan et al., 2000), and several such risk factors are well-established and include childhood abuse, social isolation, unemployment, and relationship stressors. There is a variety of treatment options for major depressive disorders such as antidepressant medication, electroconvulsive therapy, transcranial magnetic stimulation, cognitive behavioural therapy, and interpersonal therapy. Unlike schizophrenia spectrum and bipolar disorders, major depressive disorders are not deemed as chronic, but a high percentage experience recurrent episodes (e.g., Hardeveld et al., 2010).

2.2 Related studies

There are a few previous studies that also have documented the financial situation – in terms of either earnings, social transfers, or total income – among people with various psychiatric disorders. Falk et al. (2016) provide (age-standardised) figures on equivalised disposable income and the percentages receiving disability insurance and means-tested social assistance the year prior to, and five years after, first-time diagnosis of non-affective psychosis, together with the corresponding figures for the general population in Sweden. They report that large percentages received disability insurance or social assistance already the year prior to diagnosis: about 19 and 27 percent, respectively, compared to 3 and 5 percent, respectively, in the general population. Five years later, the percentages of those with first time non-affective psychosis who received disability insurance or social assistance had increased to 48 and 20 percent, respectively, while it remained about the same (i.e., 4 and 3 percent, respectively) in the general population.

[5] In their meta-analysis, Jääskeläinen et al. (2012) estimate that only 1 in 7 individuals met their criteria for recovery.

Topor et al. (2019) compare (age-standardised) incomes from various sources (i.e., from earnings, unemployment insurance, sickness insurance, and means-tested social assistance) during a ten-year period following first-time psychosis compared to the general population in Sweden. They found that total income of persons with first-time psychosis was about half of that of the general population in the year of diagnosis and remained at that (relative) level during the following nine years. However, while the relative incomes of those with first-time psychosis remained stable, the sources of income changed: mainly from earnings and social assistance to disability insurance.

Hastrup et al. (2020) estimate the societal costs of schizophrenia in Denmark by comparing earnings and social transfers (among other things) during a ten-year period surrounding first-time diagnosis compared to a matched control group with no diagnosis of schizophrenia.[6] They report that, already five years prior to diagnosis, average earnings among those with schizophrenia was as low as one tenth of average earnings of the matched control group. During the five years following diagnosis they decreased to only 4 percent of the average earnings of the matched control group. During the same five-year period, those with schizophrenia received on average 2.5 times as much social transfers as the matched control group.

In a series of articles, Hakulinen and colleagues study the associations between, on the one hand, a diagnosis of schizophrenia (Hakulinen et al., 2019a), bipolar disorder or depression (Hakulinen et al., 2019c), and a range of serious mental disorders (Hakulinen et al., 2019b), in ages 15–25 years, and, on the other hand, subsequent non-employment (Hakulinen et al., 2019a,b,c), earnings (Hakulinen et al., 2019a,b,c), and total income (Hakulinen et al., 2019b). They report that in each year, in ages 25–61 years, 83–89 percent of those with schizophrenia were not employed (Hakulinen et al., 2019a). Corresponding rates of non-employment among those with bipolar disorder and depression were 62–71 and 48–66 percent, respectively (Hakulinen et al., 2019c). Consequently, those diagnosed with schizophrenia had the lowest mean earnings followed by those with bipolar disorder and depression: 14, 36, and 51 percent of the earnings of same-aged individuals without such diagnoses (Hakulinen et al., 2019a,c). Although they report that social transfers constituted a considerable part of total income among those with schizophrenia, and bipolar or depressive disorders, their median total incomes were nevertheless no more than about one third to half the median total income of same-aged individuals without such diagnoses (Hakulinen et al., 2019b).

A study that in its design is rather similar to the present study is Hakulinen et al. (2020). The authors compare trajectories of earnings, transfer payments, and total income, surrounding first-time hospitalisation (i.e., 10-year pre- and post-hospitalisation periods) due to schizophrenia, other non-affective psychotic disorders, and bipolar disorder. The three diagnostic groups are compared to matched control groups.[7] Their findings for the post-hospitalisation period are in line with previous studies: regardless of outcome those diagnosed with a mental disorder, especially those with schizophrenia, are much worse off than those without such diagnoses. Importantly, however, although there were marked drops in earnings in the year of hospitalisation, most of the differences between the diagnostic groups were apparent already during the pre-hospitalisation period. The authors also report that social transfers replaced most of the earnings drops at the time of first-time hospitalisation, but did not close the gaps in total income to the control groups, neither during the pre- nor the post-hospitalisation period.

All the above studies are conducted using data from the Nordic countries,[8] but Davidson et al. (2016) use data from the Israeli Psychiatric Hospitalisation Case Registry to investigate the employment situation (i.e., earning minimum wage or above) among those admitted to hospital with a diagnosis of schizophrenia, other non-affective psychotic disorders, or bipolar disorder at any time during 1990–2008. They report that among those with schizophrenia or bipolar disorder only 9 and 24 percent, respectively, earned minimum wages or above in 2010.

From a methodological point of view, it is noteworthy that none of the above studies are likely to have

[6] Exact matching on age, sex, marital status, and residential area.

[7] Exact matching on sex and year/month of birth.

[8] Falk et al. (2016); Topor et al. (2019) use data from Sweden, Hastrup et al. (2020); Hakulinen et al. (2019a,c) use data from Denmark, and Hakulinen et al. (2019b, 2020) use data from Finland.

provided unbiased estimates of the counterfactual case; that is, the financial situation of people with SMI had they not become ill. Although Hakulinen et al. (2020) construct a comparison group matched on sex and birth year/month, and Hastrup et al. (2020) similarly construct a comparison group from a random sample of individuals of the same age, sex, marital status, and geographic area, but without the particular diagnosis, there are likely other – both observed and unobserved – factors that affect both the likelihood of becoming ill and the financial situation. In the economics literature, however, there have been attempts to estimate causal effects of having various mental health problems on labour market outcomes.[9] These studies have primarily applied instrumental variables approaches. Examples of instruments include own history of mental ill-health (Ettner et al., 1997; Chatterji et al., 2007, 2011), parental history of mental ill-health (Ettner et al., 1997; Marcotte et al., 2000; Chatterji et al., 2011), recent death of a close friend (Frijters et al., 2014), religiosity (French et al., 2001; Chatterji et al., 2007), and perceived social support (French et al., 2001). Other methods include first-difference or individual-level fixed effects estimations (Mitra and Jones, 2017; Peng et al., 2016), discordant sibling-pair analysis (Greve and Nielsen, 2013), bivariate probit with assumptions about the degree of selection on unobservables relative selection on observables (Chatterji et al., 2011), and a method relying on heteroscedastic covariance restrictions rather than exclusion restrictions for identification (Banerjee et al., 2017). Most of these economics studies are not comparable to the present study for other reasons: (i) they mostly attempt to establish a causal effect of mental ill-health in more generic terms rather than of particular psychiatric disorders; (ii) they mostly rely on survey data, which implies that those with more severe forms of mental ill-health are likely to be greatly under-represented due to non-responses; (iii) they mostly use cross-sectional data, which cannot reveal how the financial situation would evolve over the life course or the course of disease; and (iv) they do not study social transfers or total income. However, to some extent Greve and Nielsen (2013) can be considered an exception, as they use administrative register data to study the employment, but not the financial, situation from 15 years prior to 10 years after a first diagnosis of schizophrenia, and use non-diagnosed siblings as a comparison group to allegedly provide a good measure of the counterfactual case of being diagnosed with schizophrenia.

3 Data and method

3.1 Data sources

The data originate from Swedish administrative registers with universal coverage. Linkage across registers is possible because of the 10-digit personal identity number (replaced by a pseudo-anonymised identifier) that is unique to each Swedish resident. Specifically, four registers/databases were used to create the data set: First, the National Patient Register was used to identify the sample of individuals with SMI. It contains information on all hospital in-patient admissions, including date of admission/discharge and the associated discharge diagnosis according to the 9th and 10th revisions of the International Classification of Diseases (ICD-9 and ICD-10). Second, the income measures and background characteristics were drawn from Statistics Sweden's longitudinal database LOUISE. This database contains comprehensive annual information, in turn drawn from a number of administrative registers, for the nationally registered population ages 16–64 years.[10] Third, the Causes of Death Register was used to obtain the date of death. Fourth, the Multi-Generational Register was used to identify the sibling-pairs used in the analyses comparing siblings discordant to the particular disorder.

[9] Mostly employment (e.g., Frijters et al., 2014; Chatterji et al., 2011, 2007; Banerjee et al., 2017; Marcotte et al., 2000; Mitra and Jones, 2017; Peng et al., 2016), earnings (e.g., Chatterji et al., 2011; Marcotte et al., 2000; Mitra and Jones, 2017), and hours or weeks of work (e.g., Chatterji et al., 2011, 2007; Banerjee et al., 2017; Mitra and Jones, 2017; Peng et al., 2016).

[10] The aim of LOUISE is to enhance the conditions for research on sickness insurance and labour market issues requiring longitudinal individual data.

3.2 Study population

Severe mental illness has been defined as schizophrenia spectrum disorders (ICD-10: F20–29), bipolar disorders (ICD-10: F30–31), and major depressive disorders (ICD-10: F32–33). The sample contain all individuals of ages 18–54 years who received any of these diagnoses during in-patient care between 2001 and 2004, but who had not received a diagnosis of the same category of disorders at any time during 1987–2000.[11] [12] Hence, as far as the data allowed, the study is limited to first-time diagnosis of the above disorders.[13] Using this sampling strategy, I ended up with 6,124 individuals with first-time diagnosis of schizophrenia spectrum disorders, 2,353 individuals with first-time diagnosis of bipolar disorders, and 12,502 individuals with first-time diagnosis of major depressive disorders (Table B1).

3.3 Outcome measures

The main outcomes of interest are earnings, total social transfers, and total income.[14] Earnings include incomes from both employment and self-employment. Total social transfers include a larger number of social transfers related to sickness, disability, education, unemployment, and parental leave, as well as means-tested social assistance. Total income is the sum of earnings and total transfers.

To provide a deeper understanding of the financial situation of people with SMI, I will also document the separate trajectories of four of the specific social insurances constituting total social transfers: sickness insurance (SI),[15] disability insurance (DI),[16] unemployment insurance (UI),[17] [18] and means-tested social assistance (SA).[19] All income measures are presented in 2014 prices using the Swedish CPI.

3.4 Empirical strategy and statistical analysis

In the best of worlds, from the researcher's point of view, the economic situation of those with severe mental illness, around the time of disease onset, would have been compared to the counterfactual situation (i.e., the corresponding situation had they not fallen ill). However, this is a hypothetical situation that we do not observe, which is a problem common to all studies with the objective to estimate an effect of a particular exposure/intervention (e.g., a medical treatment or a labour market policy program). The counterfactual situation must therefore be estimated. There are many statistical methods to do this more or less credibly. However, what further complicates the situation in this particular case compared to, for example, participation in a certain labour market policy program or receiving a certain medical treatment

[11] Prior to 1997 the Swedish version of ICD-9 was in use. Using this classification, schizophrenia spectrum disorders were defined as codes 295, 297, and 298 (excl. 298A). Bipolar disorders were defined as codes 296A and 296C–E, and major depressive disorders as 296B, 296X, 298A, 300E, and 311.

[12] Information on hospital in-patient care is not available prior to 1987.

[13] In Section 4.2, I assess (using a more recent sample) to what extent a prior diagnosis of the particular disorder is likely.

[14] For those under the age of 18 years all income measures are treated as missing in the analyses.

[15] Sickness insurance is payable in cases of temporary illness that reduces work capacity. However, the two first weeks of sick-leave is paid by the employer. Just like unemployment insurance, it replaces a share of lost earnings up to a ceiling and for most of the period the replacement ratio was the same as for unemployment insurance, whereas the ceiling consistently has been higher.

[16] In case of a more permanently reduced work capacity, by at least 25 percent, a person could be eligible for disability insurance. It is granted in quarters based on work capacity. The income ceiling for disability insurance has been the same as for SI, but the replacement rate has been lower.

[17] Unemployment insurance is separate from social insurance, but is largely publicly funded.

[18] Payment of unemployment insurance was conditional on registration with the Public Employment Service (PES) and the recipient must be available for work and actively seek for a job. Entitlement was also associated with a "membership condition" (i.e., being a member of an unemployment insurance fund for at least 12 months prior to becoming unemployed) and a "work condition" (i.e., having worked at least a certain number of days during a qualification period). However, those who did not fulfil the membership condition could be granted the flat (lower) rate unemployment assistance instead. During the time period covered here the unemployment insurance system changed several times. Up to 2006, the benefit level varied between 80 and 90 percent of previous earnings up to a ceiling, but from 2007 the replacement rate was made dependent on the unemployment duration, starting at 80 percent and then stepwise decreasing to 65 percent.

[19] Social assistance is the ultimate safety net for those otherwise unable to make a living. It can be viewed as an indicator of officially recognised economic hardship (Stenberg, 1998).

is that we cannot observe disease onset but only first-time in-patient diagnosis. For several reasons, it is likely that this does not coincide with the onset of disease; I will return to this issue in Section 4.2. One implication is that many of the factors that precede first-time diagnosis – which we otherwise would have controlled for – have potentially already been affected by the disease (e.g., level of education and labour market situation). Hence, controlling for differences in such factors could result in more, rather than less, biased estimates.

The approach taken here is rather pragmatic: Although it may not be possible to estimate causal effects (or of the counterfactual case) of becoming severely mentally ill, that is not to say that we cannot, or should not, ask how the labour market and financial situation of people with SMI evolves surrounding their first-time diagnosis of these disorders compared to how it evolved for individuals that do not have such a diagnosis but are comparable in other dimensions. I attempt to answer this question using two different methods: a one-to-five exact covariate matching approach and a discordant sibling-pair approach. For the main analysis, I have constructed a comparison group for each SMI-group by matching each individual to five individuals without a diagnosis of the particular SMI, but of the same age, sex, nativity, and residing in the same county. Hence, it provides a comparison of the financial situation of individuals who were hospitalised with a diagnosis of schizophrenia spectrum, bipolar, or major depressive disorders for the first time in 2001–2004 to that of individuals of the same sex, age, nativity, and residing in the same county, but without the particular psychiatric diagnosis.[20]

In epidemiology, a rather common method to control for, especially unobserved, confounding is discordant sibling-pair comparisons. This method is assumed to automatically control for all factors – observed and unobserved – that are shared within pairs of siblings, such as childhood environment and half their genome. Obviously, it does not control for unshared factors. In fact, the differences in such factors may even increase. There is also an apparent risk of spillover effects, i.e., one sibling's illness may affect the other sibling's financial situation. In the main analysis, I will rely on the matching approach, but I will also provide the results from a discordant sibling-pair analysis.[21]

An issue unrelated to the choice of method above is that of attrition. Although administrative records are free from the complicating matter of non-responses that survey data is plagued by, there is still attrition due to premature death and emigration. Given the rather descriptive nature of the analyses in the present study, attrition was dealt with in a simplistic manner by reweighting: (i) if an individual in the SMI-groups was not found in the data in a given year, the comparison individuals (i.e., either the sibling or the matched individuals) were also dropped from the analysis (i.e., received a weight equal to zero); (ii) if, instead a matched individual was not found in the data in a given year, the remaining individuals matched to the same individual in the SMI-group were up-weighted to account for the drop-out; (iii) if the sibling (or all individuals matched to a particular individual in a SMI-group) was not found in the data in a given year, then the other sibling (or the individual in the SMI-group) was also dropped from the analysis.[22] The number of observations and weighted sample sizes, by year, are presented in Table A1. If attrition occurs at random this strategy would be rather non-problematic. However, it is well established that people with SMI have an excess risk of premature death (e.g., John et al., 2018) and that the mortality risk is likely to be negatively associated with labour market position (e.g., Nie et al., 2020). In Section 4.4, an additional analysis will give a sense of the magnitude of the problem for the present study.

[20] They may, however, receive such a diagnosis during the follow-up period.

[21] In case of more than one sibling, the one (if any) of same sex closest in age was chosen.

[22] More formally, the weight for individual i in the SMI-group is

$$w_{i,t} = \begin{cases} 0 & \text{if } D_{i,t} = 1 \vee N^D_{m(i)} = N_{m(i)} \\ 1 & \text{if } D_{i,t} = 0 \wedge N^D_{m(i)} < N_{m(i)} \end{cases},$$

where D_i is an indicator for whether individual i has dropped out or not in year t, $N_{m(i)}$ and $N^D_{m(i)}$ are the number of individuals matched to individual i and the number among those who have dropped out, respectively. The weight for individual j in the matched comparison group (or sibling pair) is

$$w_{j,t} = \begin{cases} 0 & \text{if } D_{j,t} = 1 \vee D_{i,t} = 1 \vee N^D_{m(i)} = N_{m(i)}; j \in m(i) \\ 1/[N_{m(i)} - N^D_{m(i)}] & \text{if } D_{j,t} = 0 \wedge N^D_{m(i)} < N_{m(i)}; j \in m(i) \end{cases}.$$

3.5 Descriptive statistics

Summary statistics of socio-demographic characteristics for the three SMI-groups and respective comparison group, as well as for the general population, are presented in Table B1. When comparing the full SMI-groups (i.e., those in the matched samples) to the general population the following is apparent: (i) those with schizophrenia spectrum disorders were more often younger, foreign born, and had compulsory schooling rather that tertiary education; (ii) those with bipolar disorders were more often older and women; and (iii) those with major depressive disorders were more often women, foreign born, and had compulsory schooling rather than tertiary education. A final observation regarding the matched samples is that although the matching obviously eliminated differences in age, sex, and nativity, it did not reduce the differences in attained education.

Turning to the sibling-pair samples, about 40 percent of the individuals in the SMI-groups are lost, mostly because they did not have siblings (that satisfy the sampling restrictions). However, because siblings are linked to each other through their parents in the data, which requires the parents to be (or have been) Swedish residents, a considerable percentage of immigrants were also lost. In terms of age, sex, and nativity, the dissimilarities are obviously somewhat larger than in the matched samples (where they by construction have been eliminated). More interestingly, however, much of the differences in attained educational level remained. This may indicate that disease onset occurred well before first-time in-patient diagnosis (i.e., when still in the educational system) or that there are early factors (not shared by siblings) that affected both the likelihood of SMI and the likelihood of getting a longer education.

4 Results

In this section, I report results from analyses of the financial situation of people with SMI during ± 10 years surrounding first-time in-patient diagnosis of schizophrenia spectrum, bipolar, or major depressive disorder. First, in Section 4.1, the average income trajectories of people with SMI are depicted and contrasted to a matched comparison group.[23] Second, in the analysis in Section 4.1, first-time in-patient diagnosis aimed to capture disease onset of the particular disorder. However, in Section 4.2, I report results from an analysis aiming at shedding light on to what extent this actually is the case. Third, in Section 4.3, the previous analysis has been repeated but instead using the sample of discordant pairs of full siblings. Finally, it is well established that people with SMI have an excess risk of premature death. This complicates any analyses, and particularly long-term analyses, because the outcomes become censored in case of death. Hence, in Section 4.3, I provide results from an additional analysis aiming at giving a sense of the magnitude of the problem for the present study.

4.1 A one-to-five exact covariate matching analysis

The results presented in this section contain trajectories of the main sources of income (i.e., earnings, disability insurance, sickness insurance, unemployment insurance, and means-tested social assistance), as well as the trajectories of two aggregated income measures (i.e., total social transfers and total income). The trajectories are presented for individuals that were hospitalised for the first time in 2001–2004 with a discharge diagnosis of a schizophrenia spectrum, bipolar, or major depressive disorder. For each group of disorders, a matched comparison group was constructed, where each individual with SMI was matched to five individuals of the same sex, age, nativity, and residing in the same county, but without a history of hospitalisation due to the particular disorder.

4.1.1 Severe mental illness and earnings

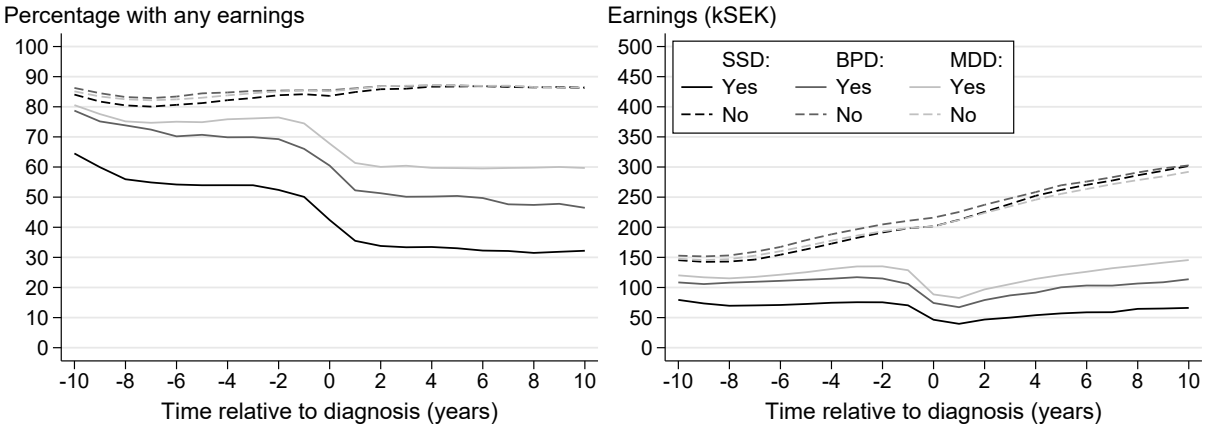
In Figure 1, the percentages having any annual earnings (left) and the actual earned amount (right) are depicted. From this figure it is immediately clear that individuals with SMI had considerably lower

[23] Corresponding absolute and relative differences and tests of equality of means can be found in Appendix C.

earnings than comparable individuals without such diagnoses; not only subsequent to first-time diagnosis but many years earlier.

Within a few years surrounding first-time in-patient diagnosis the percentages with any annual earnings fell about 15–20 percentage points and the earned annual amount fell by SEK 30,000–50,000. During the 10-year post-diagnosis period there were no signs of improvement. Compared to the matched comparison group, the gaps, in percentages with any annual earnings, remained as large as 27, 40, and 55 percentage points for those with major depressive, bipolar, and schizophrenia spectrum disorders, respectively. The corresponding figures for the earned annual amount were SEK 146,000, 188,000, and 241,000.

Figure 1: The percentages having any earnings (left) and the average annual amounts of earnings (right) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.



Although the trajectories developed quite similarly for all SMI-groups regardless of type of disorders, there were striking constant differentials between those with schizophrenia spectrum disorders and those with bipolar or major depressive disorders. These amount to 15–20 percentage points and SEK 30,000–80,000. To minor extent these differentials can be explained by differences in age, sex, and nativity (see Table B1) as there are small such differentials also between the matched comparison groups, but the majority of the differentials have other explanations. Among the potential candidates: (i) first-time in-patient diagnosis does to a lower extent capture disease onset among those with schizophrenia spectrum disorders; (ii) prodromal symptoms of schizophrenia spectrum disorders affect the employment situation many years prior to disease onset; (ii) reverse causality (i.e., a poor employment situation does more often precede schizophrenia spectrum than bipolar and major depressive disorders); and (iii) there are other factors that are more strongly associated both with poor employment outcomes and first-time in-patient diagnosis among those with schizophrenia spectrum disorders (e.g., poor cognitive ability and drug abuse).

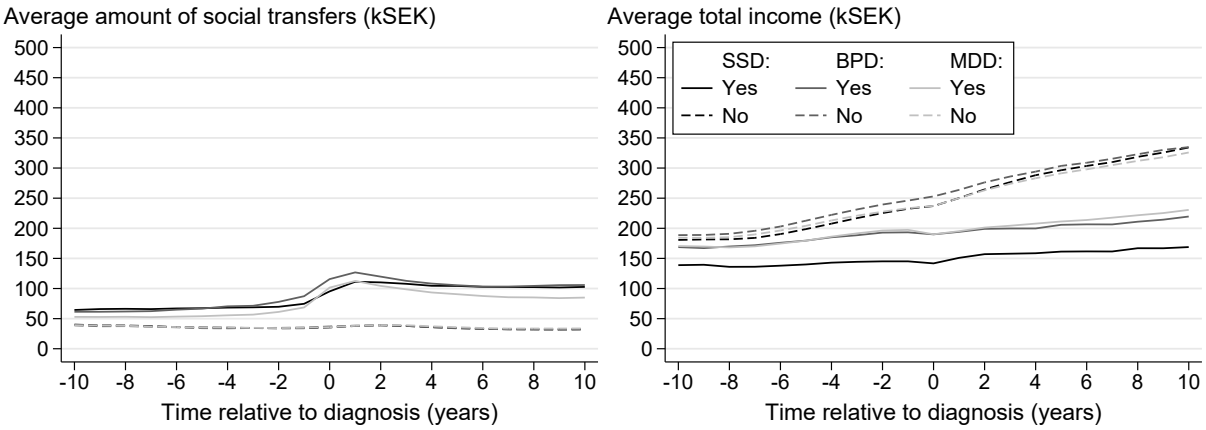
4.1.2 Severe mental illness, social transfers, and total income

Considering the huge earnings differential following, and to some extent also preceding, first-time in-patient diagnosis of schizophrenia spectrum, bipolar, or major depressive disorders that were documented in the previous section, an emerging issue is to what extent the social welfare system was able to alleviate the financial situation of people with SMI. Therefore, in Figure 2, the trajectories of total social transfers (left) and total income (right) are depicted.

People with SMI received considerably more social transfers than others: In the year of first-time diagnosis their total income from social transfers exceeded those of the comparison groups by SEK 60,000–78,000, nullifying the simultaneous drop in earnings. However, over the years social transfers have not followed the growth in earnings. Hence, the income differentials between those with SMI and their matched counterparts without such disorders increased over time; ten years following first-

time in-patient diagnosis the income gaps were SEK 94,000, 115,000, and 170,000 for those with major depressive, bipolar, and schizophrenia spectrum disorders, respectively.

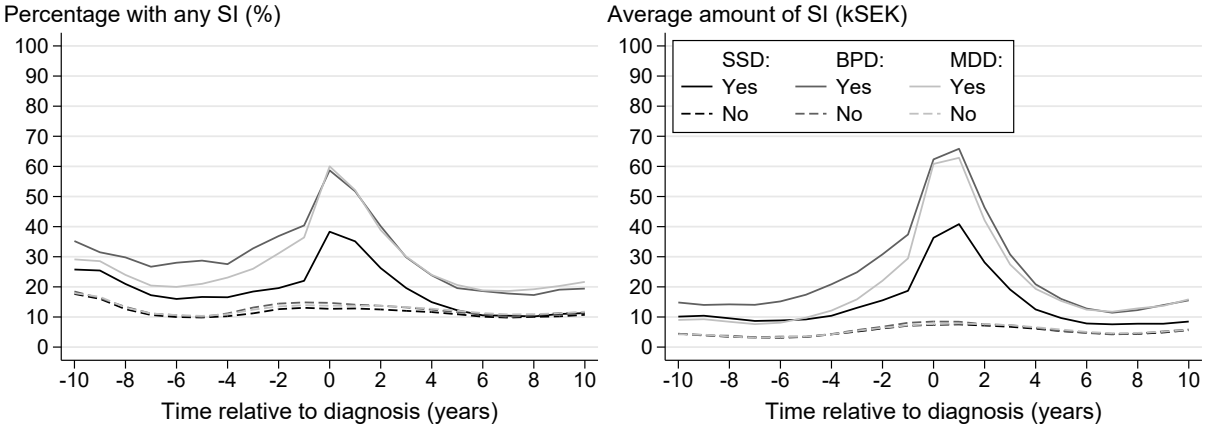
Figure 2: The average annual amounts of total social transfers (left) and of total income (right) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.



4.1.3 Severe mental illness and sickness and disability insurance

The social transfers likely to be most important for people with SMI are sickness insurance (SI) and disability insurance (DI). The trajectories of income from sickness and disability insurance are depicted in Figures 3–4. Although people with SMI were 2–3 times as likely to receive any sickness insurance even before their first-time in-patient diagnosis, there was a pronounced peak in that year corresponding to 43, 64, and 68 percent among those with schizophrenia spectrum, bipolar, and major depressive disorders, which can be compared to 15–17 percent in the matched comparison groups.[24] Correspondingly the average amounts received increased to SEK 38,000, 59,000, and 60,000 for those with schizophrenia spectrum, bipolar, and major depressive disorders, which can be compared to SEK 13,000–15,000 for the matched comparison groups. Within a couple of years following first-time in-patient diagnosis the sickness insurance levels had returned to their pre-diagnosis levels or even below that.

Figure 3: The percentages having received any sickness insurance (left) and the average annual amounts of sickness insurance (right) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

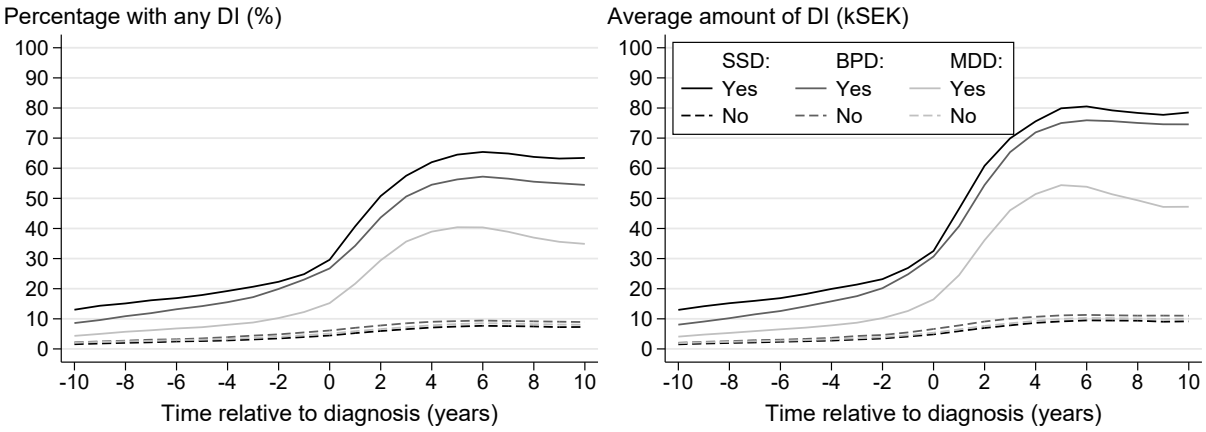


That longer-term post-diagnosis sickness insurance levels returned to pre-diagnosis levels despite the chronic or recurrent nature of the disorders is explained by a majority being transferred to the disability insurance. Five to ten years after first-time diagnosis 63–65 percent of those with a schizophrenia

[24] Note that SI does not include the two first weeks of each sick period paid by the employer.

spectrum disorders, 54–57 percent of those with a bipolar disorders, and 35–40 percent of those with major depressive disorders received any disability insurance in a given year, which can be compared to 7–10 percent of the comparison groups.

Figure 4: The percentages having received any disability insurance (left) and the average annual amounts of disability insurance (right) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

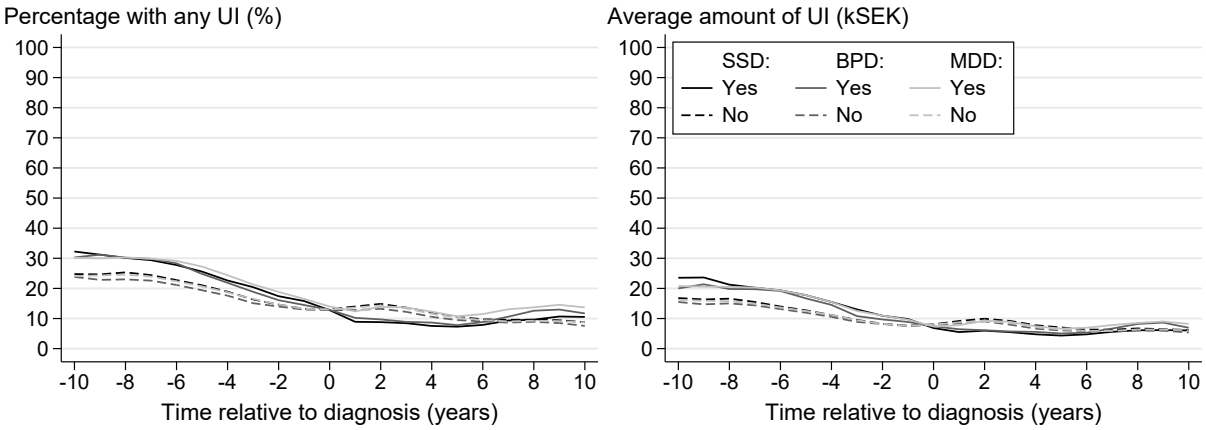


That relatively large percentages of those with SMI, especially those with schizophrenia spectrum (and bipolar) disorders, received disability insurance already ten years prior to their first-time diagnosis of the particular disorder suggest, as did the earnings analysis, that first-time diagnosis to a lower extent captures disease onset among those with schizophrenia spectrum (and bipolar) disorders or that prodromal symptoms of schizophrenia spectrum disorders affect the employment situation many years prior to disease onset. The other two explanations suggested in Section 4.1.1 (i.e., reverse causality and unobserved confounding) seems less likely in the light of this latter analysis, but could still be part of the explanation.

4.1.4 Severe mental illness and unemployment insurance

Given the large percentages of those with SMI who left the labour force for (part- or full-time) disability retirement (see Section 4.1.3), unemployment insurance (UI) is unlikely to have been the main income source for a majority following first-time in-patient diagnosis. Nevertheless, in Figure 5, the utilisation of unemployment insurance is depicted.

Figure 5: The percentages having received any unemployment insurance (left) and the average annual amounts of unemployment insurance (right) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.



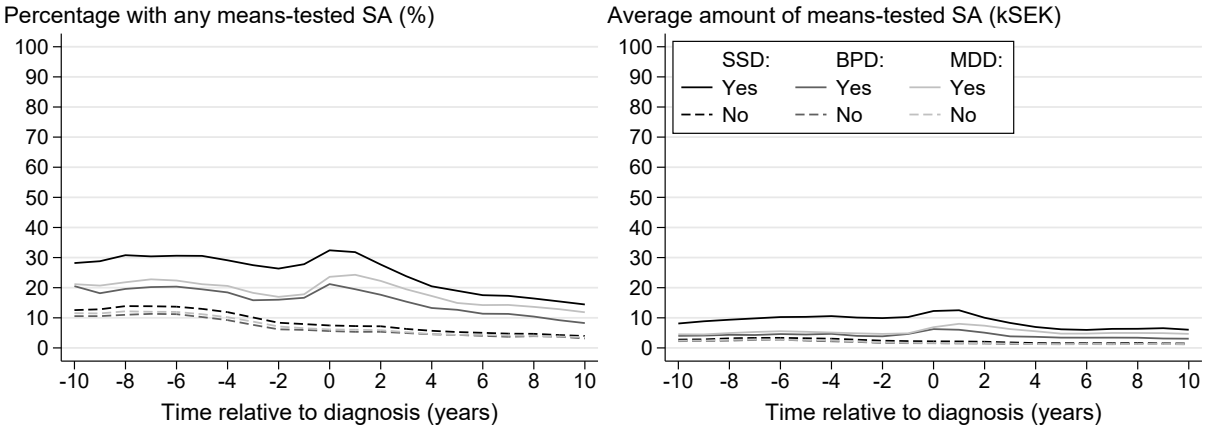
A first observation is that there were only minor differences in utilisation of unemployment insurance across SMI-groups. Initially (i.e., 10 years prior to first-time in-patient diagnosis), 30–32 percent of those with an SMI received any unemployment insurance, as compared to 24–25 percent of their matched counterparts. These high levels of unemployment insurance utilisation are likely a consequence of the economic crisis of the 1990s at that time. Over time, both the levels and the differences between the SMI-groups and respective comparison group diminished. During the post-diagnosis period the percentage that received any annual unemployment insurance was 8–15 percent; regardless of having been diagnosed with SMI and of the particular type of disorder. The patterns of received amounts are almost an exact mirror image.

4.1.5 Severe mental illness and means-tested social assistance

The final social transfer of interest here is means-tested social assistance. It is the ultimate safety net for those otherwise unable to make a living,[25] as such it can be viewed as an indicator of officially recognised economic hardship (Stenberg, 1998).

The general pattern for all groups is that the percentage that received means-tested social assistance diminished over time: early on, not everyone had entered the labour market, and as time passed more and more should in general have obtained a stable labour market position.[26] However, the figures are about three times as high for those diagnosed with schizophrenia spectrum disorders, and twice as high for those with bipolar and major depressive disorders, compared to the matched comparison groups. In the year of diagnosis, there was a temporary increase in the utilisation of social assistance to 32, 21, and 24 percent among those with schizophrenia spectrum, bipolar, and major depressive disorders, respectively, as compared to 5–7 percent in the matched comparison groups.

Figure 6: The percentages having received any means-tested social assistance (left) and the average annual amounts of means-tested social assistance (right) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.



4.2 Is first-time in-patient diagnosis a good indicator of onset of disorder?

For at least two reasons it is possible that first-time episode of in-patient medical care, with a diagnosis of SMI, may not capture disease onset: (i) less severe cases may be treated in out-patient care only, and (ii) whilst most people with SMI are likely to eventually seek treatment, it may in some cases

[25] Social assistance is means-tested on a household basis (contrary to the other social insurances that are individual based and not means-tested) and is supposed to guarantee a "reasonable standard of living". To be entitled to social assistance, one should be unable to make a living on not only work, unemployment insurance and other benefits, but also on assets.

[26] Note, however, that individuals are not included in the calculation of any income measure before the calendar year they turned 18 years.

take considerable time.[27] Moreover, the results presented in Section 4.1 actually indicate that first-time episode of in-patient medical care, with a discharge diagnosis of SMI, may not capture disease onset. Especially for schizophrenia spectrum disorders these episodes were preceded by lengthy periods of deteriorating labour market outcomes, which either suggest the existence of reverse causality, uncontrolled confounding, or that first-time in-patient diagnosis is preceded by deteriorating (mental) health during many years.

To shed some light on this issue, I have similarly selected a new sample, but for the period 2011–2014, instead of 2001–2004. In the main analysis, I excluded those with a prior in-patient diagnosis of the particular disorders during 1987–2000; Diagnoses earlier than 1987 could not be excluded because patient records with full coverage are only available from that year. To mimic this exclusion restriction, I have instead excluded those with a prior in-patient diagnosis of the particular disorders during 1997–2010. Moreover, information on out-patient psychiatric care is available from 2001.[28] Hence, for in- and out-patient medical care, the periods 1987–1996 and 2001–2010, respectively, can be exploited to obtain an approximate figure of the percentage of the sample in the main analysis that actually had been diagnosed already prior to the first observed diagnosis in in-patient medical care.[29]

It is evident from Table 1 that only a small percentage had received in-patient treatment for the same disorders even earlier. Those with schizophrenia spectrum disorders were most likely to already have received the diagnosis in in-patient care (i.e., 4.5 percent). The corresponding figure for both those with bipolar and those with major depressive disorders was 1.1 percent.

Table 1: A test of potentially unmeasured diagnosis prior to first-time in-patient diagnosis in the matched and the discordant sibling-pair samples, by diagnosis group, i.e., schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), major depressive disorders

	SSD		BPD		MDD	
"Unmeasured" prior diagnosis	Yes	No	Yes	No	Yes	No
Panel A: Matched sample						
In-patient	4.49	0.06	1.09	0.02	1.12	0.14
Out-patient	19.26	0.18	36.36	0.53	26.33	2.79
Total	20.73	0.23	36.79	0.54	27.05	2.90
Sample size	6,878	34,390	4,860	24,300	16,660	83,300
Panel B: Sibling-pair sample						
In-patient	4.63	0.21	1.12	0.13	1.17	0.14
Out-patient	19.88	0.64	36.69	2.05	27.02	5.47
Total	21.47	0.77	37.07	2.14	27.78	5.59
Sample size	3,778	3,778	3,129	3,129	9,803	9,803

Notes: The sample is selected in 2011–2014, instead of 2001–2004 as in the rest of the analyses. An "unmeasured" in-patient diagnosis was received in hospital in-patient care during 1987–1996. An "unmeasured" out-patient diagnosis was received in out-patient psychiatric care during 2001–2010.

However, considerable percentages had received the diagnosis in out-patient psychiatric care during 2001–2010: 19.3 percent of those with schizophrenia spectrum disorders, 36.4 percent of those with bipolar disorders, and 26.3 percent of those with major depressive disorders. Hence, 21–37 percent had received the particular diagnosis, in either in- or out-patient medical care, prior to the sampling year.

The conclusion from this exercise must be that, for a considerable percentage, first-time in-patient

[27] Häfner (2019) show that for schizophrenia on average more than 5 years elapses from first sign to first admission. In their review, Souaiby et al. (2016) report that the average duration of untreated psychosis in schizophrenia is 2 years.

[28] The quality of this information was initially rather poor, but has steadily improved over time. See The National Board of Health and Welfare (2022) for an assessment of the quality of both the in- and out-patient information in the National Patient Register.

[29] This requires an assumption of no major changes neither in the likelihood of receiving the particular diagnoses nor in the likelihood of receiving medical care for such disorders.

diagnosis of SMI (as defined in the main analysis) is not likely to capture disease onset. This also correspond well with the results in Section 4.1 showing a relative deterioration of labour market outcomes that started many years before first-time in-patient diagnosis.

4.3 A discordant sibling-pair analysis

In the main analysis, comparison groups were constructed using exact (one-to-five) matching on sex, age, nativity, and county of residence. Hence, this analysis provided a comparison of the income trajectories of individuals who were hospitalised with a diagnosis of schizophrenia spectrum, bipolar, or major depressive disorders for the first time in 2001–2004 and the income trajectories of individuals of the same sex, age, nativity, residing in the same county, but without the particular psychiatric diagnosis. There are many other, observed and unobserved, factors that may have affected both the likelihood of SMI and the income trajectories (i.e., confounders). If first-time in-patient diagnosis of a particular SMI had been a good measure of onset of the same SMI, then one could have controlled for pre-diagnosis measures of such observed confounders. However, both the analyses in Section 4.1 and 4.2 suggest that onset of disease may have preceded first-time in-patient diagnosis by many years. Therefore, I have instead performed discordant sibling-pair comparisons as a complementary analysis. This is a rather common method in epidemiology to control for all factors – observed and unobserved – that are shared within sibling pairs, such as childhood environment and about half their genome. As is evident from Tables D1–D12, using this method does not alter any qualitative findings or conclusions drawn in Section 4.1. We can thus conclude that the differences in income trajectories between people with an in-patient diagnosis of schizophrenia spectrum, bipolar, or major depressive disorders in 2001-2004 and people without such a diagnosis but with the same sex, age, nativity, and residing in the same county, do not seem to be explained by such factors that are normally shared within sibling pairs.

4.4 Attrition due to mortality and migration

Although administrative records are free from the complicating matter of non-responses associated with survey data, they are not immune to attrition due to death and emigration. Given the rather descriptive nature of the previous analyses, attrition was simplistically dealt with, which would not be problematic if attrition occurred at random. However, it is well established that people with SMI have an excess risk of premature death (e.g., John et al., 2018) and that the mortality risk is likely to be negatively associated with labour market position (e.g., Nie et al., 2020).

Table 2: Attrition due to mortality and migration in the matched and the discordant sibling-pair samples, by diagnosis group, i.e., schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), major depressive disorders

	SSD		BPD		MDD	
Attrition	Yes	No	Yes	No	Yes	No
Panel A: Matched sample						
Death	7.35	1.39	7.10	1.75	6.01	1.56
Migration	4.00	4.20	2.80	2.61	2.44	3.11
Total	11.35	5.59	9.90	4.36	8.45	4.68
Sample size	6,124	30,620	2,353	11,765	12,502	62,510
Panel B: Sibling-pair sample						
Death	7.43	2.14	6.77	1.95	6.33	1.73
Migration	1.62	2.34	1.68	1.95	1.38	1.73
Total	9.05	4.48	8.45	3.89	7.71	3.46
Sample size	3,459	3,459	1,491	1,491	7,520	7,520

Table 2 gives a sense of the magnitude of the problem for the present study. Attrition due to emigration seem to be of similar magnitude in the SMI-groups as in the respective comparison groups. However, attrition due to death is as expected considerably higher within the SMI-groups than in the comparison groups: the mortality risk over the 10-year period is three to five times as high. Nevertheless, considering the magnitudes of the differences in the financial situation found in Sections 4.1 and 4.3 together with absolute differences in attrition of no more than 7.2 percentage points it is unlikely that adjusting for attrition would alter the main picture of the analyses. Rather, it is likely that it would show that the results in previous sections provide underestimates of the worsened labour market and financial situation following first-time in-patient diagnosis of SMI.

Furthermore, although the purpose of the study has not been to investigate the relationship between a first-time inpatient diagnosis of SMI and subsequent premature death, the results of this analysis can nevertheless be viewed as further evidence of the devastating effects these diseases can have on the lives of those affected.

5 Strengths and limitations

The present study has several strengths: First, it covers the total population. Second, the three categories of disorders are identified using reliable records of in-patient care. Third, outcomes are drawn from longitudinal administrative records on earnings and various social transfers, not only following, but also prior to, first-time in-patient diagnosis. Fourth, attrition is due only to emigration and premature death. Finally, it contrasts the financial situation of those diagnosed with SMI with both a matched comparison group and siblings discordant to the particular disorders (if any).

However, it also has some limitations: First, and most importantly, first-time in-patient diagnosis may not capture disease onset. Indeed, the data suggest that for a considerable percentage it does not. For schizophrenia, Häfner (2019) has shown that time between disease onset and first admission is largely dependent on how onset is defined: Average time between first psychotic episode and first admission was reported to be less than a month, while average time between first sign of illness and first admission was reported to be more than 5 years. Moreover, identifying individuals' first-time diagnosis through in-patient records only is likely to miss those with less severe representations of the disorders. Second, as in-patient records with full coverage are only available from 1987, first-time diagnosis (in in-patient care) would be miss-classified for those receiving in-patient care before 1987, and then again in 2001–2004, but not during the 14 years in between. Third, given the advanced social insurance system in Sweden, and other Nordic countries, the findings on the financial situation of people with SMI cannot be generalised to countries with less advanced welfare systems. The situation for people with SMI is likely to be even worse in many other countries. Finally, like in previous studies it is unlikely that the estimates can be interpreted as unbiased causal effects of SMI.

6 Conclusions

In this study, I have used administrative register data to provide a detailed picture of the financial situation of people with severe mental illness (SMI), in an advanced welfare state, during a $\pm$10-year period surrounding first-time in-patient diagnosis of schizophrenia spectrum, bipolar, or major depressive disorders. Because a considerable percentage of people with SMI are unlikely to earn their own living, particular focus has been placed on to what extent the social insurance system was able to compensate for forgone earnings.

A first set of findings of the study is that during a 10 year post-diagnosis period, and compared to matched individuals of the same age, sex, nativity, who were residing in the same county, those with schizophrenia spectrum, bipolar, and major depressive disorders had earnings that were 76–81, 61–70, and 47–61 percent lower, and had total incomes, including social transfers, that were 39–46, 26–32, and 20–25 percent lower, respectively. Social transfers compensated for most of the direct earnings

drop associated with first-time in-patient diagnosis, but neither for the pre-diagnosis earnings gap nor the lost earnings growth. The pre-diagnosis earnings gap and diverging earnings trends have different implications depending on the mechanism at work. On the one hand, if the explanation is that first-time in-patient diagnosis is a poor proxy for disease onset or that prodromal symptoms of the disorders are severe enough to have real labour market consequences, it could mean that previous cost-of-illness studies have underestimated the societal costs of these disorders. On the other hand, if the explanation is that there is a reverse causal relationship, where difficulties in the labour market have acted as stressors triggering mental illness, or that there are other important factors that have affected both the labour market situation and the risk of falling ill, the results in this study are instead to be considered as overestimates of the economic costs associated with these disorders.

Moreover, while the welfare system closed the income gap between people with SMI and their matched counterparts, it is apparent that there were substantial remaining differences. This might be expected given that psychotic and bipolar disorders often have an onset in adolescence. Some were likely not yet established on the labour market, but the point of departure for most social insurances is that they should insure against lost earnings due to a temporary or permanent inability to work (because of unemployment, sickness, disability, or parenting), which presupposes that there are earnings to be lost. Hence, some were only eligible for some basic amount or had to rely on means-tested social assistance. Neither do social transfers insure against the potential loss of earnings growth, which implies that the income gap widened over time.

A second set of findings concern the particular social insurances that people with SMI relied on. While the utilisation of all social insurances included in the study (i.e., sickness, disability and unemployment insurance, as well as means-tested social assistance) at most points in time was considerable higher among those with SMI than their matched counterparts without such diagnosis, there were distinct time patterns. In the year of diagnosis there was a huge increase in the utilisation of sickness insurance. Among those with schizophrenia spectrum, bipolar, and major depressive disorders 42, 69, and 72 percent received any sickness insurance (compared to 9–10 percent of their matched counterparts), and the received amounts were 2–6 times as large. However, there was a following, and equally large, drop in sickness insurance, when those with SMI seem to have been transferred to the disability insurance system. Two years after diagnosis, 53, 47, and 33 percent of those with schizophrenia spectrum, bipolar, and major depressive disorders, respectively, received disability insurance, and eight years later the same figures were 66, 58, and 40 percent. Hence, a majority of those with schizophrenia spectrum and bipolar disorders seem to have permanently left the labour market at least at part-time.

The general patterns observed in this study confirm the findings in previous studies. Even within an advanced welfare state, those with a severe mental illness – especially those with schizophrenia spectrum disorders – have an extremely weak position on the labour market and equally difficult financial situation.

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Appendix A Number of observations, weights, an weighted sample size

Table A1: The number of observations (N) and weighted sample sizes ($\sum w$) over time (relative to first-time in-patient diagnosis), in the samples of individuals with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)				Bipolar Disorders (BPD)				Major Depressive Disorders (MDD)			
	Yes		No		Yes		No		Yes		No	
Year	N	$\sum w$	N	$\sum w$	N	$\sum w$	N	$\sum w$	N	$\sum w$	N	$\sum w$
-10	3,863	3,848	19,517	3,848	1,793	1,791	8,904	1,791	8,405	8,394	42,124	8,394
-9	4,059	4,049	20,475	4,049	1,858	1,855	9,209	1,855	8,758	8,753	43,954	8,753
-8	4,263	4,254	21,500	4,254	1,905	1,903	9,482	1,903	9,098	9,092	45,665	9,092
-7	4,490	4,482	22,591	4,482	1,946	1,944	9,754	1,944	9,442	9,438	47,361	9,438
-6	4,693	4,689	23,596	4,689	2,012	2,009	10,050	2,009	9,792	9,788	49,109	9,788
-5	4,902	4,900	24,608	4,900	2,077	2,075	10,352	2,075	10,198	10,195	51,059	10,195
-4	5,140	5,140	25,789	5,140	2,131	2,131	10,659	2,131	10,601	10,599	53,052	10,599
-3	5,381	5,380	27,032	5,380	2,197	2,197	10,966	2,197	11,044	11,043	55,317	11,043
-2	5,619	5,619	28,186	5,619	2,254	2,254	11,226	2,254	11,459	11,459	57,445	11,459
-1	5,855	5,855	29,378	5,855	2,305	2,305	11,514	2,305	11,963	11,963	59,927	11,963
0	6,124	6,124	30,619	6,124	2,353	2,353	11,765	2,353	12,501	12,501	62,510	12,501
1	6,010	6,010	30,315	6,010	2,327	2,327	11,682	2,327	12,330	12,330	62,066	12,330
2	5,919	5,919	30,071	5,919	2,298	2,298	11,611	2,298	12,226	12,226	61,659	12,226
3	5,850	5,850	29,878	5,850	2,282	2,282	11,554	2,282	12,119	12,119	61,334	12,119
4	5,781	5,781	29,671	5,781	2,261	2,261	11,495	2,261	12,022	12,022	60,974	12,022
5	5,729	5,729	29,512	5,729	2,242	2,242	11,446	2,242	11,911	11,911	60,677	11,911
6	5,666	5,666	29,375	5,666	2,209	2,209	11,407	2,209	11,801	11,801	60,440	11,801
7	5,607	5,607	29,265	5,607	2,186	2,186	11,360	2,186	11,709	11,709	60,177	11,709
8	5,548	5,548	29,121	5,548	2,168	2,168	11,321	2,168	11,622	11,622	59,990	11,622
9	5,490	5,490	29,010	5,490	2,149	2,149	11,297	2,149	11,536	11,536	59,806	11,536
10	5,429	5,429	28,909	5,429	2,120	2,120	11,252	2,120	11,446	11,446	59,585	11,446

Appendix B Summary statistics

Table B1: Summary statistics for the matched samples and the discordant sibling-pair samples, respectively, by diagnosis group, i.e., schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), major depressive disorders (MDD), and the general population (GP) ages 18–54 years.

		Matched samples						Sibling-pair samples					
		SSD		BPD		MDD		SSD		BPD		MDD	
Characteristics	GP[a]	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Age													
18–19 yrs	4.80	5.09	5.09	2.85	2.85	6.12	6.12	4.25	4.16	1.74	2.82	4.50	3.42
20–24 yrs	11.94	15.35	15.35	11.09	11.09	14.00	14.00	16.68	15.29	12.34	11.13	14.71	14.22
25–29 yrs	12.95	14.03	14.03	10.79	10.79	12.38	12.38	15.09	15.58	11.87	10.66	13.31	13.50
30–34 yrs	14.11	14.08	14.08	12.41	12.41	12.67	12.68	14.57	15.18	13.28	13.75	13.39	13.77
35–39 yrs	15.15	15.07	15.07	15.68	15.68	14.56	14.56	15.61	14.63	16.97	16.10	15.69	15.75
40–44 yrs	13.70	14.11	14.11	14.53	14.53	13.35	13.35	14.05	14.86	14.69	17.77	14.32	14.30
45–49 yrs	13.48	11.30	11.30	16.36	16.36	13.64	13.64	11.22	12.43	16.90	16.57	14.02	14.14
50–54 yrs	13.87	10.97	10.97	16.28	16.28	13.28	13.28	8.53	7.86	12.21	11.20	10.05	10.92
Sex													
Male	50.89	54.47	54.47	42.46	42.46	40.66	40.66	55.36	51.66	42.72	48.22	41.08	48.85
Female	49.11	45.53	45.53	57.54	57.54	59.34	59.34	44.64	48.34	57.28	51.78	58.92	51.15
Nativity													
Swedish born	84.76	73.27	73.27	84.32	84.32	80.48	80.48	90.63	90.98	95.37	95.31	94.68	94.89
Foreign born	15.24	26.73	26.73	15.68	15.68	19.52	19.52	9.37	9.02	4.63	4.69	5.32	5.11
Attained education													
Unknown education	1.57	3.94	2.58	1.32	1.44	1.99	1.90	1.62	1.07	0.67	0.54	0.64	0.77
Compulsory schooling	16.52	28.98	16.98	18.19	16.20	24.89	17.11	27.52	18.94	17.37	15.36	22.45	18.35
Secondary schooling	50.10	45.62	49.07	50.57	49.43	49.90	49.59	48.05	50.04	50.91	49.09	52.48	52.08
Tertiary education	31.82	21.46	31.37	29.92	32.94	23.22	31.39	22.81	29.95	31.05	35.01	24.43	28.79
Cohort													
2001	25.09	25.26	25.26	23.03	23.03	24.63	24.63	25.30	25.30	23.41	23.41	24.99	24.99
2002	25.01	25.15	25.15	22.18	22.18	24.57	24.57	24.98	24.98	21.40	21.40	24.27	24.27
2003	24.96	24.59	24.59	26.86	26.86	24.15	24.15	24.00	24.00	27.57	27.57	24.13	24.13
2004	24.95	25.00	25.00	27.92	27.92	26.65	26.65	25.73	25.73	27.63	27.63	26.61	26.61
N[b]	17,372,608	6,124	30,619	2,353	11,765	12,501	62,510	3,459	3,459	1,491	1,491	7,519	7,519

Notes: All figures are percentages.

[a] Refers to the general population ages 18–54 years in each of the years 2001, 2002, 2003, and 2004. Therefore the sample size (N) is four times the actual population ages 18–54 years.

[b] N is the sample size.

Table B1: Cont'd.

		Matched samples						Sibling-pair samples					
		SSD		BPD		MDD		SSD		BPD		MDD	
Characteristics	GP[a]	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
County of residence													
Stockholm	22.25	25.60	25.61	22.06	22.06	21.93	21.93	23.01	24.00	20.39	21.60	19.50	20.23
Uppsala	3.52	3.59	3.59	4.67	4.67	4.71	4.71	3.64	3.79	5.23	4.56	4.64	4.10
Södermanland	2.74	3.07	3.07	5.18	5.18	3.60	3.60	3.15	2.98	4.69	3.82	3.99	3.32
Östergötland	4.60	3.41	3.41	3.48	3.48	3.65	3.65	3.44	3.96	3.62	4.69	3.83	4.27
Jönköping	3.52	3.64	3.64	4.38	4.38	4.80	4.80	3.99	3.47	4.83	3.96	5.12	4.42
Kronoberg	1.92	1.68	1.68	2.08	2.08	1.41	1.42	1.82	1.91	1.81	1.34	1.57	1.81
Kalmar	2.43	2.60	2.60	2.34	2.34	2.15	2.15	3.21	2.52	2.35	2.01	2.38	2.27
Gotland	0.62	0.70	0.70	0.72	0.72	0.69	0.69	0.84	0.66	0.80	0.80	0.76	0.72
Blekinge	1.59	1.16	1.16	1.23	1.23	1.21	1.21	1.33	1.13	1.27	1.34	1.32	1.36
Skåne	12.81	13.86	13.86	10.37	10.37	11.14	11.13	12.95	13.01	10.06	11.20	10.56	10.73
Halland	3.00	2.25	2.25	2.08	2.08	2.82	2.82	2.34	2.75	2.21	2.55	2.82	3.06
Västra Götaland	17.05	16.04	16.04	18.36	18.36	18.67	18.67	15.55	15.61	19.79	19.52	18.77	18.53
Värmland	2.89	2.14	2.14	2.72	2.72	1.75	1.75	2.20	2.02	2.95	2.88	2.01	2.25
Örebro	2.96	3.31	3.31	2.85	2.85	3.14	3.14	3.73	3.85	2.68	2.62	3.14	2.79
Västmanland	2.78	2.71	2.71	2.63	2.63	2.47	2.47	2.80	2.80	2.55	2.55	2.47	2.94
Dalarnas	2.88	2.91	2.90	3.48	3.48	3.51	3.51	3.35	3.21	3.42	2.68	3.96	3.48
Gävleborg	2.91	2.47	2.47	2.17	2.17	2.62	2.62	2.57	2.78	2.21	2.82	2.90	3.11
Västernorrland	2.55	2.06	2.06	1.53	1.53	2.37	2.37	2.05	1.85	1.14	1.21	2.53	2.71
Jämtland	1.36	1.05	1.05	1.06	1.06	1.67	1.67	0.98	1.21	1.27	1.27	1.82	1.99
Västerbotten	2.87	2.55	2.55	3.10	3.10	2.65	2.65	3.06	2.98	3.29	3.22	2.86	2.87
Norrbotten	2.74	3.20	3.20	3.48	3.48	3.05	3.05	3.96	3.53	3.42	3.35	3.06	3.03
N[b]	17,372,608	6,124	30,619	2,353	11,765	12,501	62,510	3,459	3,459	1,491	1,491	7,519	7,519

Notes: All figures are percentages.

[a] Refers to the general population ages 18–54 years in each of the years 2001, 2002, 2003, and 2004. Therefore the sample size (N) is four times the actual population ages 18–54 years.

[b] N is the sample size.

Appendix C A one-to-five exact covariate matching analysis

Table C1: The percentages having any earnings among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	64.5	84.1	-19.6	-23.3	0.000	78.7	86.3	-7.5	-8.7	0.000	80.6	85.1	-4.6	-5.4	0.000
-9	59.9	81.7	-21.8	-26.7	0.000	75.1	84.5	-9.4	-11.1	0.000	77.6	83.4	-5.9	-7.0	0.000
-8	55.9	80.5	-24.5	-30.5	0.000	73.8	83.2	-9.4	-11.3	0.000	75.2	82.5	-7.3	-8.9	0.000
-7	54.9	80.1	-25.2	-31.5	0.000	72.4	82.9	-10.5	-12.6	0.000	74.7	82.2	-7.5	-9.1	0.000
-6	54.2	80.6	-26.5	-32.8	0.000	70.2	83.4	-13.2	-15.8	0.000	75.0	82.5	-7.4	-9.0	0.000
-5	54.0	81.2	-27.3	-33.6	0.000	70.7	84.5	-13.8	-16.3	0.000	74.9	83.0	-8.1	-9.8	0.000
-4	54.0	82.2	-28.2	-34.3	0.000	69.9	84.8	-14.9	-17.6	0.000	75.9	83.8	-7.9	-9.5	0.000
-3	54.0	82.9	-29.0	-34.9	0.000	69.9	85.3	-15.4	-18.0	0.000	76.1	84.5	-8.4	-9.9	0.000
-2	52.4	83.9	-31.5	-37.5	0.000	69.3	85.4	-16.1	-18.9	0.000	76.5	85.1	-8.7	-10.2	0.000
-1	50.1	84.2	-34.1	-40.5	0.000	66.0	85.5	-19.4	-22.8	0.000	74.5	85.5	-11.0	-12.8	0.000
0	42.4	83.6	-41.2	-49.3	0.000	60.5	85.5	-25.0	-29.3	0.000	67.8	85.2	-17.4	-20.4	0.000
1	35.5	84.9	-49.4	-58.2	0.000	52.3	86.1	-33.9	-39.3	0.000	61.3	85.9	-24.6	-28.6	0.000
2	33.8	85.8	-52.0	-60.6	0.000	51.3	86.9	-35.6	-40.9	0.000	60.0	86.8	-26.8	-30.9	0.000
3	33.4	86.0	-52.6	-61.2	0.000	50.1	86.9	-36.7	-42.3	0.000	60.4	87.0	-26.6	-30.5	0.000
4	33.5	86.7	-53.2	-61.4	0.000	50.2	87.1	-36.9	-42.4	0.000	59.7	87.2	-27.5	-31.5	0.000
5	33.0	86.7	-53.7	-61.9	0.000	50.4	87.1	-36.7	-42.1	0.000	59.7	87.0	-27.4	-31.5	0.000
6	32.3	86.9	-54.6	-62.9	0.000	49.7	86.8	-37.1	-42.7	0.000	59.5	86.9	-27.4	-31.5	0.000
7	32.1	86.6	-54.5	-62.9	0.000	47.6	86.8	-39.2	-45.1	0.000	59.7	87.0	-27.3	-31.4	0.000
8	31.5	86.4	-54.9	-63.6	0.000	47.4	86.6	-39.2	-45.2	0.000	59.8	86.6	-26.8	-31.0	0.000
9	31.9	86.6	-54.7	-63.2	0.000	47.8	86.4	-38.6	-44.7	0.000	60.0	86.5	-26.4	-30.6	0.000
10	32.2	86.4	-54.2	-62.7	0.000	46.5	86.2	-39.8	-46.1	0.000	59.7	86.4	-26.7	-30.9	0.000

Notes: The averages correspond to those in the left graph of Figure 1.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the matched comparison group: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the matched comparison group: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the matched comparison group.

Table C2: The average annual earnings among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	79.5	145.3	-65.9	-45.3	0.000	108.4	152.8	-44.4	-29.1	0.000	120.2	147.7	-27.5	-18.6	0.000
-9	73.5	142.6	-69.1	-48.4	0.000	105.7	151.7	-46.0	-30.3	0.000	116.9	145.4	-28.5	-19.6	0.000
-8	69.7	143.1	-73.4	-51.3	0.000	108.0	153.3	-45.3	-29.5	0.000	115.2	147.1	-31.9	-21.7	0.000
-7	70.3	146.4	-76.1	-52.0	0.000	109.5	159.3	-49.8	-31.3	0.000	117.5	152.9	-35.3	-23.1	0.000
-6	71.0	154.4	-83.4	-54.0	0.000	111.1	167.3	-56.2	-33.6	0.000	121.3	160.3	-39.0	-24.3	0.000
-5	72.6	163.2	-90.6	-55.5	0.000	112.9	178.4	-65.5	-36.7	0.000	125.3	168.8	-43.5	-25.7	0.000
-4	74.7	172.7	-98.1	-56.8	0.000	114.7	188.3	-73.6	-39.1	0.000	130.7	177.7	-47.0	-26.5	0.000
-3	75.6	182.4	-106.9	-58.6	0.000	117.1	196.7	-79.6	-40.5	0.000	134.9	186.2	-51.3	-27.5	0.000
-2	75.5	191.3	-115.9	-60.6	0.000	115.0	204.7	-89.7	-43.8	0.000	135.1	193.2	-58.1	-30.1	0.000
-1	70.4	198.3	-127.8	-64.5	0.000	106.0	210.7	-104.7	-49.7	0.000	128.7	198.6	-69.8	-35.2	0.000
0	46.5	201.5	-155.0	-76.9	0.000	74.3	216.0	-141.7	-65.6	0.000	88.5	201.4	-112.9	-56.1	0.000
1	39.7	212.3	-172.6	-81.3	0.000	67.3	225.4	-158.1	-70.1	0.000	82.7	211.9	-129.3	-61.0	0.000
2	46.8	225.6	-178.7	-79.2	0.000	79.2	237.3	-158.1	-66.6	0.000	96.8	223.8	-127.0	-56.7	0.000
3	50.0	238.7	-188.7	-79.1	0.000	86.9	247.9	-161.0	-65.0	0.000	105.6	234.6	-129.0	-55.0	0.000
4	54.0	252.3	-198.2	-78.6	0.000	91.5	258.4	-166.9	-64.6	0.000	114.3	245.8	-131.5	-53.5	0.000
5	57.0	262.0	-205.0	-78.2	0.000	100.4	269.7	-169.3	-62.8	0.000	120.7	255.5	-134.7	-52.7	0.000
6	58.8	270.4	-211.6	-78.3	0.000	103.3	275.9	-172.6	-62.6	0.000	126.1	263.5	-137.3	-52.1	0.000
7	59.0	277.6	-218.6	-78.7	0.000	103.2	283.0	-179.9	-63.6	0.000	132.0	271.4	-139.4	-51.3	0.000
8	64.5	286.3	-221.7	-77.5	0.000	106.6	291.0	-184.4	-63.4	0.000	136.4	278.3	-141.9	-51.0	0.000
9	65.1	293.8	-228.6	-77.8	0.000	108.7	297.9	-189.2	-63.5	0.000	141.2	284.4	-143.2	-50.4	0.000
10	66.1	301.8	-235.7	-78.1	0.000	113.8	302.7	-188.9	-62.4	0.000	145.6	292.0	-146.4	-50.1	0.000

Notes: The averages correspond to those in the right graph of Figure 1. All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the matched comparison group: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the matched comparison group: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the matched comparison group.

Table C3: The average annual amounts of social transfers among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	64.4	40.1	24.3	60.5	0.000	61.4	38.8	22.6	58.2	0.000	52.9	39.3	13.7	34.9	0.000
-9	65.9	38.9	27.1	69.7	0.000	61.4	37.3	24.1	64.6	0.000	52.8	38.7	14.1	36.3	0.000
-8	66.3	38.7	27.7	71.6	0.000	61.8	37.6	24.2	64.4	0.000	53.1	38.2	14.9	39.1	0.000
-7	65.9	37.7	28.2	74.7	0.000	62.4	36.5	25.9	70.8	0.000	52.5	36.9	15.6	42.2	0.000
-6	67.0	36.0	30.9	85.9	0.000	64.9	35.7	29.2	81.8	0.000	53.4	36.0	17.3	48.0	0.000
-5	67.3	35.4	31.9	89.9	0.000	66.7	34.2	32.5	94.9	0.000	54.1	35.4	18.7	53.0	0.000
-4	68.3	35.0	33.3	95.2	0.000	70.4	34.0	36.5	107.4	0.000	55.6	35.3	20.2	57.2	0.000
-3	68.8	34.4	34.4	99.9	0.000	71.3	34.6	36.8	106.5	0.000	56.7	34.8	21.9	62.9	0.000
-2	69.7	34.0	35.7	105.1	0.000	77.9	34.7	43.2	124.3	0.000	61.1	34.3	26.8	78.2	0.000
-1	74.7	34.2	40.5	118.7	0.000	87.3	35.3	52.0	147.3	0.000	68.6	34.8	33.8	97.1	0.000
0	95.2	35.4	59.8	169.1	0.000	115.7	37.0	78.7	212.7	0.000	101.6	35.9	65.7	183.1	0.000
1	111.2	37.8	73.4	194.4	0.000	126.8	38.4	88.4	230.1	0.000	112.5	38.1	74.5	195.4	0.000
2	110.2	39.0	71.3	182.9	0.000	119.8	38.9	80.9	207.7	0.000	104.4	39.4	65.0	165.3	0.000
3	107.9	37.9	70.0	184.5	0.000	112.8	38.0	74.8	196.8	0.000	98.7	39.1	59.6	152.2	0.000
4	104.5	35.9	68.6	190.9	0.000	108.2	35.8	72.5	202.6	0.000	93.5	37.3	56.2	150.7	0.000
5	104.3	34.4	69.9	203.5	0.000	105.4	33.9	71.5	210.9	0.000	90.6	35.8	54.8	153.2	0.000
6	102.9	33.1	69.7	210.3	0.000	103.3	32.9	70.3	213.6	0.000	87.6	34.4	53.2	154.4	0.000
7	102.5	32.3	70.2	217.1	0.000	103.3	32.4	70.8	218.4	0.000	85.6	33.5	52.1	155.4	0.000
8	102.4	32.3	70.1	217.1	0.000	104.3	32.0	72.4	226.2	0.000	85.3	33.6	51.6	153.6	0.000
9	101.7	31.9	69.8	218.6	0.000	105.6	32.3	73.4	227.5	0.000	84.1	33.5	50.6	150.7	0.000
10	102.7	32.4	70.3	217.2	0.000	105.8	32.1	73.7	229.9	0.000	85.0	33.8	51.2	151.7	0.000

Notes: The averages correspond to those in the left graph of Figure 2. All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the matched comparison group: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the matched comparison group: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the matched comparison group.

Table C4: The average annual amounts of total income among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	138.8	180.7	-41.9	-23.2	0.000	168.8	188.6	-19.9	-10.5	0.000	170.5	184.3	-13.8	-7.5	0.000
-9	139.5	181.5	-42.0	-23.1	0.000	167.1	189.0	-21.9	-11.6	0.000	169.7	184.2	-14.5	-7.8	0.000
-8	136.0	181.7	-45.7	-25.2	0.000	169.8	190.9	-21.0	-11.0	0.000	168.3	185.2	-17.0	-9.2	0.000
-7	136.2	184.1	-47.9	-26.0	0.000	171.9	195.8	-23.9	-12.2	0.000	170.0	189.8	-19.7	-10.4	0.000
-6	137.9	190.4	-52.5	-27.6	0.000	176.0	203.0	-27.0	-13.3	0.000	174.6	196.4	-21.7	-11.1	0.000
-5	140.0	198.7	-58.7	-29.6	0.000	179.6	212.6	-33.1	-15.6	0.000	179.4	204.1	-24.7	-12.1	0.000
-4	143.0	207.7	-64.7	-31.2	0.000	185.1	222.3	-37.2	-16.7	0.000	186.2	213.0	-26.8	-12.6	0.000
-3	144.4	216.9	-72.5	-33.4	0.000	188.5	231.3	-42.8	-18.5	0.000	191.6	221.0	-29.4	-13.3	0.000
-2	145.1	225.3	-80.1	-35.6	0.000	192.8	239.4	-46.6	-19.5	0.000	196.3	227.5	-31.3	-13.7	0.000
-1	145.1	232.4	-87.3	-37.6	0.000	193.3	246.0	-52.7	-21.4	0.000	197.4	233.4	-36.0	-15.4	0.000
0	141.8	236.9	-95.2	-40.2	0.000	189.9	253.0	-63.0	-24.9	0.000	190.0	237.2	-47.2	-19.9	0.000
1	150.9	250.1	-99.2	-39.7	0.000	194.1	263.8	-69.7	-26.4	0.000	195.2	250.0	-54.8	-21.9	0.000
2	157.1	264.5	-107.4	-40.6	0.000	199.0	276.2	-77.2	-28.0	0.000	201.2	263.2	-61.9	-23.5	0.000
3	157.9	276.6	-118.8	-42.9	0.000	199.7	285.9	-86.2	-30.2	0.000	204.3	273.8	-69.5	-25.4	0.000
4	158.6	288.2	-129.6	-45.0	0.000	199.7	294.1	-94.4	-32.1	0.000	207.8	283.1	-75.3	-26.6	0.000
5	161.3	296.4	-135.1	-45.6	0.000	205.8	303.6	-97.8	-32.2	0.000	211.3	291.2	-79.9	-27.4	0.000
6	161.7	303.6	-141.9	-46.7	0.000	206.6	308.8	-102.3	-33.1	0.000	213.7	297.9	-84.2	-28.3	0.000
7	161.5	309.9	-148.4	-47.9	0.000	206.4	315.5	-109.0	-34.6	0.000	217.6	304.9	-87.3	-28.6	0.000
8	166.9	318.5	-151.6	-47.6	0.000	210.9	323.0	-112.0	-34.7	0.000	221.6	311.9	-90.3	-28.9	0.000
9	166.9	325.7	-158.8	-48.8	0.000	214.3	330.2	-115.8	-35.1	0.000	225.3	318.0	-92.7	-29.1	0.000
10	168.8	334.2	-165.4	-49.5	0.000	219.6	334.8	-115.2	-34.4	0.000	230.6	325.8	-95.2	-29.2	0.000

Notes: The averages correspond to those in the right graph of Figure 2. All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the matched comparison group: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the matched comparison group: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the matched comparison group.

Table C5: The percentages having received any sickness insurance (SI) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	25.8	17.6	8.1	46.0	0.000	35.2	18.5	16.8	90.7	0.000	29.1	17.9	11.2	62.6	0.000
-9	25.4	16.0	9.4	58.8	0.000	31.5	16.3	15.2	93.7	0.000	28.6	16.7	11.8	70.9	0.000
-8	21.0	12.6	8.3	66.2	0.000	29.8	13.4	16.4	123.0	0.000	24.0	13.1	10.8	82.4	0.000
-7	17.2	10.7	6.6	61.7	0.000	26.7	11.1	15.6	139.6	0.000	20.4	11.2	9.3	83.0	0.000
-6	16.0	10.0	6.0	60.2	0.000	28.0	10.6	17.4	164.7	0.000	20.0	10.6	9.4	87.9	0.000
-5	16.7	9.8	6.8	69.3	0.000	28.7	10.0	18.7	187.2	0.000	21.0	10.4	10.6	102.5	0.000
-4	16.6	10.3	6.3	61.3	0.000	27.5	11.2	16.4	146.2	0.000	23.1	10.9	12.2	111.9	0.000
-3	18.5	11.2	7.2	64.5	0.000	32.8	13.1	19.6	149.6	0.000	26.0	12.4	13.6	109.2	0.000
-2	19.6	12.6	7.0	55.5	0.000	36.9	14.5	22.4	155.0	0.000	31.1	13.5	17.6	130.5	0.000
-1	22.0	13.1	9.0	68.6	0.000	40.4	14.8	25.5	172.0	0.000	36.4	13.9	22.5	161.6	0.000
0	38.3	12.7	25.6	201.4	0.000	58.7	14.7	44.0	299.4	0.000	60.0	13.8	46.3	336.4	0.000
1	35.1	12.8	22.3	173.8	0.000	51.7	14.1	37.6	267.1	0.000	52.1	13.7	38.4	279.3	0.000
2	26.2	12.5	13.7	110.0	0.000	40.2	13.7	26.4	192.1	0.000	38.9	13.7	25.2	183.8	0.000
3	19.6	12.0	7.6	63.0	0.000	29.8	13.2	16.7	126.5	0.000	30.0	13.3	16.7	125.9	0.000
4	14.9	11.6	3.3	28.3	0.000	23.8	12.4	11.4	91.9	0.000	24.0	12.7	11.2	88.1	0.000
5	12.2	10.9	1.3	12.0	0.028	19.6	11.6	8.0	68.7	0.000	20.6	12.1	8.6	70.8	0.000
6	10.6	10.1	0.5	4.5	0.428	18.6	10.9	7.7	71.0	0.000	18.8	11.3	7.5	66.7	0.000
7	10.4	9.8	0.6	6.5	0.265	17.8	10.0	7.8	78.0	0.000	18.6	10.9	7.8	71.6	0.000
8	10.2	10.1	0.1	1.2	0.836	17.3	10.6	6.7	63.9	0.000	19.2	11.0	8.3	75.4	0.000
9	11.0	10.2	0.8	7.8	0.177	19.1	11.3	7.8	68.7	0.000	20.3	11.2	9.1	81.0	0.000
10	11.3	10.7	0.6	5.3	0.341	19.4	11.4	8.0	69.8	0.000	21.7	11.8	9.9	84.3	0.000

Notes: The averages correspond to those in the left graph of Figure 3.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the matched comparison group: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the matched comparison group: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the matched comparison group.

Table C6: The average annual amounts of sickness insurance (SI) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	10.1	4.4	5.7	129.4	0.000	14.8	4.4	10.4	233.5	0.000	9.0	4.2	4.8	112.9	0.000
-9	10.4	4.0	6.4	160.4	0.000	14.0	3.9	10.1	262.6	0.000	9.3	4.1	5.1	124.0	0.000
-8	9.6	3.4	6.2	180.5	0.000	14.2	3.8	10.4	274.3	0.000	8.4	3.5	4.9	138.6	0.000
-7	8.7	3.2	5.5	172.6	0.000	14.0	3.3	10.8	327.5	0.000	7.6	3.2	4.5	142.0	0.000
-6	8.9	3.1	5.7	184.2	0.000	15.2	3.5	11.7	333.4	0.000	8.1	3.3	4.8	144.8	0.000
-5	9.2	3.4	5.8	172.7	0.000	17.4	3.5	13.9	400.8	0.000	9.8	3.5	6.3	178.1	0.000
-4	10.4	4.2	6.2	146.3	0.000	20.9	4.3	16.5	380.4	0.000	12.1	4.2	7.9	185.8	0.000
-3	13.0	5.2	7.9	152.9	0.000	24.9	5.7	19.2	337.9	0.000	15.9	5.4	10.5	193.2	0.000
-2	15.5	6.2	9.3	151.1	0.000	30.8	6.8	24.0	354.9	0.000	22.0	6.4	15.6	243.6	0.000
-1	18.7	7.1	11.6	163.8	0.000	37.4	8.1	29.3	362.5	0.000	29.5	7.2	22.2	307.6	0.000
0	36.3	7.4	28.9	391.6	0.000	62.3	8.5	53.8	633.4	0.000	60.8	7.6	53.2	700.4	0.000
1	40.8	7.5	33.3	441.2	0.000	65.9	8.4	57.4	681.2	0.000	62.9	7.8	55.0	701.7	0.000
2	28.1	7.2	21.0	293.2	0.000	46.3	7.6	38.8	512.6	0.000	42.1	7.6	34.5	455.4	0.000
3	19.1	6.7	12.4	183.3	0.000	30.8	7.3	23.5	321.4	0.000	27.5	7.3	20.2	275.6	0.000
4	12.5	6.1	6.4	104.8	0.000	20.9	6.4	14.5	228.2	0.000	19.4	6.6	12.7	192.7	0.000
5	9.7	5.3	4.3	81.6	0.000	16.0	5.4	10.6	198.6	0.000	15.3	5.9	9.5	162.2	0.000
6	7.8	4.8	3.0	63.0	0.000	12.8	4.7	8.1	172.7	0.000	12.4	5.0	7.4	147.1	0.000
7	7.6	4.4	3.2	72.8	0.000	11.4	4.2	7.2	170.8	0.000	11.8	4.6	7.1	154.2	0.000
8	7.8	4.4	3.4	76.9	0.000	12.3	4.5	7.8	174.5	0.000	12.9	4.7	8.1	172.5	0.000
9	7.8	4.9	2.9	59.6	0.000	13.9	5.2	8.7	166.1	0.000	13.7	5.1	8.6	167.5	0.000
10	8.5	5.6	2.9	51.4	0.000	15.5	5.8	9.7	165.9	0.000	15.9	5.7	10.2	177.6	0.000

Notes: The averages correspond to those in the right graph of Figure 3. All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the matched comparison group: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the matched comparison group: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the matched comparison group.

Table C7: The percentages having received any disability insurance (DI) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	13.0	1.6	11.5	730.8	0.000	8.6	2.2	6.4	290.4	0.000	4.3	2.1	2.3	109.3	0.000
-9	14.3	1.8	12.5	691.7	0.000	9.6	2.5	7.1	285.4	0.000	5.0	2.3	2.7	115.3	0.000
-8	15.1	2.0	13.1	643.6	0.000	10.9	2.7	8.1	296.0	0.000	5.7	2.5	3.2	125.9	0.000
-7	16.2	2.2	14.0	633.4	0.000	11.9	3.1	8.8	287.5	0.000	6.2	2.7	3.5	131.8	0.000
-6	16.9	2.5	14.4	580.6	0.000	13.2	3.2	10.0	309.3	0.000	6.8	2.9	3.9	133.6	0.000
-5	17.9	2.6	15.3	581.7	0.000	14.2	3.5	10.7	305.4	0.000	7.2	3.1	4.1	134.7	0.000
-4	19.2	2.8	16.4	580.7	0.000	15.5	3.9	11.6	296.2	0.000	8.0	3.3	4.7	141.3	0.000
-3	20.7	3.1	17.5	556.2	0.000	17.2	4.4	12.8	287.6	0.000	8.8	3.7	5.1	140.2	0.000
-2	22.3	3.5	18.8	539.2	0.000	19.9	4.8	15.1	311.7	0.000	10.3	4.1	6.2	152.8	0.000
-1	24.8	3.9	20.9	528.9	0.000	23.0	5.5	17.5	319.6	0.000	12.3	4.5	7.7	170.3	0.000
0	29.6	4.5	25.2	562.5	0.000	26.7	6.1	20.6	336.2	0.000	15.2	5.1	10.1	198.4	0.000
1	40.7	5.3	35.4	672.6	0.000	34.3	7.0	27.2	388.8	0.000	21.7	5.9	15.7	266.7	0.000
2	50.8	5.9	44.8	754.0	0.000	43.6	7.8	35.8	459.8	0.000	29.4	6.6	22.8	346.2	0.000
3	57.5	6.6	50.9	777.0	0.000	50.6	8.5	42.1	493.7	0.000	35.7	7.3	28.4	391.5	0.000
4	62.0	7.1	54.9	773.0	0.000	54.5	9.0	45.5	504.8	0.000	39.0	7.9	31.1	395.6	0.000
5	64.5	7.4	57.1	766.7	0.000	56.3	9.2	47.0	508.8	0.000	40.4	8.3	32.1	388.4	0.000
6	65.4	7.7	57.7	751.9	0.000	57.2	9.4	47.8	506.9	0.000	40.4	8.5	31.8	373.1	0.000
7	64.9	7.6	57.3	753.7	0.000	56.5	9.3	47.2	507.6	0.000	38.9	8.5	30.4	359.7	0.000
8	63.8	7.5	56.3	754.1	0.000	55.5	9.2	46.4	505.7	0.000	37.0	8.2	28.7	349.5	0.000
9	63.2	7.3	56.0	771.8	0.000	55.0	9.0	46.0	508.2	0.000	35.6	8.1	27.5	338.5	0.000
10	63.4	7.3	56.1	768.7	0.000	54.5	8.9	45.6	510.2	0.000	34.9	8.0	26.8	333.7	0.000

Notes: The averages correspond to those in the left graph of Figure 4.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the matched comparison group: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the matched comparison group: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the matched comparison group.

Table C8: The average annual amounts of disability insurance (DI) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	13.0	1.5	11.4	746.7	0.000	8.1	2.0	6.0	294.2	0.000	4.1	1.9	2.2	114.2	0.000
-9	14.2	1.8	12.4	692.0	0.000	9.1	2.4	6.7	283.6	0.000	4.8	2.2	2.6	117.8	0.000
-8	15.2	2.0	13.2	664.2	0.000	10.2	2.6	7.6	296.0	0.000	5.3	2.4	3.0	125.1	0.000
-7	16.0	2.2	13.8	640.2	0.000	11.5	2.9	8.6	295.1	0.000	5.9	2.6	3.4	131.3	0.000
-6	16.9	2.4	14.5	608.3	0.000	12.6	3.1	9.5	310.5	0.000	6.5	2.8	3.8	137.0	0.000
-5	18.3	2.6	15.7	609.7	0.000	14.2	3.3	10.8	323.7	0.000	7.1	3.0	4.1	139.4	0.000
-4	19.9	2.8	17.1	616.1	0.000	15.8	3.7	12.2	330.5	0.000	7.8	3.2	4.6	143.8	0.000
-3	21.4	3.1	18.2	579.3	0.000	17.5	4.3	13.2	308.0	0.000	8.7	3.5	5.2	146.4	0.000
-2	23.2	3.5	19.7	570.2	0.000	20.2	4.6	15.5	334.4	0.000	10.2	3.9	6.3	160.6	0.000
-1	26.9	4.1	22.8	553.1	0.000	24.8	5.5	19.3	351.3	0.000	12.6	4.5	8.1	177.3	0.000
0	32.5	4.8	27.7	572.4	0.000	30.7	6.6	24.1	363.8	0.000	16.5	5.4	11.1	206.3	0.000
1	46.5	5.9	40.6	686.5	0.000	40.8	7.8	33.0	422.7	0.000	24.5	6.5	18.0	277.1	0.000
2	60.8	7.0	53.8	772.7	0.000	54.4	9.1	45.3	497.5	0.000	36.1	7.6	28.5	372.4	0.000
3	69.9	7.8	62.1	792.4	0.000	65.4	10.1	55.3	548.4	0.000	46.0	8.5	37.5	441.0	0.000
4	75.6	8.7	66.9	772.3	0.000	71.9	10.7	61.2	573.2	0.000	51.4	9.3	42.1	451.2	0.000
5	79.9	9.1	70.8	773.2	0.000	75.0	11.2	63.9	572.7	0.000	54.4	10.0	44.4	445.1	0.000
6	80.5	9.5	71.1	749.9	0.000	75.9	11.3	64.6	571.4	0.000	53.8	10.3	43.6	423.8	0.000
7	79.2	9.4	69.8	739.9	0.000	75.6	11.2	64.5	576.0	0.000	51.4	10.2	41.1	401.8	0.000
8	78.4	9.4	69.0	735.1	0.000	75.0	11.1	64.0	578.6	0.000	49.4	10.1	39.2	387.7	0.000
9	77.7	9.0	68.7	759.7	0.000	74.6	11.1	63.5	573.5	0.000	47.2	10.0	37.2	372.6	0.000
10	78.5	9.2	69.4	757.2	0.000	74.6	11.0	63.5	576.0	0.000	47.2	10.0	37.2	370.2	0.000

Notes: The averages correspond to those in the right graph of Figure 4. All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the matched comparison group: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the matched comparison group: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the matched comparison group.

Table C9: The percentages having received any unemployment insurance (UI) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	32.3	24.8	7.5	30.2	0.000	30.3	23.8	6.4	27.0	0.000	30.2	24.1	6.1	25.2	0.000
-9	31.2	24.7	6.6	26.6	0.000	31.2	22.8	8.4	36.6	0.000	30.0	24.3	5.7	23.3	0.000
-8	30.1	25.3	4.8	19.0	0.000	30.2	23.0	7.2	31.4	0.000	30.3	24.6	5.7	23.4	0.000
-7	29.4	24.4	5.0	20.3	0.000	29.8	22.6	7.2	32.1	0.000	29.8	23.9	5.9	24.7	0.000
-6	27.8	22.8	5.0	21.9	0.000	28.3	21.1	7.2	33.9	0.000	29.1	22.3	6.8	30.4	0.000
-5	25.6	21.0	4.5	21.6	0.000	24.8	19.4	5.4	28.0	0.000	27.3	20.7	6.6	31.8	0.000
-4	22.6	18.9	3.7	19.7	0.000	21.9	17.6	4.3	24.1	0.000	24.4	18.7	5.7	30.4	0.000
-3	20.4	16.3	4.1	25.0	0.000	18.9	15.1	3.8	25.1	0.001	21.3	16.5	4.8	29.0	0.000
-2	17.4	14.6	2.8	19.1	0.000	16.1	14.0	2.1	15.1	0.048	18.8	14.7	4.2	28.6	0.000
-1	15.8	13.2	2.6	19.5	0.000	14.5	13.0	1.5	11.6	0.137	16.5	13.2	3.3	24.6	0.000
0	12.8	13.2	-0.4	-2.9	0.526	12.9	12.8	0.1	0.8	0.917	14.0	13.0	1.0	7.6	0.022
1	8.9	14.0	-5.1	-36.3	0.000	10.2	12.8	-2.6	-20.1	0.006	12.4	13.6	-1.3	-9.2	0.003
2	8.8	14.9	-6.1	-40.8	0.000	9.7	13.2	-3.5	-26.7	0.000	13.9	14.3	-0.5	-3.2	0.304
3	8.5	13.6	-5.2	-37.9	0.000	8.9	12.2	-3.3	-27.3	0.000	13.7	13.3	0.3	2.5	0.456
4	7.5	12.0	-4.5	-37.2	0.000	8.7	10.6	-1.9	-17.9	0.031	12.3	11.6	0.7	6.1	0.090
5	7.3	10.6	-3.3	-31.0	0.000	7.8	9.5	-1.7	-17.8	0.044	10.8	10.3	0.5	4.5	0.244
6	7.9	9.7	-1.9	-19.1	0.000	8.8	9.0	-0.2	-2.3	0.810	11.5	9.5	2.0	20.9	0.000
7	9.3	9.6	-0.2	-2.5	0.671	10.6	8.7	2.0	22.6	0.029	13.1	9.0	4.0	44.7	0.000
8	9.6	9.6	0.0	0.2	0.973	12.6	8.9	3.7	41.0	0.000	13.7	9.3	4.4	47.9	0.000
9	10.7	9.4	1.2	13.1	0.031	13.0	8.5	4.5	53.0	0.000	14.6	9.1	5.4	59.2	0.000
10	10.5	8.8	1.8	20.0	0.002	11.7	7.6	4.1	54.8	0.000	13.7	8.8	4.9	56.3	0.000

Notes: The averages correspond to those in the left graph of Figure 5.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the matched comparison group: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the matched comparison group: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the matched comparison group.

Table C10: The average annual amounts of unemployment insurance (UI) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	23.5	16.8	6.7	40.0	0.000	20.0	15.5	4.5	29.3	0.003	20.8	16.2	4.6	28.3	0.000
-9	23.6	16.3	7.3	44.6	0.000	21.4	14.7	6.7	45.3	0.000	20.6	15.9	4.7	29.4	0.000
-8	21.2	16.6	4.6	28.0	0.000	19.8	15.0	4.8	31.9	0.000	20.5	15.8	4.7	30.1	0.000
-7	20.3	15.5	4.7	30.6	0.000	19.7	14.4	5.4	37.2	0.000	20.3	14.9	5.4	36.0	0.000
-6	19.4	14.0	5.4	38.4	0.000	19.2	13.1	6.0	45.8	0.000	19.4	13.7	5.7	41.5	0.000
-5	17.8	12.7	5.0	39.6	0.000	16.7	11.9	4.8	39.9	0.000	17.8	12.5	5.3	42.1	0.000
-4	15.5	11.1	4.4	39.2	0.000	14.5	10.6	4.0	37.6	0.000	15.5	11.2	4.3	38.4	0.000
-3	13.0	9.5	3.5	36.6	0.000	10.8	8.9	1.9	21.8	0.034	12.5	9.4	3.1	32.7	0.000
-2	10.9	8.3	2.7	32.1	0.000	9.7	8.2	1.5	18.7	0.079	11.0	8.2	2.7	33.2	0.000
-1	9.8	7.6	2.2	29.1	0.000	8.9	7.5	1.4	18.0	0.108	9.6	7.6	2.0	26.8	0.000
0	6.8	8.1	-1.2	-15.4	0.010	7.4	7.9	-0.5	-6.0	0.552	7.4	8.0	-0.6	-7.6	0.075
1	5.5	9.2	-3.7	-40.1	0.000	6.4	8.4	-2.0	-23.4	0.016	7.8	8.7	-0.9	-10.8	0.011
2	6.0	10.0	-4.0	-40.0	0.000	6.1	9.1	-2.9	-32.4	0.000	9.3	9.2	0.1	0.9	0.828
3	5.5	9.2	-3.7	-40.5	0.000	5.7	8.0	-2.3	-28.4	0.004	8.9	8.6	0.3	3.8	0.396
4	4.8	7.8	-3.0	-38.7	0.000	5.6	6.6	-1.1	-16.2	0.149	7.4	7.1	0.3	4.5	0.359
5	4.3	7.0	-2.7	-38.2	0.000	5.0	6.0	-1.0	-16.8	0.157	6.7	6.4	0.3	4.1	0.427
6	4.8	6.3	-1.6	-25.0	0.000	5.3	5.9	-0.6	-9.7	0.428	6.9	5.9	1.0	17.0	0.002
7	5.6	6.3	-0.7	-11.2	0.133	6.7	6.0	0.7	12.1	0.353	7.8	5.9	1.9	32.9	0.000
8	6.1	6.7	-0.6	-9.2	0.212	8.2	6.0	2.2	36.7	0.007	8.5	6.4	2.2	34.4	0.000
9	6.2	6.5	-0.3	-4.7	0.537	8.7	6.0	2.7	45.0	0.001	9.0	6.3	2.7	42.3	0.000
10	6.1	6.2	-0.1	-2.3	0.769	6.9	5.4	1.6	29.0	0.044	8.2	6.1	2.1	34.9	0.000

Notes: The averages correspond to those in the right graph of Figure 5. All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the matched comparison group: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the matched comparison group: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the matched comparison group.

Table C11: The percentages having received any means-tested social assistance (SA) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	28.2	12.6	15.6	124.4	0.000	20.5	10.6	10.0	94.4	0.000	21.2	11.5	9.6	83.5	0.000
-9	28.8	12.8	16.0	124.4	0.000	18.2	10.6	7.6	71.9	0.000	20.7	11.5	9.2	80.6	0.000
-8	30.8	13.9	16.9	121.7	0.000	19.6	11.0	8.6	78.0	0.000	21.8	12.2	9.7	79.4	0.000
-7	30.4	13.9	16.6	119.5	0.000	20.2	11.3	8.9	78.6	0.000	22.8	12.0	10.8	89.5	0.000
-6	30.6	13.7	16.9	123.5	0.000	20.4	11.2	9.1	81.5	0.000	22.4	12.0	10.4	87.2	0.000
-5	30.6	13.0	17.6	135.7	0.000	19.5	10.3	9.2	89.7	0.000	21.2	11.2	10.0	89.1	0.000
-4	29.1	11.9	17.2	144.9	0.000	18.4	9.2	9.2	99.5	0.000	20.6	10.2	10.4	101.8	0.000
-3	27.5	10.1	17.4	171.8	0.000	15.8	7.7	8.2	106.6	0.000	18.3	8.7	9.6	109.6	0.000
-2	26.4	8.4	18.0	215.1	0.000	16.0	6.2	9.8	159.3	0.000	17.0	7.1	9.8	138.0	0.000
-1	27.8	7.9	19.9	251.1	0.000	16.7	6.0	10.7	178.5	0.000	17.8	6.6	11.3	171.8	0.000
0	32.4	7.5	24.9	334.1	0.000	21.2	5.6	15.6	278.0	0.000	23.6	6.1	17.5	284.5	0.000
1	31.8	7.3	24.6	338.0	0.000	19.5	5.3	14.2	264.8	0.000	24.3	6.1	18.2	300.3	0.000
2	27.7	7.2	20.5	284.6	0.000	17.7	5.4	12.3	229.5	0.000	22.3	5.9	16.4	277.8	0.000
3	23.8	6.3	17.5	277.0	0.000	15.4	4.9	10.4	211.1	0.000	19.5	5.2	14.2	271.1	0.000
4	20.5	5.7	14.8	259.6	0.000	13.3	4.5	8.7	192.7	0.000	17.3	4.6	12.7	276.0	0.000
5	19.0	5.3	13.7	258.9	0.000	12.7	4.3	8.4	193.5	0.000	14.9	4.3	10.6	244.6	0.000
6	17.5	5.0	12.5	249.5	0.000	11.4	4.0	7.3	182.4	0.000	14.2	4.4	9.9	226.5	0.000
7	17.3	4.7	12.6	264.3	0.000	11.3	3.7	7.6	205.0	0.000	14.3	4.1	10.2	245.6	0.000
8	16.4	4.7	11.7	250.5	0.000	10.4	3.9	6.5	166.2	0.000	13.6	4.0	9.6	239.1	0.000
9	15.4	4.3	11.2	260.4	0.000	9.2	3.7	5.5	147.5	0.000	12.9	3.8	9.1	238.1	0.000
10	14.4	4.0	10.5	262.7	0.000	8.3	3.2	5.1	161.0	0.000	11.9	3.6	8.3	230.6	0.000

Notes: The averages correspond to those in the left graph of Figure 6.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the matched comparison group: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the matched comparison group: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the matched comparison group.

Table C12: The average annual amounts of means-tested social assistance (SA) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective matched comparison group.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	8.1	2.8	5.3	191.9	0.000	4.0	2.3	1.7	77.5	0.001	4.5	2.4	2.1	87.4	0.000
-9	8.9	2.8	6.0	211.3	0.000	4.1	2.3	1.8	76.3	0.000	4.5	2.5	2.0	82.2	0.000
-8	9.4	3.2	6.2	192.3	0.000	4.4	2.4	1.9	78.6	0.000	4.9	2.7	2.2	82.3	0.000
-7	9.8	3.3	6.5	194.2	0.000	4.3	2.6	1.7	62.5	0.000	5.3	2.8	2.5	89.1	0.000
-6	10.3	3.3	6.9	206.8	0.000	4.6	2.7	1.9	67.8	0.000	5.6	2.7	2.8	102.0	0.000
-5	10.3	3.2	7.1	220.8	0.000	4.5	2.4	2.0	82.8	0.000	5.4	2.7	2.7	102.2	0.000
-4	10.6	3.1	7.5	243.5	0.000	4.7	2.2	2.5	112.7	0.000	5.1	2.5	2.7	107.3	0.000
-3	10.1	2.7	7.4	268.2	0.000	4.0	2.0	2.0	98.4	0.000	4.8	2.2	2.7	121.6	0.000
-2	9.9	2.4	7.5	309.5	0.000	3.9	1.7	2.2	133.1	0.000	4.7	1.8	2.8	157.0	0.000
-1	10.3	2.3	8.0	353.3	0.000	4.6	1.6	3.0	190.2	0.000	4.8	1.7	3.1	182.2	0.000
0	12.3	2.2	10.1	460.8	0.000	6.3	1.6	4.7	294.4	0.000	6.9	1.7	5.2	312.3	0.000
1	12.5	2.2	10.3	476.9	0.000	6.0	1.5	4.5	297.1	0.000	8.0	1.6	6.4	388.3	0.000
2	10.0	2.1	8.0	385.3	0.000	5.1	1.5	3.6	239.9	0.000	7.4	1.6	5.8	367.1	0.000
3	8.3	1.8	6.5	352.4	0.000	3.8	1.3	2.5	192.5	0.000	6.3	1.4	4.8	336.4	0.000
4	7.0	1.6	5.3	329.8	0.000	3.7	1.3	2.4	190.9	0.000	5.5	1.3	4.2	328.0	0.000
5	6.2	1.6	4.6	292.1	0.000	3.4	1.2	2.2	175.0	0.000	4.7	1.3	3.5	275.5	0.000
6	6.0	1.6	4.4	279.9	0.000	3.4	1.3	2.1	169.4	0.000	4.8	1.3	3.5	261.5	0.000
7	6.3	1.6	4.8	301.7	0.000	3.4	1.2	2.2	175.1	0.000	5.0	1.3	3.7	283.8	0.000
8	6.4	1.6	4.7	293.2	0.000	3.4	1.3	2.1	157.7	0.000	5.0	1.3	3.7	278.9	0.000
9	6.6	1.5	5.0	330.4	0.000	3.1	1.3	1.8	140.6	0.000	4.9	1.3	3.6	279.1	0.000
10	6.1	1.5	4.6	307.8	0.000	3.1	1.2	1.8	151.4	0.000	4.7	1.3	3.4	260.7	0.000

Notes: The averages correspond to those in the right graph of Figure 6. All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the matched comparison group: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the matched comparison group: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the matched comparison group.

Appendix D A discordant sibling-pair analysis

Table D1: The percentages having any earnings among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective comparison group of discordant siblings.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	68.3	83.3	-15.0	-18.0	0.000	79.8	86.0	-6.2	-7.2	0.000	83.4	86.0	-2.6	-3.0	0.000
-9	64.4	81.6	-17.2	-21.0	0.000	76.8	85.2	-8.4	-9.9	0.000	80.9	85.0	-4.1	-4.8	0.000
-8	61.5	81.5	-20.0	-24.5	0.000	74.8	83.6	-8.7	-10.5	0.000	79.1	83.9	-4.8	-5.7	0.000
-7	59.8	79.3	-19.4	-24.5	0.000	75.0	84.2	-9.1	-10.8	0.000	78.7	83.3	-4.7	-5.6	0.000
-6	59.2	79.9	-20.6	-25.8	0.000	72.9	81.8	-8.9	-10.8	0.000	78.8	83.4	-4.7	-5.6	0.000
-5	59.2	80.0	-20.8	-26.0	0.000	73.2	83.5	-10.3	-12.4	0.000	78.6	83.8	-5.2	-6.2	0.000
-4	58.6	80.2	-21.6	-27.0	0.000	72.3	83.8	-11.5	-13.7	0.000	79.4	84.7	-5.3	-6.2	0.000
-3	58.4	81.2	-22.8	-28.1	0.000	71.6	84.4	-12.7	-15.1	0.000	79.3	85.3	-6.0	-7.1	0.000
-2	57.0	81.7	-24.8	-30.3	0.000	71.6	86.2	-14.6	-16.9	0.000	79.5	85.5	-6.0	-7.0	0.000
-1	54.4	82.1	-27.8	-33.8	0.000	68.9	86.7	-17.8	-20.6	0.000	77.8	86.1	-8.3	-9.7	0.000
0	46.9	81.5	-34.6	-42.5	0.000	63.9	85.9	-22.0	-25.6	0.000	71.5	85.4	-13.8	-16.2	0.000
1	39.6	81.3	-41.7	-51.3	0.000	55.3	86.4	-31.1	-36.0	0.000	64.6	85.6	-21.0	-24.5	0.000
2	37.2	82.1	-45.0	-54.8	0.000	55.0	86.5	-31.6	-36.5	0.000	63.0	86.1	-23.0	-26.8	0.000
3	36.9	82.4	-45.5	-55.2	0.000	53.7	87.8	-34.1	-38.9	0.000	63.6	85.6	-22.0	-25.7	0.000
4	36.8	82.4	-45.6	-55.4	0.000	53.9	87.0	-33.1	-38.0	0.000	63.2	85.8	-22.6	-26.4	0.000
5	36.1	82.9	-46.7	-56.4	0.000	53.7	87.2	-33.5	-38.5	0.000	62.8	86.3	-23.5	-27.2	0.000
6	35.4	82.6	-47.2	-57.2	0.000	53.0	86.3	-33.3	-38.6	0.000	62.6	85.9	-23.3	-27.1	0.000
7	35.7	82.7	-47.0	-56.8	0.000	51.3	86.9	-35.6	-41.0	0.000	63.0	85.6	-22.6	-26.4	0.000
8	35.1	82.0	-46.9	-57.2	0.000	51.0	85.5	-34.5	-40.4	0.000	63.1	85.3	-22.2	-26.0	0.000
9	35.5	81.6	-46.1	-56.5	0.000	50.6	86.3	-35.8	-41.4	0.000	63.4	85.3	-21.9	-25.7	0.000
10	35.5	81.9	-46.3	-56.6	0.000	49.2	86.0	-36.7	-42.7	0.000	63.2	84.8	-21.6	-25.5	0.000

[a] Years relative to first-time in-patient diagnosis of the particular disorder.
[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the comparison group of discordant siblings: $\bar{y}_{Yes} - \bar{y}_{No}$.
[c] The relative difference is the absolute difference in percent of the mean of the comparison group of discordant siblings: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.
[d] The p-value from a test of equal means of the SMI-group and the comparison group of discordant siblings.

Table D2: The average annual earnings among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective comparison group of discordant siblings.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	87.6	139.3	-51.7	-37.1	0.000	109.2	151.4	-42.2	-27.9	0.000	124.9	147.7	-22.8	-15.4	0.000
-9	81.9	137.2	-55.3	-40.3	0.000	108.0	149.2	-41.2	-27.6	0.000	123.3	147.0	-23.7	-16.1	0.000
-8	78.8	138.5	-59.7	-43.1	0.000	109.2	149.3	-40.1	-26.9	0.000	122.0	150.1	-28.1	-18.7	0.000
-7	79.9	143.7	-63.8	-44.4	0.000	112.3	158.2	-46.0	-29.0	0.000	125.8	154.0	-28.2	-18.3	0.000
-6	81.3	149.3	-68.0	-45.6	0.000	116.2	167.4	-51.2	-30.6	0.000	129.4	160.6	-31.1	-19.4	0.000
-5	83.2	157.3	-74.1	-47.1	0.000	119.1	179.5	-60.4	-33.6	0.000	133.0	170.0	-37.0	-21.8	0.000
-4	85.8	165.6	-79.7	-48.2	0.000	118.8	181.9	-63.1	-34.7	0.000	138.7	177.7	-39.1	-22.0	0.000
-3	86.1	175.4	-89.3	-50.9	0.000	120.2	192.5	-72.3	-37.6	0.000	142.3	185.4	-43.2	-23.3	0.000
-2	85.7	179.9	-94.2	-52.4	0.000	118.1	204.8	-86.8	-42.4	0.000	142.4	190.1	-47.7	-25.1	0.000
-1	81.6	189.3	-107.7	-56.9	0.000	111.2	211.4	-100.2	-47.4	0.000	137.8	197.7	-59.9	-30.3	0.000
0	53.9	189.9	-136.0	-71.6	0.000	75.8	216.8	-141.0	-65.0	0.000	95.8	201.8	-106.0	-52.5	0.000
1	45.9	198.0	-152.2	-76.8	0.000	68.2	217.8	-149.6	-68.7	0.000	89.9	209.9	-120.1	-57.2	0.000
2	54.3	210.0	-155.7	-74.1	0.000	82.6	231.4	-148.9	-64.3	0.000	106.0	219.8	-113.7	-51.8	0.000
3	57.6	222.5	-164.9	-74.1	0.000	91.5	240.9	-149.5	-62.0	0.000	115.7	230.0	-114.2	-49.7	0.000
4	62.5	231.1	-168.7	-73.0	0.000	98.2	259.9	-161.7	-62.2	0.000	124.3	241.6	-117.2	-48.5	0.000
5	64.5	241.7	-177.2	-73.3	0.000	107.7	270.3	-162.5	-60.1	0.000	131.6	251.7	-120.1	-47.7	0.000
6	66.8	249.8	-183.0	-73.3	0.000	111.5	275.9	-164.4	-59.6	0.000	137.1	259.6	-122.5	-47.2	0.000
7	67.8	256.6	-188.8	-73.6	0.000	110.2	283.2	-172.9	-61.1	0.000	143.9	266.6	-122.7	-46.0	0.000
8	75.8	264.2	-188.4	-71.3	0.000	115.7	313.5	-197.8	-63.1	0.000	149.1	273.9	-124.8	-45.6	0.000
9	74.6	271.2	-196.6	-72.5	0.000	118.0	300.3	-182.3	-60.7	0.000	153.4	281.8	-128.4	-45.6	0.000
10	75.9	282.4	-206.5	-73.1	0.000	125.2	303.8	-178.6	-58.8	0.000	158.2	288.6	-130.4	-45.2	0.000

Notes: All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the comparison group of discordant siblings: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the comparison group of discordant siblings: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the comparison group of discordant siblings.

Table D3: The average annual amounts of social transfers among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective comparison group of discordant siblings.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	63.1	46.0	17.1	37.1	0.000	62.6	44.4	18.2	41.0	0.000	54.2	43.9	10.3	23.4	0.000
-9	64.9	44.7	20.2	45.3	0.000	63.1	44.2	18.9	42.9	0.000	52.6	43.0	9.6	22.3	0.000
-8	65.8	44.9	20.9	46.4	0.000	63.1	44.3	18.8	42.4	0.000	52.7	42.7	10.1	23.6	0.000
-7	64.9	43.5	21.4	49.2	0.000	63.1	41.9	21.2	50.5	0.000	52.1	41.5	10.6	25.4	0.000
-6	66.8	42.9	23.9	55.7	0.000	64.6	40.5	24.1	59.5	0.000	52.9	41.1	11.8	28.8	0.000
-5	67.5	42.0	25.5	60.7	0.000	64.1	40.3	23.8	58.9	0.000	53.6	40.3	13.3	33.0	0.000
-4	67.2	40.9	26.3	64.4	0.000	68.9	41.2	27.7	67.1	0.000	54.9	39.6	15.3	38.5	0.000
-3	68.9	40.6	28.3	69.6	0.000	70.0	40.8	29.2	71.6	0.000	56.6	39.7	16.9	42.6	0.000
-2	70.2	39.8	30.4	76.3	0.000	76.7	39.8	36.8	92.5	0.000	61.3	39.5	21.8	55.3	0.000
-1	76.0	40.0	36.0	89.9	0.000	88.2	40.2	48.0	119.2	0.000	68.7	40.9	27.8	67.9	0.000
0	100.3	42.3	57.9	136.8	0.000	119.1	41.7	77.4	185.6	0.000	105.5	43.0	62.6	145.7	0.000
1	116.2	44.9	71.4	159.1	0.000	130.1	45.0	85.1	189.1	0.000	115.9	45.7	70.2	153.8	0.000
2	114.4	45.7	68.7	150.5	0.000	121.2	45.0	76.3	169.5	0.000	106.0	46.5	59.5	128.1	0.000
3	112.5	44.6	67.9	152.0	0.000	113.2	43.6	69.6	159.6	0.000	99.5	45.6	53.9	118.1	0.000
4	108.0	43.0	65.0	150.9	0.000	108.0	40.3	67.7	168.3	0.000	93.4	42.9	50.4	117.5	0.000
5	108.1	41.1	67.0	163.2	0.000	105.1	40.4	64.7	160.2	0.000	90.2	40.3	50.0	124.1	0.000
6	106.6	39.7	66.9	168.3	0.000	103.7	37.0	66.7	180.2	0.000	87.5	38.9	48.6	124.8	0.000
7	105.7	39.7	66.0	166.0	0.000	103.6	34.4	69.3	201.5	0.000	84.8	37.4	47.4	126.7	0.000
8	105.4	38.8	66.6	171.6	0.000	104.8	35.1	69.8	198.8	0.000	84.2	37.9	46.3	122.3	0.000
9	104.2	38.3	65.9	172.2	0.000	105.2	34.6	70.6	204.3	0.000	83.2	37.2	46.0	123.8	0.000
10	104.5	38.7	65.8	170.2	0.000	104.3	35.2	69.2	196.6	0.000	84.2	37.5	46.7	124.3	0.000

Notes: All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the comparison group of discordant siblings: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the comparison group of discordant siblings: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the comparison group of discordant siblings.

Table D4: The average annual amounts of total income among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective comparison group of discordant siblings.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	145.4	178.6	-33.1	-18.5	0.000	171.7	194.0	-22.4	-11.5	0.000	176.4	187.8	-11.4	-6.1	0.000
-9	146.8	181.9	-35.1	-19.3	0.000	171.1	193.4	-22.2	-11.5	0.000	175.9	190.0	-14.1	-7.4	0.000
-8	144.6	183.4	-38.8	-21.2	0.000	172.3	193.6	-21.3	-11.0	0.000	174.7	192.8	-18.0	-9.3	0.000
-7	144.9	187.3	-42.4	-22.6	0.000	175.3	200.1	-24.8	-12.4	0.000	177.9	195.5	-17.6	-9.0	0.000
-6	148.1	192.2	-44.1	-23.0	0.000	180.8	207.9	-27.1	-13.0	0.000	182.4	201.7	-19.3	-9.6	0.000
-5	150.6	199.3	-48.6	-24.4	0.000	183.2	219.9	-36.6	-16.7	0.000	186.6	210.4	-23.7	-11.3	0.000
-4	153.1	206.5	-53.4	-25.9	0.000	187.7	223.1	-35.5	-15.9	0.000	193.6	217.4	-23.8	-10.9	0.000
-3	155.0	216.0	-61.0	-28.2	0.000	190.2	233.3	-43.1	-18.5	0.000	198.9	225.1	-26.2	-11.7	0.000
-2	155.9	219.7	-63.8	-29.0	0.000	194.7	244.7	-49.9	-20.4	0.000	203.7	229.5	-25.9	-11.3	0.000
-1	157.5	229.3	-71.8	-31.3	0.000	199.4	251.7	-52.3	-20.8	0.000	206.5	238.6	-32.1	-13.5	0.000
0	154.2	232.2	-78.0	-33.6	0.000	194.9	258.5	-63.6	-24.6	0.000	201.4	244.8	-43.4	-17.7	0.000
1	162.1	242.9	-80.8	-33.3	0.000	198.3	262.8	-64.5	-24.5	0.000	205.8	255.6	-49.8	-19.5	0.000
2	168.7	255.7	-87.0	-34.0	0.000	203.8	276.4	-72.6	-26.3	0.000	212.0	266.2	-54.2	-20.4	0.000
3	170.1	267.2	-97.1	-36.3	0.000	204.6	284.6	-79.9	-28.1	0.000	215.3	275.6	-60.4	-21.9	0.000
4	170.5	274.2	-103.7	-37.8	0.000	206.2	300.2	-94.0	-31.3	0.000	217.7	284.5	-66.8	-23.5	0.000
5	172.6	282.8	-110.2	-39.0	0.000	212.9	310.7	-97.8	-31.5	0.000	221.8	291.9	-70.1	-24.0	0.000
6	173.4	289.6	-116.2	-40.1	0.000	215.2	312.9	-97.7	-31.2	0.000	224.6	298.5	-73.9	-24.8	0.000
7	173.5	296.4	-122.8	-41.4	0.000	213.9	317.6	-103.7	-32.7	0.000	228.7	304.1	-75.3	-24.8	0.000
8	181.2	303.0	-121.8	-40.2	0.000	220.5	348.6	-128.1	-36.7	0.000	233.3	311.8	-78.5	-25.2	0.000
9	178.8	309.4	-130.7	-42.2	0.000	223.2	334.8	-111.6	-33.3	0.000	236.6	319.0	-82.3	-25.8	0.000
10	180.4	321.0	-140.7	-43.8	0.000	229.5	339.0	-109.5	-32.3	0.000	242.4	326.1	-83.7	-25.7	0.000

Notes: All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the comparison group of discordant siblings: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the comparison group of discordant siblings: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the comparison group of discordant siblings.

Table D5: The percentages having received any sickness insurance (SI) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective comparison group of discordant siblings.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	27.9	20.9	7.0	33.6	0.000	35.4	22.2	13.2	59.6	0.000	30.3	21.1	9.2	43.8	0.000
-9	26.2	19.3	6.9	36.0	0.000	33.0	21.4	11.6	54.0	0.000	29.3	20.6	8.7	42.1	0.000
-8	22.6	14.3	8.2	57.4	0.000	30.5	17.3	13.2	76.6	0.000	24.2	16.6	7.6	46.0	0.000
-7	18.1	12.3	5.7	46.5	0.000	28.1	14.9	13.2	88.2	0.000	21.2	14.6	6.6	45.6	0.000
-6	17.0	11.8	5.2	44.1	0.000	29.1	12.8	16.3	127.2	0.000	20.8	13.1	7.6	58.1	0.000
-5	17.5	11.1	6.4	57.5	0.000	28.2	14.5	13.7	94.6	0.000	21.6	12.3	9.3	75.2	0.000
-4	17.7	12.5	5.2	41.7	0.000	27.3	14.3	13.0	90.6	0.000	23.3	13.5	9.8	72.6	0.000
-3	19.5	12.7	6.8	53.8	0.000	33.5	15.3	18.2	119.1	0.000	26.7	14.9	11.7	78.5	0.000
-2	21.3	13.7	7.6	56.0	0.000	37.4	17.3	20.1	116.5	0.000	31.8	16.2	15.6	96.4	0.000
-1	24.3	14.1	10.2	72.8	0.000	41.6	17.6	24.0	136.0	0.000	37.5	17.4	20.1	115.7	0.000
0	43.9	14.0	29.9	213.0	0.000	62.0	16.5	45.5	276.0	0.000	64.4	17.9	46.5	260.1	0.000
1	39.9	14.5	25.4	174.9	0.000	54.3	17.4	36.9	212.5	0.000	55.6	17.1	38.5	225.8	0.000
2	30.2	13.9	16.3	117.1	0.000	42.0	15.5	26.4	169.9	0.000	41.7	16.3	25.4	155.5	0.000
3	23.1	12.3	10.8	87.4	0.000	31.1	15.9	15.2	95.2	0.000	32.3	15.6	16.7	106.7	0.000
4	16.9	11.8	5.1	43.5	0.000	24.6	15.3	9.3	61.1	0.000	25.9	15.5	10.5	67.8	0.000
5	14.1	11.8	2.3	19.4	0.007	20.3	14.3	6.0	42.0	0.000	22.1	13.6	8.5	62.6	0.000
6	11.9	11.3	0.6	5.3	0.455	19.6	12.4	7.2	57.9	0.000	20.4	12.5	7.8	62.5	0.000
7	11.5	10.7	0.9	8.1	0.277	18.3	13.0	5.2	40.1	0.000	19.8	12.1	7.7	63.8	0.000
8	11.4	10.6	0.7	7.0	0.350	17.6	12.2	5.4	44.2	0.000	20.5	12.6	7.9	62.5	0.000
9	12.0	9.9	2.1	21.1	0.009	20.3	14.5	5.8	40.2	0.000	22.3	12.5	9.8	78.2	0.000
10	12.6	12.0	0.6	5.3	0.456	20.4	14.2	6.1	43.1	0.000	23.4	13.7	9.7	71.1	0.000

[a] Years relative to first-time in-patient diagnosis of the particular disorder.
[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the comparison group of discordant siblings: $\bar{y}_{Yes} - \bar{y}_{No}$.
[c] The relative difference is the absolute difference in percent of the mean of the comparison group of discordant siblings: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.
[d] The p-value from a test of equal means of the SMI-group and the comparison group of discordant siblings.

Table D6: The average annual amounts of sickness insurance (SI) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective comparison group of discordant siblings.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	11.3	6.1	5.2	85.8	0.000	15.0	6.5	8.5	130.5	0.000	9.3	5.2	4.1	78.6	0.000
-9	10.9	4.5	6.4	140.5	0.000	14.5	6.0	8.5	142.9	0.000	9.4	5.5	3.9	69.9	0.000
-8	10.4	4.2	6.2	145.9	0.000	14.2	5.5	8.8	161.4	0.000	8.4	5.1	3.3	64.1	0.000
-7	9.1	4.0	5.1	128.8	0.000	14.3	4.7	9.6	203.8	0.000	7.9	4.8	3.1	63.8	0.000
-6	9.6	3.9	5.7	146.2	0.000	15.6	5.4	10.1	186.0	0.000	8.3	4.6	3.7	80.9	0.000
-5	10.0	4.3	5.7	132.6	0.000	16.4	5.2	11.2	213.5	0.000	9.8	4.8	4.9	102.2	0.000
-4	10.5	5.4	5.1	93.9	0.000	20.3	5.8	14.5	250.2	0.000	11.9	5.8	6.1	104.0	0.000
-3	14.2	6.0	8.2	136.7	0.000	25.4	7.7	17.7	230.4	0.000	15.8	7.4	8.4	114.5	0.000
-2	17.4	6.9	10.6	154.0	0.000	31.7	9.5	22.3	234.8	0.000	22.3	8.8	13.5	153.5	0.000
-1	21.2	7.9	13.3	169.4	0.000	40.5	9.3	31.2	335.6	0.000	30.0	10.0	20.0	201.1	0.000
0	42.4	8.7	33.7	386.1	0.000	67.4	10.1	57.3	565.8	0.000	65.7	11.0	54.7	496.8	0.000
1	47.3	9.4	37.9	401.9	0.000	69.6	10.9	58.7	537.3	0.000	67.7	11.5	56.2	488.6	0.000
2	33.1	8.8	24.2	273.8	0.000	48.1	10.4	37.6	360.0	0.000	45.8	10.8	35.0	325.3	0.000
3	23.1	7.8	15.3	196.2	0.000	31.7	9.0	22.7	251.4	0.000	29.6	9.7	20.0	206.3	0.000
4	14.8	6.7	8.1	120.5	0.000	21.6	8.5	13.1	154.2	0.000	20.9	8.6	12.3	143.1	0.000
5	11.3	6.4	4.9	76.7	0.000	17.4	8.0	9.4	118.5	0.000	16.4	7.1	9.2	129.2	0.000
6	8.8	6.1	2.6	43.1	0.001	14.0	6.7	7.4	110.2	0.000	13.5	6.1	7.3	119.4	0.000
7	8.5	5.5	2.9	53.5	0.000	12.1	5.6	6.6	117.2	0.000	12.6	6.0	6.6	109.7	0.000
8	8.6	5.2	3.4	64.6	0.000	13.3	6.8	6.5	96.2	0.000	13.7	6.4	7.3	114.8	0.000
9	8.8	4.9	3.9	79.5	0.000	14.8	6.7	8.1	121.0	0.000	15.0	6.0	9.0	148.6	0.000
10	9.4	7.0	2.4	33.9	0.004	17.0	7.2	9.8	136.6	0.000	17.5	7.6	9.9	129.9	0.000

Notes: All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the comparison group of discordant siblings: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the comparison group of discordant siblings: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the comparison group of discordant siblings.

Table D7: The percentages having received any disability insurance (DI) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective comparison group of discordant siblings.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	12.6	2.7	9.9	361.7	0.000	8.6	1.7	6.9	415.0	0.000	4.4	2.8	1.6	58.2	0.000
-9	14.2	2.9	11.3	395.2	0.000	9.7	2.5	7.2	288.0	0.000	4.9	3.0	1.9	61.4	0.000
-8	14.9	3.2	11.6	361.8	0.000	10.9	2.8	8.1	285.6	0.000	5.5	3.5	1.9	54.2	0.000
-7	16.3	3.6	12.6	347.0	0.000	11.6	3.3	8.3	249.1	0.000	6.0	3.7	2.3	60.8	0.000
-6	17.0	3.8	13.2	342.7	0.000	12.9	3.5	9.4	269.8	0.000	6.5	4.1	2.4	59.2	0.000
-5	18.3	4.0	14.3	354.4	0.000	13.9	4.4	9.5	215.3	0.000	6.9	4.3	2.6	61.8	0.000
-4	19.4	4.3	15.1	350.6	0.000	14.7	4.7	10.0	211.6	0.000	7.7	4.6	3.1	67.1	0.000
-3	20.5	4.7	15.8	338.5	0.000	16.1	5.3	10.8	203.3	0.000	8.4	4.9	3.6	73.1	0.000
-2	21.9	5.3	16.5	309.3	0.000	18.3	6.4	11.9	185.9	0.000	9.8	5.4	4.4	81.9	0.000
-1	24.9	5.9	19.1	325.1	0.000	21.9	7.1	14.8	207.5	0.000	11.8	6.0	5.8	95.8	0.000
0	30.6	6.7	23.8	353.6	0.000	25.6	8.2	17.3	209.8	0.000	15.1	6.8	8.3	122.7	0.000
1	41.3	7.9	33.4	425.2	0.000	33.3	9.1	24.2	264.9	0.000	21.4	7.9	13.5	170.6	0.000
2	51.0	8.7	42.3	485.5	0.000	42.8	10.0	32.9	329.7	0.000	29.1	9.1	20.0	219.8	0.000
3	58.1	9.5	48.6	508.6	0.000	49.7	10.6	39.1	369.1	0.000	35.5	10.1	25.4	251.3	0.000
4	62.7	10.7	52.0	488.4	0.000	53.3	11.5	41.7	362.0	0.000	38.5	10.7	27.8	259.5	0.000
5	65.8	11.2	54.5	485.2	0.000	55.0	11.7	43.3	369.5	0.000	39.8	11.1	28.7	257.7	0.000
6	66.6	11.3	55.2	487.7	0.000	56.1	11.6	44.4	382.5	0.000	39.7	11.2	28.5	253.8	0.000
7	65.9	11.1	54.8	493.4	0.000	55.4	11.6	43.9	379.6	0.000	38.1	10.9	27.2	248.5	0.000
8	64.5	11.2	53.3	477.9	0.000	54.0	10.7	43.4	406.3	0.000	36.0	10.7	25.3	235.8	0.000
9	63.7	11.1	52.7	476.3	0.000	52.7	10.2	42.5	414.6	0.000	34.4	10.4	23.9	229.7	0.000
10	63.7	10.4	53.4	513.4	0.000	51.6	10.5	41.1	389.9	0.000	33.3	10.3	23.0	223.0	0.000

[a] Years relative to first-time in-patient diagnosis of the particular disorder.
[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the comparison group of discordant siblings: $\bar{y}_{Yes} - \bar{y}_{No}$.
[c] The relative difference is the absolute difference in percent of the mean of the comparison group of discordant siblings: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.
[d] The p-value from a test of equal means of the SMI-group and the comparison group of discordant siblings.

Table D8: The average annual amounts of disability insurance (DI) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective comparison group of discordant siblings.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	12.3	2.4	10.0	424.1	0.000	8.2	1.6	6.6	398.2	0.000	4.2	2.6	1.6	60.7	0.000
-9	13.7	2.6	11.2	433.3	0.000	9.2	2.1	7.0	326.8	0.000	4.6	2.9	1.7	61.1	0.000
-8	14.9	3.0	11.9	389.4	0.000	10.0	2.7	7.4	277.6	0.000	5.0	3.2	1.8	55.8	0.000
-7	15.8	3.2	12.6	389.1	0.000	11.1	3.1	8.1	262.1	0.000	5.7	3.6	2.1	60.1	0.000
-6	16.8	3.6	13.2	361.8	0.000	11.8	3.4	8.4	242.1	0.000	6.2	3.9	2.4	61.4	0.000
-5	18.4	3.8	14.6	381.6	0.000	13.5	4.2	9.3	222.5	0.000	6.8	4.1	2.7	64.7	0.000
-4	20.2	4.1	16.1	393.2	0.000	14.8	4.9	9.9	203.4	0.000	7.5	4.4	3.2	73.3	0.000
-3	21.1	4.5	16.6	369.7	0.000	15.9	5.4	10.5	193.9	0.000	8.4	4.7	3.7	78.0	0.000
-2	22.8	5.3	17.5	328.0	0.000	18.2	6.7	11.6	173.8	0.000	9.9	5.2	4.7	90.9	0.000
-1	27.1	6.0	21.1	351.4	0.000	23.0	7.4	15.7	212.9	0.000	12.3	6.1	6.2	100.8	0.000
0	33.6	7.2	26.4	366.0	0.000	29.5	8.9	20.6	232.1	0.000	16.4	7.3	9.1	123.6	0.000
1	47.8	8.8	39.0	442.6	0.000	39.8	9.7	30.1	309.1	0.000	24.6	9.1	15.5	170.1	0.000
2	62.1	10.4	51.7	497.2	0.000	53.9	11.1	42.8	384.7	0.000	35.9	10.9	25.0	230.2	0.000
3	72.1	11.5	60.7	529.7	0.000	64.4	11.9	52.6	442.4	0.000	46.1	12.5	33.6	268.5	0.000
4	78.5	13.0	65.5	504.3	0.000	70.6	13.2	57.4	434.5	0.000	51.1	13.3	37.8	283.8	0.000
5	83.5	13.8	69.8	506.7	0.000	73.2	14.0	59.2	424.4	0.000	54.1	14.0	40.1	286.5	0.000
6	84.4	13.6	70.8	521.0	0.000	74.7	13.6	61.1	449.3	0.000	53.4	14.0	39.4	281.5	0.000
7	82.7	13.3	69.4	521.7	0.000	74.6	13.4	61.2	456.6	0.000	50.6	13.7	36.9	269.2	0.000
8	81.7	13.4	68.2	507.4	0.000	74.0	12.9	61.1	471.7	0.000	48.4	13.6	34.7	254.5	0.000
9	80.1	13.1	67.0	511.2	0.000	72.4	12.6	59.8	476.5	0.000	45.6	13.3	32.4	244.1	0.000
10	80.8	12.7	68.0	533.8	0.000	71.5	12.9	58.6	453.4	0.000	45.4	13.2	32.2	243.9	0.000

Notes: All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the comparison group of discordant siblings: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the comparison group of discordant siblings: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the comparison group of discordant siblings.

Table D9: The percentages having received any unemployment insurance (UI) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective comparison group of discordant siblings.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	32.6	29.6	3.0	10.3	0.056	30.9	25.6	5.3	20.8	0.014	31.0	26.4	4.6	17.4	0.000
-9	31.9	28.2	3.8	13.3	0.005	32.4	25.5	6.9	27.1	0.000	30.0	26.5	3.5	13.2	0.000
-8	30.8	29.4	1.3	4.5	0.304	31.4	26.8	4.6	17.1	0.013	30.6	26.6	4.0	15.2	0.000
-7	30.0	27.9	2.1	7.6	0.094	30.3	26.0	4.3	16.7	0.017	29.8	26.2	3.6	13.8	0.000
-6	28.1	25.0	3.2	12.8	0.008	28.3	23.9	4.4	18.6	0.011	28.9	24.7	4.2	17.0	0.000
-5	25.6	22.3	3.3	14.8	0.003	24.7	22.2	2.6	11.6	0.120	27.2	23.1	4.0	17.4	0.000
-4	22.8	20.4	2.4	11.8	0.024	21.8	19.5	2.3	12.0	0.133	24.6	20.7	3.8	18.5	0.000
-3	20.9	17.7	3.2	17.9	0.001	18.7	17.8	0.9	4.8	0.555	21.5	18.2	3.3	17.8	0.000
-2	18.2	16.5	1.6	9.8	0.083	16.2	14.4	1.8	12.3	0.187	18.9	16.0	3.0	18.5	0.000
-1	16.6	15.2	1.5	9.7	0.100	14.4	13.4	1.0	7.4	0.436	16.9	14.8	2.1	14.2	0.001
0	13.8	15.2	-1.4	-9.0	0.109	13.5	13.5	0.0	0.0	1.000	14.7	14.1	0.7	4.7	0.245
1	9.7	15.7	-6.1	-38.5	0.000	10.4	14.7	-4.4	-29.6	0.000	12.8	14.8	-2.0	-13.3	0.001
2	9.2	15.8	-6.6	-41.7	0.000	9.8	14.4	-4.6	-31.9	0.000	14.1	14.9	-0.8	-5.5	0.159
3	8.9	14.8	-5.8	-39.5	0.000	9.6	13.2	-3.6	-27.4	0.002	13.8	13.6	0.3	2.0	0.629
4	7.7	13.0	-5.3	-40.8	0.000	8.6	10.3	-1.7	-16.6	0.122	12.7	11.9	0.9	7.2	0.120
5	8.0	11.2	-3.3	-29.2	0.000	8.0	9.6	-1.6	-16.4	0.142	10.8	10.5	0.3	3.1	0.531
6	8.8	10.6	-1.9	-17.6	0.012	9.3	8.7	0.6	6.7	0.595	11.8	10.1	1.7	16.7	0.001
7	10.2	10.5	-0.3	-2.4	0.740	11.4	8.4	3.0	36.0	0.008	13.2	9.6	3.6	37.6	0.000
8	10.5	10.2	0.2	2.2	0.770	14.4	8.0	6.4	79.6	0.000	14.1	9.9	4.1	41.6	0.000
9	11.6	11.0	0.6	5.7	0.442	14.6	8.7	5.9	68.1	0.000	15.3	8.9	6.4	72.2	0.000
10	10.9	10.3	0.6	5.8	0.451	13.0	8.6	4.3	50.0	0.000	14.3	8.6	5.7	66.4	0.000

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the comparison group of discordant siblings: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the comparison group of discordant siblings: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the comparison group of discordant siblings.

Table D10: The average annual amounts of unemployment insurance (UI) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective comparison group of discordant siblings.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	24.2	19.9	4.3	21.6	0.005	20.7	17.7	2.9	16.5	0.136	21.5	18.3	3.2	17.3	0.001
-9	24.5	19.3	5.2	26.9	0.000	22.2	17.6	4.6	25.9	0.008	20.7	18.0	2.7	14.8	0.001
-8	22.1	19.9	2.2	10.9	0.076	20.8	18.9	1.8	9.7	0.276	21.1	17.7	3.3	18.7	0.000
-7	21.2	18.2	3.0	16.5	0.009	20.0	18.2	1.8	10.0	0.274	20.5	16.7	3.8	22.8	0.000
-6	20.3	16.5	3.8	23.3	0.001	18.7	15.4	3.2	21.0	0.038	19.3	16.1	3.2	20.1	0.000
-5	18.6	15.3	3.3	21.7	0.002	15.5	14.7	0.9	5.8	0.561	17.6	14.9	2.7	18.2	0.000
-4	16.0	12.5	3.6	28.8	0.000	14.7	12.7	2.1	16.2	0.142	15.5	12.9	2.6	20.1	0.000
-3	14.0	10.3	3.6	35.3	0.000	10.4	10.3	0.1	0.8	0.944	12.5	10.8	1.8	16.5	0.001
-2	11.8	10.0	1.8	18.2	0.026	9.1	8.3	0.8	10.0	0.437	11.1	9.2	2.0	21.4	0.000
-1	10.6	8.8	1.8	21.0	0.013	8.4	8.3	0.1	1.2	0.925	10.0	8.8	1.2	13.7	0.014
0	7.5	9.5	-2.1	-21.7	0.002	7.5	8.2	-0.7	-8.7	0.480	7.7	8.8	-1.1	-12.2	0.020
1	5.9	10.1	-4.3	-42.3	0.000	7.0	10.2	-3.2	-31.2	0.004	8.0	9.7	-1.7	-17.4	0.001
2	6.6	11.1	-4.5	-40.6	0.000	6.4	9.3	-2.9	-31.1	0.006	9.4	10.1	-0.7	-7.0	0.184
3	6.4	10.0	-3.6	-36.4	0.000	6.0	8.8	-2.8	-31.6	0.007	9.3	8.8	0.5	5.6	0.330
4	5.1	9.2	-4.1	-45.0	0.000	5.9	6.4	-0.5	-7.8	0.611	7.7	7.8	-0.0	-0.4	0.943
5	4.9	6.9	-2.0	-28.5	0.001	5.2	6.5	-1.3	-19.7	0.181	6.7	6.7	0.0	0.4	0.950
6	5.6	6.7	-1.2	-17.3	0.068	6.0	6.0	-0.0	-0.7	0.967	7.1	6.5	0.6	8.9	0.184
7	6.6	7.6	-1.1	-13.9	0.136	7.5	5.7	1.9	32.6	0.070	7.9	6.1	1.9	31.2	0.000
8	7.1	7.3	-0.2	-2.4	0.803	9.1	5.7	3.4	59.2	0.002	8.6	6.4	2.2	34.5	0.000
9	6.9	7.6	-0.7	-8.9	0.338	9.9	6.0	3.9	64.7	0.000	9.3	6.2	3.1	49.5	0.000
10	6.5	6.9	-0.4	-6.5	0.513	7.7	5.4	2.3	42.2	0.023	8.4	6.0	2.4	39.6	0.000

Notes: All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the comparison group of discordant siblings: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the comparison group of discordant siblings: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the comparison group of discordant siblings.

Table D11: The percentages having received any means-tested social assistance (SA) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective comparison group of discordant siblings.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	22.5	14.2	8.3	58.7	0.000	17.9	10.1	7.8	76.6	0.000	17.8	12.2	5.5	45.2	0.000
-9	23.2	14.7	8.5	58.3	0.000	16.5	10.3	6.2	60.1	0.000	17.4	11.9	5.5	46.0	0.000
-8	25.1	14.5	10.6	73.0	0.000	17.5	9.7	7.8	80.5	0.000	18.1	12.4	5.7	45.6	0.000
-7	24.3	14.2	10.1	71.3	0.000	18.3	10.8	7.5	69.3	0.000	19.0	12.6	6.4	50.8	0.000
-6	24.2	14.1	10.1	71.9	0.000	17.0	10.0	7.1	70.9	0.000	18.9	12.0	7.0	58.0	0.000
-5	24.0	13.6	10.5	77.1	0.000	16.5	9.4	7.1	76.3	0.000	17.6	12.0	5.5	45.8	0.000
-4	23.4	13.0	10.4	80.7	0.000	15.8	9.1	6.7	74.4	0.000	17.0	10.7	6.3	59.0	0.000
-3	21.6	11.8	9.8	82.5	0.000	13.3	7.8	5.5	71.2	0.000	15.1	9.3	5.8	62.6	0.000
-2	20.8	10.5	10.3	98.3	0.000	13.4	6.1	7.2	118.0	0.000	14.0	8.0	5.9	73.6	0.000
-1	22.2	10.3	12.0	116.4	0.000	14.0	6.0	8.0	132.5	0.000	14.8	7.4	7.4	100.2	0.000
0	26.6	10.1	16.5	162.9	0.000	18.6	5.3	13.3	251.9	0.000	19.6	7.3	12.3	169.0	0.000
1	25.8	9.9	15.9	160.6	0.000	17.0	4.6	12.5	273.1	0.000	20.2	7.5	12.7	169.1	0.000
2	22.5	9.8	12.7	128.7	0.000	15.8	5.2	10.6	202.6	0.000	18.1	7.1	11.0	154.6	0.000
3	18.7	8.4	10.2	121.7	0.000	13.0	4.5	8.5	187.7	0.000	15.5	6.4	9.2	143.5	0.000
4	15.8	7.8	8.0	103.2	0.000	10.5	4.1	6.4	156.9	0.000	14.1	5.7	8.5	149.4	0.000
5	14.5	6.6	7.9	119.9	0.000	10.8	4.1	6.8	166.7	0.000	12.0	5.0	7.0	137.8	0.000
6	13.8	6.7	7.2	107.6	0.000	9.7	3.6	6.0	166.0	0.000	11.7	5.0	6.6	131.7	0.000
7	12.9	5.8	7.2	124.4	0.000	9.7	3.4	6.3	187.0	0.000	11.9	4.9	7.0	143.8	0.000
8	12.0	6.0	6.0	100.5	0.000	8.5	3.5	5.0	144.7	0.000	11.5	5.3	6.2	115.8	0.000
9	12.0	5.5	6.5	116.6	0.000	7.9	3.5	4.3	123.4	0.000	10.9	5.1	5.8	112.1	0.000
10	11.2	5.1	6.0	116.8	0.000	7.4	3.0	4.4	145.0	0.000	9.9	4.6	5.3	116.3	0.000

[a] Years relative to first-time in-patient diagnosis of the particular disorder.
[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the comparison group of discordant siblings: $\bar{y}_{Yes} - \bar{y}_{No}$.
[c] The relative difference is the absolute difference in percent of the mean of the comparison group of discordant siblings: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.
[d] The p-value from a test of equal means of the SMI-group and the comparison group of discordant siblings.

Table D12: The average annual amounts of means-tested social assistance (SA) among those with schizophrenia spectrum disorders (SSD), bipolar disorders (BPD), and major depressive disorders and their respective comparison group of discordant siblings.

	Schizophrenia Spectrum Disorders (SSD)					Bipolar Disorders (BPD)					Major Depressive Disorders (MDD)				
			Difference					Difference					Difference		
Year[a]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]	Yes	No	Abs.[b]	Rel.[c]	p-val.[d]
-10	6.0	2.6	3.4	134.1	0.000	3.4	1.9	1.4	73.8	0.037	3.2	2.1	1.1	49.6	0.000
-9	6.3	3.0	3.3	112.1	0.000	3.4	1.6	1.8	109.4	0.000	3.2	2.0	1.2	59.1	0.000
-8	6.7	3.2	3.5	111.2	0.000	3.5	1.5	2.0	133.8	0.000	3.4	2.4	1.0	42.8	0.000
-7	6.7	3.2	3.5	110.6	0.000	3.3	1.8	1.6	90.9	0.001	3.7	2.4	1.3	53.0	0.000
-6	7.1	3.1	4.0	130.7	0.000	3.7	1.9	1.8	95.5	0.001	4.0	2.4	1.6	67.4	0.000
-5	7.3	3.3	4.0	119.5	0.000	3.4	1.9	1.5	77.2	0.001	3.9	2.4	1.5	60.6	0.000
-4	7.5	3.4	4.1	121.0	0.000	3.7	2.0	1.7	88.3	0.001	3.6	2.2	1.4	63.1	0.000
-3	7.4	3.3	4.1	122.3	0.000	3.0	1.7	1.3	73.0	0.004	3.5	2.0	1.4	69.5	0.000
-2	7.2	2.9	4.2	144.2	0.000	2.9	1.5	1.5	97.0	0.000	3.5	2.0	1.5	76.4	0.000
-1	7.4	2.6	4.9	189.8	0.000	3.6	1.6	2.0	122.7	0.000	3.5	1.9	1.5	80.1	0.000
0	9.0	2.5	6.5	256.8	0.000	4.8	1.3	3.5	266.6	0.000	5.0	1.9	3.1	157.7	0.000
1	9.2	2.6	6.6	259.4	0.000	4.8	1.3	3.5	278.8	0.000	5.7	2.0	3.7	189.8	0.000
2	7.1	2.7	4.4	163.3	0.000	3.7	1.3	2.4	189.9	0.000	5.3	1.9	3.4	175.3	0.000
3	5.8	2.5	3.3	130.8	0.000	2.8	1.3	1.5	122.3	0.000	4.4	1.8	2.6	141.5	0.000
4	4.9	2.4	2.6	107.2	0.000	2.7	1.3	1.4	109.3	0.001	3.9	1.6	2.3	146.3	0.000
5	4.2	2.2	2.0	92.3	0.000	2.7	1.3	1.4	106.4	0.002	3.3	1.5	1.8	121.0	0.000
6	4.0	2.1	1.9	91.8	0.000	2.7	1.3	1.3	103.3	0.003	3.6	1.7	1.9	112.9	0.000
7	4.2	2.0	2.2	113.1	0.000	2.6	1.2	1.4	116.7	0.001	3.8	1.7	2.1	125.6	0.000
8	4.0	2.2	1.8	84.4	0.000	2.4	1.2	1.2	100.5	0.006	3.9	1.8	2.1	120.9	0.000
9	4.7	2.3	2.4	102.0	0.000	2.3	1.1	1.2	115.6	0.004	3.8	1.8	2.0	114.2	0.000
10	4.4	2.3	2.1	88.3	0.000	2.3	0.9	1.4	148.9	0.001	3.6	1.7	1.9	111.1	0.000

Notes: All amounts are expressed in 1,000 SEK; 2014 prices using the Swedish CPI.

[a] Years relative to first-time in-patient diagnosis of the particular disorder.

[b] The absolute difference is the actual difference between the mean of the SMI-group and the mean of the comparison group of discordant siblings: $\bar{y}_{Yes} - \bar{y}_{No}$.

[c] The relative difference is the absolute difference in percent of the mean of the comparison group of discordant siblings: $100 \times (\bar{y}_{Yes} - \bar{y}_{No})/\bar{y}_{No}$.

[d] The p-value from a test of equal means of the SMI-group and the comparison group of discordant siblings.