

# Shift work in Europe: Ten facts

Natalia A. Bermúdez\*      Sam Desiere†

October 13, 2022

## Abstract

Shift work is common in European societies. This practice gained traction during the industrial revolution, when the objective was to maintain high levels of production by allowing work at atypical working hours (Hedges and Sekscenski, 1979). Today, roughly 29 million employees (17.7% of employees between 15 and 64 years old) in the EU-27 work shifts, a figure that has remained steady over the last two decades. Even though shift work is common, it has received far less attention in the literature than, for example, other types of work arrangements such as part-time and temporary work (Cahuc and Postel-Vinay, 2002; Farber, 1999; Kahne, 1994).

Policymakers and other actors, such as unions, have focused mainly on the adverse effects of shift work on health, accident rates, absenteeism, and well-being, and many studies have focused on these topics; by contrast, shift work has been understudied from an economic standpoint. For instance, there is ample evidence showing that shift work has a negative impact on human health (Åkerstedt and Wright, 2009; Costa, 2010; Ferri et al., 2016), but whether this constitutes a serious societal matter or not depends on how prevalent shift work is and how it is evolving over time. In addition, there is no clear understanding of the profile of shift workers. The common wisdom is that shift workers are low-educated men toiling at a conveyor belt in a car plant, although it is likely that this image needs updating. Furthermore, despite evidence that shift work increases during economic expansions and declines during recessions over the previous century (Mayshar and Halevy, 1997; Mayshar and Solon, 1993), there is no recent evidence studying this relationship.

Finally, the widespread use of shift work across countries suggests that there are economic incentives for both employers and employees to engage in shift

---

\*Natalia A. Bermúdez: IRES/LIDAM, UCLouvain - Université Catholique de Louvain and Department of Economics, UGent- Ghent University (Email: [Natalia.Bermudez@UGent.be](mailto:Natalia.Bermudez@UGent.be))

†Department of Economics, UGent- Ghent University (Email: [Sam.Desiere@UGent.be](mailto:Sam.Desiere@UGent.be)), Belgium. The responsibility for all conclusions drawn from the data lies entirely with the authors.

work. A priori, shift work enables firms to i) meet demand at atypical times, ii) operate production processes that are difficult to interrupt, and iii) maximize human capital utilization. However, it also provides workers with i) flexibility to accommodate their labor supply (i.e., working unusual schedules), and ii) the possibility to increase their labor surplus by earning higher wages, compared to daytime work. The existence of wage differentials between shift work and normal hours of work is an important component of the labor supply decisions of European labor markets. Nevertheless, it has not been examined whether the shift premium differs across countries and explains the prevalence and evolution of shift work in Europe in the last decades.

This article revisits shift work in Europe by combining microdata, at the sectoral level, from two surveys: i) the European Labour Force Survey (LFS) and the ii) Structure of Earnings Survey (SES). We describe ten striking facts about shift work using survey data in 15 European countries (Austria, Belgium, Germany, Denmark, Greece, Spain, Finland, France, Ireland, Italy, Luxembourg, Netherlands, Portugal, Sweden, and the United Kingdom) over the period 2001-2019. In particular, we exploit the questions in the section “*Special schedule during the reference month (main activity)*” of the LFS with a focus on atypical schedules of work (i.e., shift work, night work, evening work and weekend work). These questions have remained unaltered in the LFS since 2001, but - apart from aggregate statistics published by Eurostat - they have not yet been exploited by researchers to study shift work. Since the LFS does not contain data on wages and the shift premium, we complement this analysis by using the variable “*Special payments for shift and night work*” included in the SES to examine the shift premium in the EU.

We summarize ten striking facts into three groups. The first group studies the overall patterns of shift work over time and points out cross-country differences. We show that shift work is still prevalent nowadays and has remained, on average, persistent over time. However, there are large cross-country differences. We show that differences in the prevalence of shift work within sectors explain most of the cross-country differences, whereas changes in the sectoral composition of the economy explain changes in the prevalence of shift within countries over time. The second group of facts characterizes the profile of shift workers. We find that, contrary to common wisdom, the majority of shift workers are employed in the health and social work sectors, do services and sales-related jobs, have a medium level of education, and are young. There are no significant gender differences in the prevalence of shift work.

The third group of facts investigates the determinants of the prevalence of shift work within a country. We focus primarily on the role of the shift premium and the association between shift work and GDP growth. We find that the premium constitutes a significant proportion of gross earnings in Europe, but there are large differences across countries, possibly driven by differences in labor market institutions and in sectoral shift premiums. Moreover, we find a positive

correlation between the shift-premium and the prevalence of shift work at the sector level, within and across countries. In particular, sectors with a higher shift premium are likely to have a larger prevalence of shift work within a country. Lastly, we do not find evidence that shift work has been cyclical in the last 20 years.

This study provides ten stylized facts that can be used to guide policy decisions and inspire further research regarding the role of shift work in Europe. In addition, we identify the strengths and weaknesses of the LFS and the SES to examine shift work across the EU over the last two decades.

**Keywords: shift work, shift premium, LFS, SES.**

## References

- Åkerstedt, T. and Wright, K. P. (2009). Sleep loss and fatigue in shift work and shift work disorder. *Sleep medicine clinics*, 4(2):257–271.
- Cahuc, P. and Postel-Vinay, F. (2002). Temporary jobs, employment protection and labor market performance. *Labour economics*, 9(1):63–91.
- Costa, G. (2010). Shift work and health: current problems and preventive actions. *Safety and health at Work*, 1(2):112–123.
- Farber, H. S. (1999). Alternative and part-time employment arrangements as a response to job loss. *Journal of Labor Economics*, 17(S4):S142–S169.
- Ferri, P., Guadi, M., Marcheselli, L., Balduzzi, S., Magnani, D., and Di Lorenzo, R. (2016). The impact of shift work on the psychological and physical health of nurses in a general hospital: a comparison between rotating night shifts and day shifts. *Risk management and healthcare policy*, 9:203.
- Hedges, J. N. and Sekscenski, E. S. (1979). Workers on late shifts in a changing economy. *Monthly Labor Review*, 102(9):14–22.
- Kahne, H. (1994). Part-time work: A reassessment for a changing economy. *Social Service Review*, 68(3):417–436.
- Mayshar, J. and Halevy, Y. (1997). Shiftwork. *Journal of Labor Economics*, 15(1, Part 2):S198–S222.
- Mayshar, J. and Solon, G. (1993). Shift work and the business cycle. *The American Economic Review*, 83(2):224–228.