



Has the Spanish economic crisis affected the duration of sickness absence episodes?



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ABSTRACT

The global economic crisis has had particularly intense effects on the Spanish labor market. We investigated whether the duration of non-work related sickness absence (SA) episodes in salaried workers had experienced any changes before and after the crisis started. This was a repeated cross-sectional analysis conducted in a dynamic cohort in 2006 and 2010. Database was provided by eight mutual insurance companies, covering 983,108 workers and 451,801 SA episodes. Descriptive analysis and crude, bivariate and multivariate analyses using Cox proportional hazards modeling were performed, to quantify the changes in duration of SA episodes between 2006 and 2010, stratified by sex. There was a higher number of episodes in 2010 for both sexes, but especially for women. Unadjusted median duration in men was similar for both years, while for women it was shorter in 2010. Final multivariate models show a greater risk of longer episode duration for men in 2010 (HR 0.95; 95% CI, 0.95–0.95), but a shorter one for women (HR 1.07; 95% CI, 1.07–1.07). Once the economic crisis started affecting the Spanish labor market, the number of SA episodes in women equalized with those in men. There was a decrease of episodes in the youngest age groups, in the construction and in temporary contracts. The relative ranking of leading diagnoses was similar in both years with an increase in infectious, nervous system and respiratory diseases and in mental disorder episodes for both sexes, but especially for women. The risk of longer episode duration was greater in 2010 among men, but smaller in women.

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1. Background

Spain is still suffering the economic shockwaves caused by the Global Financial Crisis of 2008. As of late 2015, the unemployment rate stands at 21.8% with those under 25 years of age especially affected and suffering an unemployment rate of 46.6% (Instituto Nacional de Estadística, 2015a). A prolonged downward trend of

the Spanish Global Domestic Product (GDP) during this period stopped in early 2014, but so far it has only showed tenuous signs of recovery (Instituto Nacional de Estadística, 2015b).

Scientific literature published until now suggests that economic crises have diverse impacts on public and occupational health (Suhrecke and Stuckler, 2012). Stuckler et al. found that periods of economic recession correlate with a rise in deaths due to alcohol-abuse and suicide, and a decrease in those due to road traffic accidents or drug abuse (Stuckler et al., 2009). Burström et al., focused on the delayed effects of the economic crisis in Sweden in the 1990s and the public response to them. They found that the number of episodes of limiting longstanding illnesses or disabilities rose during the studied period, particularly among manual female workers (Burström et al., 2012).

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Sickness absence in Spain is covered for both work-related and non-work-related injuries and diseases, under different regulations. Work-related sickness absence covers those occupational diseases established by law or to injuries experienced at work or while commuting (*in itinere*) (Spanish General Law on Social Security, 1994). All other injuries or diseases are covered by non-work related sickness absence (SA). All workers benefit from this system, which establishes a sick pay from the fourth day of sickness absence up to 12 months. This sick pay period can be extended an additional six months 12 months, with an eventual extension of 6 months if an inspection by the Social Security Institute determines that the beneficiary can return to work thereafter (Frick and Malo, 2008). Sickness absence is different from permanent disability, which regulates benefits for those workers whose ability to work, either under a specific occupation or at all, has been permanently reduced or impaired after experiencing an injury or a disease. In Spain, Mutual insurance companies work with the National Social Security System to administer statutory sick pay, and their responsibilities also include providing health care. There are 20 Mutual insurance companies in Spain covering 11,254,697 workers (about 75% of the Spanish working population).

SA may be considered as an overall indicator of the relationship between worker health and the tasks performed at the workplace (Kivimäki et al., 2003; Torá Rocamora et al., 2010). Thus, by assessing the way the economic crisis in Spain might be affecting the duration of SA episodes, better, more targeted public health, labor or social responses to the crisis could be developed.

Scientific research has dealt with the impact of economic crises on SA. A prospective cohort study on municipal workers in Finland found that major downsizing during a period of economic recession was associated with an increase in SA (Vahtera et al., 2004). A study on the duration of non-work-related sickness absence in Catalonia between 2007 and 2010 (thus covering the transition from a pre-crisis to crisis period) (Albertí et al., 2012) noted a downward trend in median duration over the time period right before the crisis, a trend that stopped once the recession started. This study was a descriptive one, and changes in the demographic profile of SA episodes might have been influencing their observed duration. Thus, our study tried to verify its conclusions by including several other variables in the analysis that could have affected SA episode duration.

Consequently, our objective was to determine whether the duration of SA episodes has been affected during the economic crisis period, and to what extent.

2. Methods

2.1. Design and study population

This was a repeated cross-sectional analysis conducted in 2006 and 2010. To test our hypothesis, we worked with eight mutual insurance companies (Mutua de Andalucía y de Ceuta-Cesma, Ibermutuamur, MAC-Mutua de Accidentes de Canarias, MC Mutual, Mutua Gallega, Mutua, Solimat and Unión de Mutuas) that cover the entire Spanish territory. The agreement was performed collectively with all the mutual insurance companies.

We analyzed data on 983,108 workers and 451,801 SA episodes for the year 2006 (before the crisis hit Spanish economy) and 542,270 for 2010 (when the country was already knee-deep in the recession), for a total of 994,071 SA episodes. Each mutual insurance company was asked to retrieve data on certain variables for all SA episodes they had managed for their covered workers in these two years. Definitions for each variable were agreed upon, applied to the datasets by each company, followed by cleaning and de-identification before being sent to our research group.

2.2. Study variables

The dependent variable was defined as SA episode duration in days, calculated as the different between its beginning and case closure date plus one.

The main independent variable was year, considering 2006 as reflecting the period before the financial crisis and 2010 the year in which the crisis was fully instated. Secondary independent variables we considered were sex (male, female), age (in years), autonomous community (according to the regional administrative division of Spain) economic activity: industry, construction and service sectors, occupational social class, coded using the CNO-2011 (Spanish National Classification of Occupation), type of contract: permanent (indefinite) or temporary, as defined by Spanish labor legislation, average daily salary (salary base derived from the worker's wage and time contributing to the Spanish Social Security System, and used to calculate the wage replacement he/she is entitled to during SA episodes), in Euros divided into three groups: from 1 to 35, 36 to 55 and more than 55 Euros and diagnosis (coded using the International Classification of Diseases-9 system).

2.3. Statistical analysis

We first performed a quality review of the variables included in the data set, gauging their level of completeness, to evaluate whether to include them in the statistical analysis. We arbitrarily decided to exclude any variables that had more than 60% of missing data. A residual category with missing values was created for each variable remaining that contained missing data. Next, we conducted a descriptive analysis of the dependent and independent variables, stratified by year for 2006 and 2010. Continuous variables were summarized using measures of central tendency (25th, 50th [i.e., median] and 75th percentiles). Categorical variables were summarized as frequencies and percentages.

We next performed a Kaplan-Meier survival analysis to obtain the probability of case closure by duration in 2006 and 2010, curves were compared using the log-rank test.

Bivariate and multivariate analyses were performed using Cox proportional hazards models to estimate the hazard ratios (HRs) and corresponding 95% confidence intervals (95% CIs) for SA episodes duration, which gives us the instantaneous rate ratio of case closure. For these models, the dependent variable was SA duration and the main independent variable was year (with 2006 as the reference category). A HR > 1 indicates a shorter time to closure (shorter duration), whereas a HR < 1 indicates a longer time to closure (longer duration). After examining the crude HR, bivariate analyses were performed, in which the relationship between year and SA duration was adjusted for each of the secondary independent variables. Those variables (with a p value equal or less to 0.20) in the bivariate analysis were retained in the final multivariate model. This meant that this final model was adjusted by age group, autonomous community, economic activity, type of contract, average daily salary and diagnosis group. All models were stratified by sex. The statistical analyses were performed using Stata, version 11 (StataCorp, College Station, Texas).

3. Results

There was a lower number of SA episodes in 2006: 441,689. This number increased to 541,419 in 2010. There was a slight increase in the number of episodes in men, from 263,423 in 2006 to 270,940 in 2010. The increase in the number of episodes in women was much higher, as it went from 178,266 in 2006 to 270,479 in 2010.

Median and P25 duration of male worker episodes did not change between years. There was, however, a slight increase in P75

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