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Nonstandard work schedules in 29 European countries, 2005–15: differences by education, gender, and parental status

Data from the European Working Conditions Surveys from 2005, 2010, and 2015 for 29 European countries show that the prevalence of nonstandard work schedules (evenings, nights, weekends, and rotating shifts) differs markedly across European regions with different public policies. Working nonstandard schedules also differs by education, gender, and parental status across Europe.

Working a standard daily schedule from 9 a.m. to 5 p.m. is no longer the norm for many workers in an economy that is active 24 hours a day, 7 days a week. Workers are increasingly required to work at unconventional hours, facing highly globalized and deregulated labor markets characterized by job volatility and unpredictability.¹

Nonstandard work schedules often go together with precarious jobs that put physical and psychological pressure on workers, especially among the most vulnerable groups in society.² During the current COVID-19 pandemic—which is affecting demographic groups differently, depending on their flexible conditions—understanding who works nonstandard work schedules becomes crucial.

This article uses data from 2005 to 2015 to examine recent trends in nonstandard work schedules across five European regions, covering 29 countries. Following Harriet B. Presser’s seminal study, we define nonstandard work schedules as paid work hours on the main job that are outside the standard hours of 9 a.m. to 5 p.m. or occur during irregular and unpredictable hours (e.g., nondaytime work hours, rotating hours, or hours in which workers are “on call”).³ Nonstandard work schedules are associated with adverse physical and mental health outcomes for workers and can lead to a high incidence of work-family



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and work-life conflicts.⁴ Studies reveal that less-skilled workers are more likely to work nonstandard work schedules than are high-skilled workers.⁵ Nonstandard work schedules can be especially harmful to women's labor market outcomes: women often choose to leave the labor force when their only choice is to work nonstandard schedules that make it difficult to reconcile paid work with childcare activities.⁶ Studies also show that nonstandard work schedules can be harmful to parent-child relations, which are critical for children's well-being.⁷

Associate at the Telethon Kids Institute in Western Australia.

A study by Harriet B. Presser, Janet C. Gornick, and Sangeeta Parashar examined 2005 data from the labor force surveys of 12 European countries—Finland, Norway, Sweden, Denmark, the United Kingdom, Ireland, the Netherlands, Austria, Italy, France, Belgium, and Luxembourg—and found that nondaytime shifts were more prevalent in the United Kingdom than in the other 11 countries. The same study found that Finland had the smallest gender differences in nonstandard work schedules and that the United Kingdom had the largest gender differences, whereas men in the United Kingdom were much more likely than women to work nonstandard schedules.⁸ Yet, the Presser et al. study, like most other previous studies, only looked at Western European countries in the period before the 2007–09 recession (the Great Recession).

In this article, we use data from the 2005, 2010, and 2015 European Working Conditions Surveys (EWCS) to examine nonstandard work schedules in 29 European countries. This allows us to study the period before, during, and just after the Great Recession.⁹ Our results indicate that the incidence of nonstandard work schedules differs markedly across European regions. We show that nonstandard work schedules are most prevalent in the Southern European and Central-Eastern European countries, followed by the English-speaking countries (the United Kingdom and Ireland), which have more liberal market-oriented policies. In the Continental European countries, we see a lower incidence of nonstandard work schedules than in the three regions just mentioned. Finally, the Scandinavian countries (Finland, Norway, Sweden, and Denmark), which have strong labor market regulations and worker-protection policies (e.g., work-family programs, minimum-wage policies, and restricted business hours), show the lowest presence of nonstandard work schedules.¹⁰ Our study examines how nonstandard work schedules differ across European regions by considering three key factors: education, gender, and parental status.

Data

Our data come from the 2005, 2010, and 2015 waves of the EWCS for 29 European countries. The European Foundation for the Improvement of Living and Working Conditions (Eurofound) administers the EWCS. The EWCS randomly selects and interviews individuals from a statistical and cross-sectional sample from each country included in the surveys.¹¹ Depending on feasibility concerns and the country's population size, the sample ranged from 537 to 3,706 respondents per country for each of the 3 years. Table 1 shows the 29 countries included in the present study. The analytic sample we used was nationally representative of each country. Face-to-face interviews were carried out in people's homes with questions about their demographic information and their working conditions. All three waves of the ECWS used in this study (2005, 2010, and 2015) followed the same data-collection procedures.

Our sample includes a total of 93,879 workers across the 29 countries. We analyze repeated measures across three cross-sectional waves of the survey: wave one in 2005 ($n = 25,436$), wave two in 2010 ($n = 34,688$), and wave three in 2015 ($n = 33,755$). The samples are representative of the working population aged 18 to 64 for each wave of the EWCS included in our data. We used sample weights in our analysis to ensure the representative nature of all countries included in the study.

We group the 29 European countries into five regions, which tend to have different public policy traditions: (1) Scandinavia (Denmark, Finland, Norway, and Sweden); (2) Continental Europe (Austria, Belgium, France, Germany, Luxemburg, and the Netherlands); (3) the Anglo-Celtic countries (Ireland and the United Kingdom); (4) Southern Europe (Cyprus, Greece, Italy, Malta, Portugal, and Spain); and (5) Central-Eastern Europe (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia). Table 1 presents the sample size for each of the 29 countries in the three waves of the EWCS used in this study.

Table 1. Sample size and percentage by country and year, 2005, 2010, 2015

Country	2005		2010		2015	
	Sample size (n)	Percent	Sample size (n)	Percent	Sample size (n)	Percent
Total	25,436	100.0	34,688	100.0	33,755	100.0
Austria	920	3.6	920	2.7	961	2.9
Belgium	945	3.7	3,706	10.7	2,408	7.1
Bulgaria	1,055	4.2	924	2.7	988	2.9
Croatia	929	3.7	861	2.5	773	2.3
Cyprus	556	2.2	953	2.8	963	2.9
Czech Republic	889	3.5	909	2.6	904	2.7
Denmark	962	3.8	1,029	3.0	923	2.7
Estonia	537	2.1	885	2.6	878	2.6
Finland	995	3.9	983	2.8	945	2.8
France	942	3.7	2,876	8.3	1,467	4.4
Germany	973	3.8	2,043	5.9	1,959	5.8
Greece	921	3.6	985	2.8	963	2.9
Hungary	948	3.7	964	2.8	913	2.7
Ireland	928	3.7	946	2.7	972	2.9
Italy	900	3.5	1,344	3.9	1,223	3.6
Latvia	904	3.6	935	2.7	835	2.5
Lithuania	831	3.3	883	2.6	927	2.8
Luxemburg	543	2.1	910	2.6	961	2.9
Malta	553	2.2	947	2.7	957	2.8
Netherlands	997	3.9	975	2.8	963	2.9
Norway	921	3.6	1,012	2.9	959	2.8
Poland	940	3.7	1,308	3.8	993	2.9
Portugal	939	3.7	912	2.6	869	2.6
Romania	890	3.5	901	2.6	935	2.8
Slovakia	985	3.9	946	2.7	913	2.7
Slovenia	584	2.3	1,352	3.9	1,523	4.5
Spain	955	3.8	990	2.9	3,220	9.5
Sweden	1,020	4.0	855	2.5	953	2.8
United Kingdom	974	3.8	1,434	4.1	1,507	4.5

See footnotes at end of table.

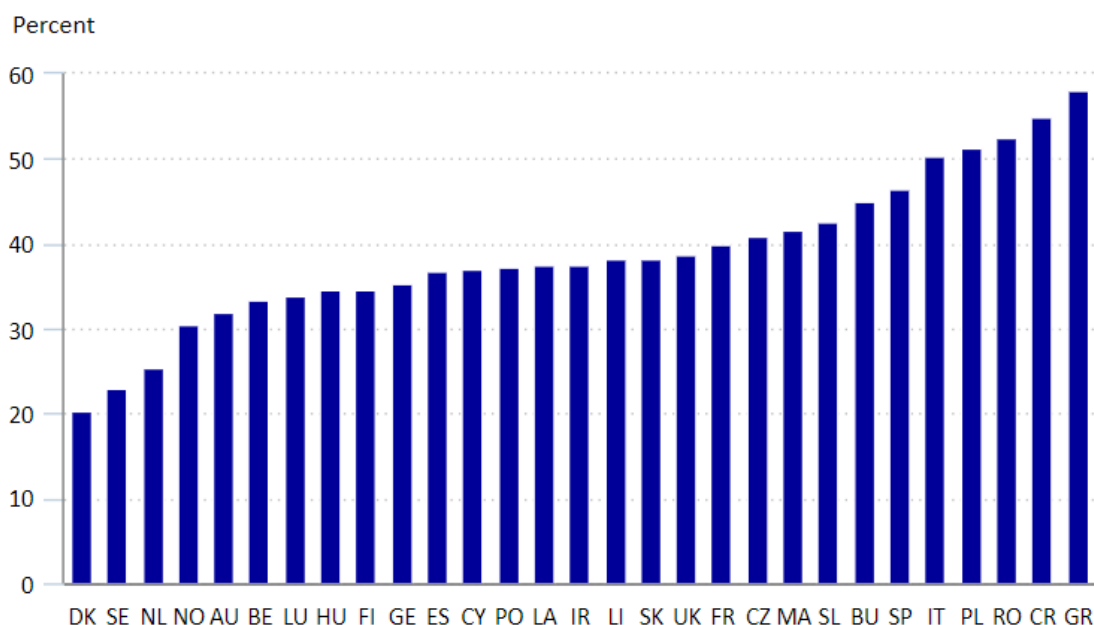
Source: European Working Conditions Surveys, 2005, 2010, and 2015.

Our outcome measure is *nonstandard work schedules*. This is a binary variable identifying employees who have nonstandard work schedules (as opposed to those not having such schedules). Workers are classified as working a nonstandard schedule if they declared in the EWCS that they worked under one or more of the following conditions: (1) frequent nonday shifts (i.e., evenings, nights, or split shifts); (2) frequent rotating hours or days; or (3) weekend work during most weekends of the month (i.e., at least three weekends in a month).

We examine the percentage of workers with nonstandard schedules across the 29 countries included in our data. We pay particular attention to the differences in nonstandard work schedules across the five European regions, including changes that occurred from 2005 to 2015. Finally, we investigate the probabilities of working nonstandard work schedules across the five European regions by using multivariate logistic regressions adjusted for selected covariates (age, marital status, occupation, and migrant status) across education, gender, and parental status.

Nonstandard work schedules in 29 European countries

Chart 1 shows the percentage of workers with nonstandard work schedules for 29 European countries during the 2005–15 period. Although more than 1 in 3 workers (39 percent) in our overall sample worked nonstandard schedules, we observe notable cross-national differences in the incidence of such schedules. The prevalence of nonstandard work schedules ranges from—at the lower end of the scale—20 percent in Denmark, 22 percent in Sweden and 25 percent in the Netherlands to—at the higher end of the scale—50 percent in Italy, 51 percent in Poland, 52 percent in Romania, 54 percent in Croatia, and 56 percent in Greece. In nine countries, the incidence of nonstandard work schedules ranged from 35 to 40 percent, including five Central-Eastern European countries (Estonia, Cyprus, Latvia, Lithuania, and Slovakia), the two Anglo-Celtic countries (Ireland and the United Kingdom), one Southern European country (Portugal), and one Continental European country (France).

Chart 1. Percentage of workers with nonstandard work schedules, by European country, average for 2005, 2010, and 2015

Click legend items to change data display. Hover over chart to view data.

Note: Data are from a pooled sample of three waves of the European Working Conditions Surveys (2005, 2010, 2015).

The data are for workers aged 18 to 64 with nonstandard work schedules from 29 countries. The total sample size equals 93,879; 95-percent confidence intervals, without controls. AU = Austria, BE = Belgium, BU = Bulgaria, CR = Croatia, CY = Cyprus, CZ = Czech Republic, DK = Denmark, ES = Estonia, FI = Finland, FR = France, GE = Germany, GR = Greece, HU = Hungary, IR = Ireland, IT = Italy, LA = Latvia, LI = Lithuania, LU = Luxemburg, MA = Malta, NL = Netherlands, NO = Norway, PL = Poland, PO = Portugal, RO = Romania, SK = Slovakia, SL = Slovenia, SP = Spain, SE = Sweden, UK = United Kingdom.

Source: European Working Conditions Surveys, 2005, 2010, and 2015.

Nonstandard work schedules in five European regions

Table 2 shows the percentage of workers with nonstandard schedules across five European regions. We observe notable differences in the incidence of nonstandard work schedules across regions. In Scandinavia, 27 percent of workers have nonstandard work schedules, followed by the Continental European countries (34 percent) and the Anglo-Celtic countries (38 percent). The Southern European countries had the largest percentage of workers with nonstandard schedules (46 percent), followed closely by the Central-Eastern European countries (43 percent).

Table 2. Percentage of employees with nonstandard work schedules across five European regions, average for 2005, 2010, and 2015

Characteristic	Scandinavia	Continental Europe	Anglo-Celtic countries	Southern Europe	Central-Eastern Europe
Percentage	27	34	38	46	43
Number of observations	11,557	25,469	6,761	19,150	30,942

See footnotes at end of table.

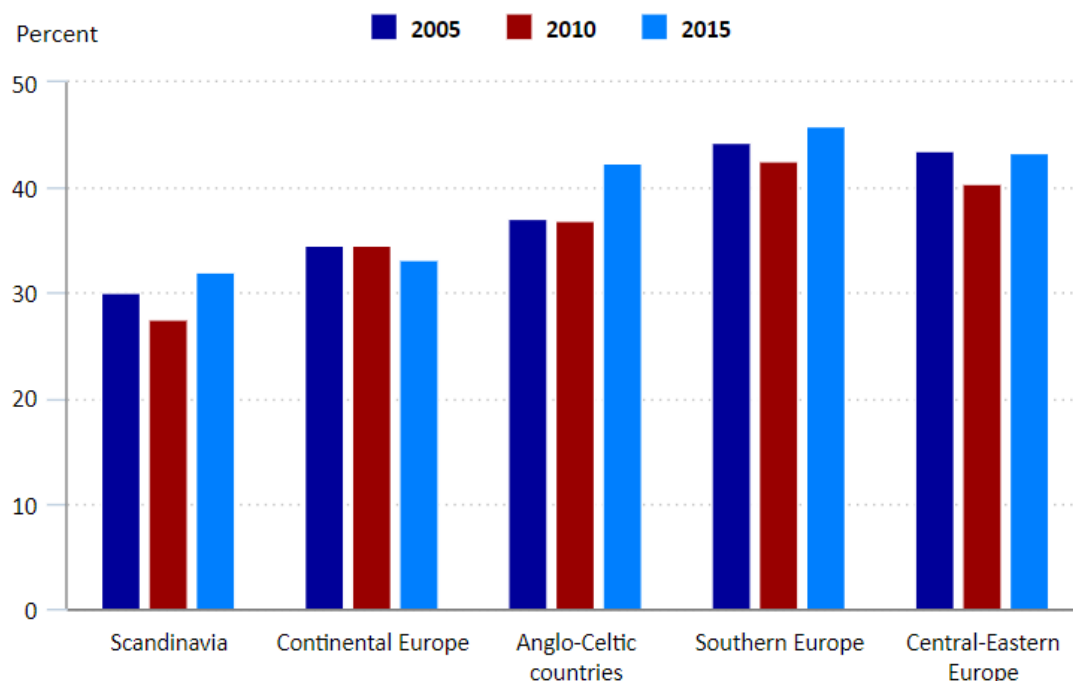
Note: Employees aged 18 to 64 for a pooled sample of three survey waves: Wave one (2005), Wave two (2010), and Wave three (2015); total sample size (n) = 93,879.

Source: European Working Conditions Surveys, 2005, 2010, and 2015.

Nonstandard work schedules, 2005 to 2015

Chart 2 shows the probabilities (percentages) of working nonstandard schedules across the five European regions in 2005, 2010, and 2015. Our analysis adjusts for demographic and socioeconomic variables. We observe that, between 2005 (prerecession) and 2010 (recession), the likelihood of working nonstandard schedules decreased slightly in Southern Europe (from 44 percent to 43 percent), Central-Eastern Europe (from 44 percent to 40 percent), and Scandinavia (from 30 percent to 27 percent), while it remained stable in the Anglo-Celtic countries (at 37 percent) and Continental Europe (at 35 percent).¹² Between 2010 (recession) and 2015 (postrecession), the incidence of nonstandard work schedules returned to levels similar to those in 2005 in Southern Europe (46 percent), Central-Eastern Europe (43 percent), and Scandinavia (32 percent). In Continental Europe there was a slight decline in the percentage of workers on nonstandard schedules—from 35 percent in 2010 to 33 percent in 2015. By contrast, the percentage of workers on nonstandard schedules increased in the Anglo-Celtic countries, from 37 percent in 2010 to 42 percent in 2015.

Chart 2. Percentage of workers with nonstandard work schedules, by European region and year, 2005, 2010, and 2015



Click legend items to change data display. Hover over chart to view data.

Note: Data are from a pooled sample of three waves of the European Working Conditions Surveys (2005, 2010, 2015).

The data are for workers aged 18 to 64 with nonstandard work schedules from 29 countries. The total sample size equals 93,879; 95-percent confidence intervals, without controls. The percentages are calculated from logistic regression models with interactions with the five European regions adjusted for age, education, gender, education, occupational sector, family income, migrant status, parenthood status, and marital status.

Source: European Working Conditions Surveys, 2005, 2010, and 2015.

Table 3 presents odds ratios that allow us to examine if the likelihood of working nonstandard schedules differs significantly across years within each of the five European regions, after adjusting for demographic and socioeconomic variables. Odds ratios with values greater than 1 are interpreted as positive, while those with values less than 1 are interpreted as negative. The differences in the likelihood of working nonstandard schedules between years were statistically significant for four of the regions, with the exception being the Continental European countries. The differences were particularly notable between 2010 and 2015 ($p < 0.001$). In Continental European countries, differences in the likelihood of working nonstandard schedules were not statistically significant between 2005 and 2010 or between 2010 and 2015.

Table 3. Odds ratios for the probability of working nonstandard work schedules, by European region, 2005–15

Region	Statistical differences between 2005 and 2010			Statistical differences between 2005 and 2015			Statistical differences between 2010 and 2015
	Odds ratio	<i>p</i> -value	Robust standard errors	Odds ratio	<i>p</i> -value	Robust standard errors	<i>p</i> < 0.001
Scandinavia	0.899 (–)	<i>p</i> < 0.05	0.05	1.137 (+)	<i>p</i> < 0.05	0.06	[1]
Continental Europe	1.030 (+)	[2]	0.04	0.992 (–)	[2]	0.04	[2]
Anglo-Celtic countries	0.981 (–)	[2]	0.07	1.222 (+)	<i>p</i> < 0.01	0.08	[1]
Southern Europe	0.951 (–)	[2]	0.04	1.137 (+)	<i>p</i> < 0.01	0.04	[1]
Central- Eastern Europe	0.919 (–)	<i>p</i> < 0.01	0.03	1.081 (+)	<i>p</i> < 0.01	0.03	[1]

Notes:

[1] Statistically significant.

[2] Not statistically significant.

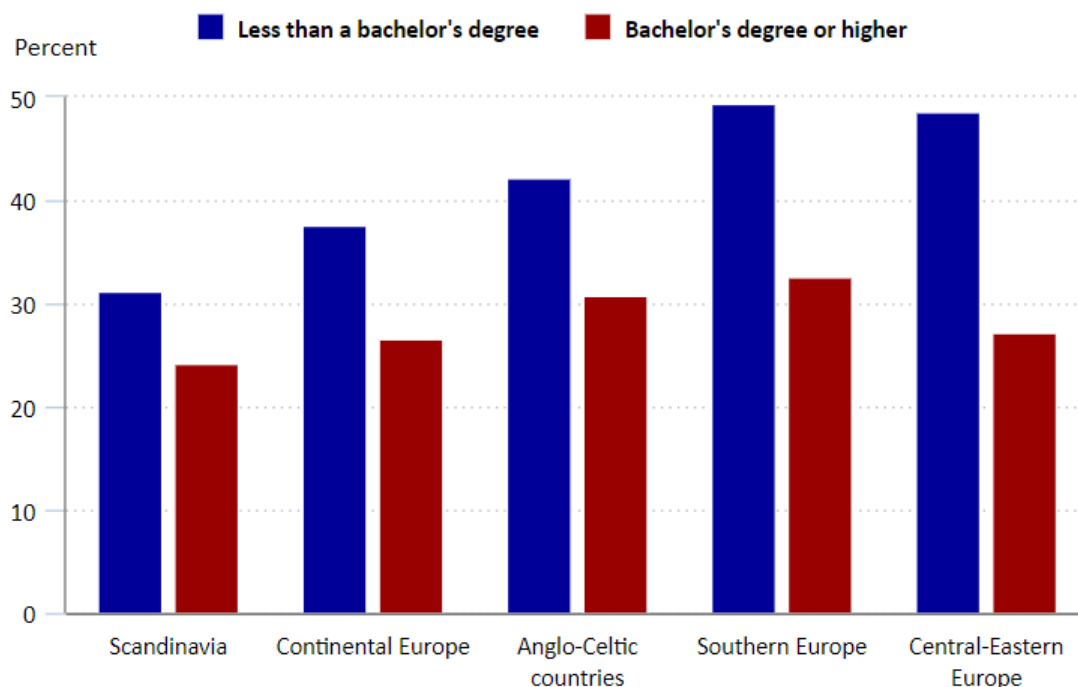
Note: The year 2005 is the reference category for each region. Five separate logistic models were conducted measuring the probabilities of working nonstandard schedules as odds ratios. All models control for age, gender, education, occupational sector, family income, migrant status, parental status, and marital status. Odds ratios are interpreted as positive when the value is greater than 1 and negative when the value is less than 1.

Source: European Working Conditions Surveys, 2005, 2010, and 2015.

Nonstandard work schedules by education level

Chart 3 shows the percentage of workers with nonstandard work schedules among those holding a college degree (bachelor's degree or equivalent) and those with lower levels of education across the five European regions. Our analysis adjusts for demographic and socioeconomic variables. We observe that college-educated workers are less likely to have nonstandard work schedules than their less-educated counterparts. Yet, these educational variations in nonstandard work schedules differ markedly across the five regions.

Chart 3. Percentage of workers with nonstandard work schedules, by European region and education level, average for 2005, 2010, and 2015



Click legend items to change data display. Hover over chart to view data.

Note: Data are from a pooled sample of three waves of the European Working Conditions Surveys (2005, 2010, 2015). The data are for workers aged 18 to 64 with nonstandard work schedules from 29 European countries. The total sample size equals 93,879; 95-percent confidence intervals, without controls. The percentages are calculated from logistic regression models with interactions with the five European regions adjusted for age, year, gender, occupational sector, family income, migrant status, parenthood status, and marital status.

Source: European Working Conditions Surveys, 2005, 2010, and 2015.

Chart 3 shows that educational differences in nonstandard work schedules are smallest in the Scandinavian countries, with 24 percent of college-educated workers having nonstandard schedules, compared with 31 percent of those with less education. We find larger educational differences in the probability of working nonstandard schedules in Continental Europe (27 percent for the college educated, compared with 38 percent for those with less education) and in the Anglo-Celtic countries (31 percent, compared with 42 percent). In Southern Europe, we find much larger educational gaps in the probability of working nonstandard schedules: 33 percent for workers holding a college degree, compared with 49 percent for those with less education. Finally, the largest educational gap in the probabilities of nonstandard work schedules exists in the Central-Eastern European countries: 27 percent for those with a college degree, compared with 49 percent for those with less education.

Educational differences in nonstandard work schedules are smallest in Scandinavia, a region with low levels of socioeconomic inequalities and high social benefits (compared with the other regions).¹³ Educational gaps in nonstandard work schedules are at intermediate levels in the Continental European countries and in the Anglo-Celtic countries. The greatest differences between college-educated workers and the less-educated workers exist in Southern Europe and even more so in Central-Eastern Europe, where less-educated workers are especially likely to work nonstandard schedules, with many employed in low-paying jobs under precarious contracts.¹⁴

Table 4 presents odds ratios that show whether the differences in the probabilities of working nonstandard schedules by educational levels were significant within each of the five European regions, net of all other control variables. Odds ratios with values greater than 1 are interpreted as positive, while those with values less than 1 are interpreted as negative. Although educational variations in the likelihood of working nonstandard schedules were statistically significant in all five regions, these variations were statistically stronger in Southern Europe, Continental Europe, and Central-Eastern Europe ($p < 0.001$), followed by the Anglo-Celtic region ($p < 0.01$) and Scandinavia ($p < 0.05$), which had the least variation.

Table 4. Odds ratios for the probability of working nonstandard work schedules, by education and European region, average for 2005, 2010, and 2015.

Region	Odds ratio	<i>p</i> -value	Robust standard errors	Sample size
Scandinavia	0.889 (–)	$p < 0.05$	0.05	11,557
Continental Europe	0.680 (–)	$p < 0.001$	0.02	25,469
Anglo-Celtic countries	0.827 (–)	$p < 0.01$	0.05	6,761
Southern Europe	0.585 (–)	$p < 0.001$	0.02	19,150
Central-Eastern Europe	0.529 (–)	$p < 0.001$	0.02	30,942

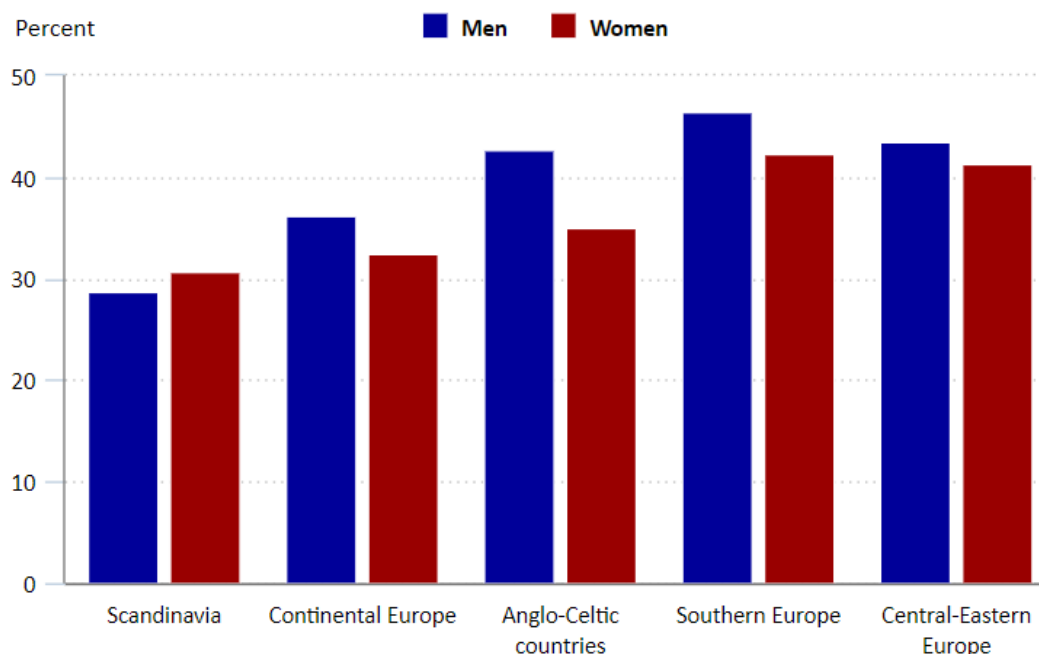
Note: Data are for workers who have at least a bachelor's degree, with those with less education being the reference category. Five separate logistic models were conducted measuring the probabilities of working nonstandard schedules as odds ratios. All models control for age, gender, year, occupational sector, family income, migrant status, parental status, and marital status. Odds ratios are interpreted as positive when the value is greater than 1 and negative when the value is less than 1.

Source: European Working Conditions Surveys, 2005, 2010, and 2015.

Nonstandard work schedules by gender

Chart 4 shows the percentage of men and women with nonstandard work schedules across the five European regions, adjusted by demographic and socioeconomic factors. This analysis shows two clear findings. First, gender differences in working nonstandard schedules tend to be smaller than educational differences. Second, men are more likely than women to work nonstandard work schedules in all regions, except in Scandinavia, where women are slightly more likely than men to work nonstandard schedules.

Chart 4. Percentage of workers with nonstandard schedules, by European region and gender, average for 2005, 2010, and 2015



Click legend items to change data display. Hover over chart to view data.

Note: Data are from a pooled sample of three waves of the European Working Conditions Surveys (2005, 2010, 2015). The data are for workers aged 18 to 64 with nonstandard work schedules from 29 European countries. The total sample size equals 93,879; 95-percent confidence intervals, without controls. The percentages are calculated from logistic regression models adjusted for age, year, occupational sector, family income, migrant status, parenthood status, and marital status.

Source: European Working Conditions Surveys, 2005, 2010, and 2015.

Chart 4 shows that the probability of working nonstandard schedules in Scandinavia is 29 percent among men and 31 percent among women. In Continental Europe, men are more likely than women to work nonstandard schedules (36 percent among men, compared with 32 percent among women), with similar gender gaps in Southern Europe (46 percent among men; 42 percent among women) and in the Central-Eastern European cluster (44 percent among men; 41 percent among women). The largest gender differences in the likelihood of working nonstandard schedules appear in the Anglo-Celtic countries: 35 percent among women, compared with 43 percent among men. These findings show that the Scandinavian countries are unique among the regions of Europe in that women are more likely than men to work nonstandard schedules, which might reflect similar levels of working flexibility across genders in Scandinavia.¹⁵ In the other four European regions, men work nonstandard schedules more than women, with moderate gender gaps in Continental Europe, Southern Europe, and Central-Eastern Europe. The Anglo-Celtic countries have the largest gender differences in nonstandard work schedules, showing that men—who often work long hours across economic sectors in these English-speaking countries—are the most affected by having nonstandard work schedules, while women—many of whom work part time in these countries—are more likely to work flexible standard work schedules.¹⁶

Table 5 presents odds ratios that show the likelihood of working nonstandard schedules by gender within each of the five European regions of study, net of all other demographic and socioeconomic variables. Odds ratios with

values greater than 1 are interpreted as positive, while those with values less than 1 are interpreted as negative. For Continental Europe, the Anglo-Celtic countries, and Southern Europe, men showed a higher probability of working nonstandard work schedules, with strong statistical significance ($p < 0.001$). The higher tendency of women to work nonstandard work schedules in the Scandinavian countries was also statistically significant ($p < 0.01$). In contrast, the gender differences in the likelihood of working nonstandard work schedules in Central-Eastern Europe was not statistically significant.

Table 5. Odds ratios for the probability of working nonstandard work schedules, by gender and European region, average for 2005, 2010, and 2015.

Region	Odds ratio	<i>p</i> -value	Robust standard errors	Sample size
Scandinavia	1.117 (+)	$p < 0.01$	0.05	11,557
Continental Europe	0.887 (–)	$p < 0.001$	0.02	25,469
Anglo-Celtic countries	0.760 (–)	$p < 0.001$	0.04	6,761
Southern Europe	0.890 (–)	$p < 0.001$	0.03	19,150
Central-Eastern Europe	0.984 (–)	[1]	0.02	30,942

Notes:

[1] Difference between men and women is not statistically significant in Central-Eastern Europe.

Note: Data are for men, with women being the reference category. Five separate logistic models were conducted measuring the probabilities of working nonstandard schedules as odd ratios. All models control for age, education, year, occupational sector, family income, migrant status, parental status, and marital status. Odds ratios are interpreted as positive when the value is greater than 1 and negative when the value is less than 1.

Source: European Working Conditions Surveys, 2005, 2010, and 2015.

Nonstandard work schedules by parental status

Table 6 shows the probabilities of working nonstandard schedules by gender and region across three groups by parental status—workers with no children aged 0 to 17, workers whose youngest child is aged 0 to 5, and workers whose youngest child is aged 6 to 11—with workers whose youngest child is aged 12 to 17 being the reference category. Results are presented with odds ratios, with values greater than 1 indicating higher odds of working nonstandard schedules (positive) and values less than 1 indicating lower odds of working nonstandard schedules (negative), compared with the odds of working nonstandard work schedules for the reference group (workers whose youngest child is aged 12 to 17). These models adjust for demographic and socioeconomic factors. For brevity, we only highlight results that are statistically significant at least at the 95-percent confidence level.

Table 6. Odds ratios for the probability of working nonstandard work schedules, by present and age of children and European region, average of 2005, 2010, and 2015

Gender and region	No children aged 0 to 17			Youngest child aged 0 to 5			Youngest child aged 6 to 11		
	Odds ratio	<i>p</i> -value	Robust standard errors	Odds ratio	<i>p</i> -value	Robust standard errors	Odds ratio	<i>p</i> -value	Robust standard errors
Men									
Scandinavia	0.904 (–)	[1]	0.07	0.806 (–)	[1]	0.10	0.954 (–)	[1]	0.11

See footnotes at end of table.

Table 6. Odds ratios for the probability of working nonstandard work schedules, by present and age of children and European region, average of 2005, 2010, and 2015

Gender and region	No children aged 0 to 17			Youngest child aged 0 to 5			Youngest child aged 6 to 11		
	Odds ratio	p-value	Robust standard errors	Odds ratio	p-value	Robust standard errors	Odds ratio	p-value	Robust standard errors
Continental Europe	1.044 (+)	[1]	0.06	1.005 (+)	[1]	0.08	0.961 (–)	[1]	0.07
Anglo-Celtic countries	0.925 (–)	[1]	0.10	1.081 (+)	[1]	0.16	1.101 (+)	[1]	0.15
Southern Europe	0.883 (–)	p < 0.05	0.05	0.953 (–)	[1]	0.08	0.884 (–)	[1]	0.07
Central-Eastern Europe	0.928 (–)	[1]	0.05	1.022 (+)	[1]	0.07	0.957 (–)	[1]	0.07
Women									
Scandinavia	0.952 (–)	[1]	0.07	0.780 (–)	p < 0.05	0.10	0.737 (–)	p < 0.01	0.08
Continental Europe	1.107 (+)	p < 0.05	0.06	0.920 (–)	[1]	0.07	0.933 (–)	[1]	0.06
Anglo-Celtic countries	1.132 (+)	[1]	0.11	1.019 (+)	[1]	0.15	0.898 (–)	[1]	0.12
Southern Europe	1.087 (–)	[1]	0.06	0.850 (–)	[1]	0.08	0.894 (–)	[1]	0.07
Central-Eastern Europe	0.927 (–)	[1]	0.04	0.982 (–)	[1]	0.07	0.925 (–)	[1]	0.05

Notes:

[1] Differences are not statistically significant.

Note: For both men and women, the reference category is the group of workers with children aged 12 to 17. Five separate logistic models were conducted measuring the probabilities of working nonstandard schedules as odds ratios. All models control for age, year, gender, education, occupational sector, family income, migrant status, and marital status. Odds ratios are interpreted as positive when the value is greater than 1 and negative when the value is less than 1.

Source: European Working Conditions Surveys, 2005, 2010, and 2015.

Table 6 shows that the differences in nonstandard work schedules by men's parental status are generally not statistically significant. The only significant result for men is found in the Southern European region, where men without children have lower odds of working nonstandard schedules (0.883), compared with the odds for those in which the youngest child at home is aged 12 to 17. For women, we find more differences by parental status in the probabilities of working nonstandard work schedules, although these differences are only statistically significant in the Scandinavian and Continental European regions. In Scandinavia, mothers whose youngest child is aged 0 to 5 (0.780) and those whose youngest child is aged 6 to 11 (0.737) have significantly lower odds of working nonstandard schedules than Scandinavian mothers whose youngest child is aged 12 to 17. Also, in the Continental European region, women without dependent children aged 0 to 17 at home show significantly higher odds of working nonstandard schedules (1.107), compared with the odds for women whose youngest child is aged 12 to 17.

To summarize, men's probabilities of working nonstandard schedules hardly differ by parental status, except in Southern Europe, where men have particularly low probabilities of working nonstandard schedules. By contrast, women without any children aged 0 to 17 at home are more likely to work nonstandard schedules than women with children under age 18 at home, with statistically significant differences in Continental Europe. The Scandinavian

countries are an exception regarding the role of children's age in the likelihood of mothers working nonstandard schedules, with the probability of working nonstandard schedules clearly lower among mothers with children of preschool age and primary-school age than among mothers with older children. These findings suggest that family-friendly policies in Scandinavia may allow women with small children to avoid working nonstandard schedules.

Summary of results

- The presence of nonstandard work schedules differs markedly across European regions. Nonstandard work schedules are most prevalent in the Southern European and Central-Eastern European countries, followed by the Anglo-Celtic countries and, to a lesser extent, the Continental European countries. Nonstandard work schedules are least prevalent in the Scandinavian countries.
- In the Central-Eastern European, Southern European, and Scandinavian countries, the prevalence of nonstandard work schedules declined from 2005 to 2010, before returning to prerecession levels in 2015. In Continental Europe, the prevalence of nonstandard work schedules changed little from 2005 to 2010 and then declined from 2010 to 2015. In the Anglo-Celtic countries, the prevalence of nonstandard work schedules remained stable from 2005 to 2010, but then showed a substantial increase from 2010 to 2015.
- In each of the European countries covered in this study, workers holding a college degree were less likely than those without a college degree to work nonstandard schedules. Yet, these differences by education vary across the five regions, being low in Scandinavia, moderate in Continental Europe and the Anglo-Celtic countries, and high in Southern Europe and Central-Eastern Europe.
- Men were more likely than women to work nonstandard schedules in Continental Europe, Central-Eastern Europe, and Southern Europe, and even more so in the Anglo-Celtic countries. In Scandinavia, by contrast, women were slightly more likely than men to work nonstandard schedules.
- Scandinavia was the only region in which the age of the youngest child at home played a significant role in the prevalence of mothers working nonstandard schedules, where women with young children (preschool age and primary-school age) were less likely to work nonstandard schedules than women with older children.

Conclusion

This article presents a systematic analysis of how nonstandard work schedules differ across five European regions, with each of the regions having different public policy contexts. It uses high-quality data from the European Working Conditions Surveys (EWCS) from 2005 to 2015. Our results indicate that regions with a tradition of higher social protection, such as Scandinavia and, to a lesser extent, Continental Europe, had a lower incidence of nonstandard work schedules. By contrast, the Southern European and Central-Eastern European regions showed particularly high levels of nonstandard work schedules, which are associated with poorer health, lower work autonomy, and higher work-family conflict levels. The 2007–09 recession reduced the incidence of nonstandard work schedules in Europe, but they returned to prerecession levels during the subsequent recovery. Nonstandard work schedules increased in the English-speaking countries over the period from 2005 to 2015.

Education and gender play an important role in shaping nonstandard work schedules. We found clear differences by education and—to a lesser extent—gender in the incidence of working nonstandard work schedules. The magnitude and direction of these variations differed across the five European regions, which have different policy and labor market traditions. Also, we observed some variations in the incidence of working nonstandard schedules by parental status, with relevant differences across Europe. Overall, the findings of this study contribute to current debates about working conditions across European regions with different policy, social, and economic contexts by providing an exhaustive examination of nonstandard work schedules, using detailed data from 29 European countries.

SUGGESTED CITATION

Pablo Gracia, Wen-Jui Han, and Jianghong Li, "Nonstandard work schedules in 29 European countries, 2005–15: differences by education, gender, and parental status," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, July 2021, <https://doi.org/10.21916/mlr.2021.17>.

NOTES

¹ For a discussion of current debates on precarious and nonstandard employment in the United States and other industrialized countries, see Arne L. Kalleberg, "Globalization and precarious work," *Contemporary Sociology*, vol. 42, no. 5, September 2013, pp. 700–706, <https://doi.org/10.1177/0094306113499536>.

² See the recent article by Matthew Dey, Harley Frazis, Mark A. Loewenstein, and Hugette Sun, "Ability to work from home: evidence from two surveys and implications for the labor market in the COVID-19 pandemic," *Monthly Labor Review*, June 2020, <https://doi.org/10.21916/mlr.2020.14>. The authors analyze current patterns of telework during the COVID-19 pandemic in the United States and present evidence of important demographic differences in such patterns. Although Dey et al. do not examine differences in nonstandard work schedules, a number of scholarly studies show that jobs with nonstandard work schedules (i.e., rotating shifts, irregular hours) are subject to higher levels of unpredictability and insecurity and that such jobs are particularly endangered during structural economic crises. See, for example, Harriet B. Presser, *Working in a 24/7 Economy: Challenges for American Families* (New York: Russell Sage Foundation, 2003); see, especially, chapter 2, "Who works nonstandard schedules and why," pp. 11–58.

³ See Presser, *Working in a 24/7 Economy*.

⁴ For a complete review of this literature, see Claudia R. C. Moreno, Elaine C. Marqueze, Charli Sargent, Kenneth P. Wright, Jr., Sally A. Ferguson, and Philip Tucker, "Working time society consensus statements: evidence-based effects of shift work on physical and mental health," *Industrial Health*, vol. 57, no. 2, April 2019, pp. 139–157, <https://doi.org/10.2486/indhealth.sw-1>. See also, Ariel Kalil, Kathleen M. Ziol-Guest, and Jodie Levin Epstein, "Nonstandard work and marital instability: evidence from the National Longitudinal Survey of Youth," *Journal of Marriage and Family*, vol. 72, no. 5, October 2010, pp. 1289–1300, <https://doi.org/10.1111/j.1741-3737.2010.00765.x>; and David J. Maume and Rachel A. Sebastian, "Gender, nonstandard work schedules, and marital quality," *Journal of Family and Economic Issues*, vol. 33, no. 4, December 2012, pp. 477–490, <https://doi.org/10.1007/s10834-012-9308-1>.

⁵ The study by Presser, *Working in a 24/7 Economy*, reports such differences by education and social class in nonstandard work schedules in the United States.

⁶ Pablo Gracia and Matthijs Kalmijn, "Parents' family time and work schedules: the split-shift schedule in Spain," *Journal of Marriage and Family*, vol. 78, no. 2, April 2016, pp. 401–415, <https://doi.org/10.1111/jomf.12270>.

⁷ See Wen-Jui Han, "Shift work and child behavioral outcomes," *Work, Employment and Society*, vol. 22, no. 1, March 2008, pp. 67–87, <https://doi.org/10.1177/0950017007087417>; see also, Jianghong Li, Sarah E. Johnson, Wen-Jui Han, Sonia Andrews, Garth Kendall, Lyndall Strazdins, and Alfred Dockery, "Parents' nonstandard work schedules and child well-being: a critical review of the literature," *The Journal of Primary Prevention*, vol. 35, no. 1, September 2013, pp. 53–73, <https://doi.org/10.1007/s10935-013-0318-z>.

⁸ Harriet B. Presser, Janet C. Gornick, and Sangeeta Parashar, “Gender and nonstandard work hours in 12 European countries,” *Monthly Labor Review*, February 2008, pp. 83–103, <https://www.bls.gov/opub/mlr/2008/02/art5full.pdf>.

⁹ A study by Roxanna Edwards and Sean M. Smith shows that there were extremely high levels of unemployment in the United States during the 2009–10 period, compared with 2005 and 2015. See Edwards and Smith, “Job market remains tight in 2019, as the unemployment rate falls to its lowest level since 1969,” *Monthly Labor Review*, April 2020, <https://www.bls.gov/opub/mlr/2020/article/job-market-remains-tight-in-2019-as-the-unemployment-rate-falls-to-its-lowest-level-since-1969.htm>. Although European Union countries were affected by the 2007–09 economic recession in different ways, data from the Organisation for Economic Co-operation and Development (OECD) show that consumption and overall economic activity was considerably stronger in 2015 than in 2010, while unemployment was much higher in 2010 than in 2005. See *OECD Employment Outlook 2015* (Paris, France: OECD Publishing, 2015), https://doi.org/10.1787/empl_outlook-2015-en.

¹⁰ A 1999 study by sociologist Gøsta Esping-Andersen incorporates a discussion of European welfare states and social policy across different regions (defined as welfare regimes) by considering the linkages between states, families and markets in the provision of welfare. This typology has been extensively used to investigate labor market policies in Europe, which in many respects can be clustered across different European regions. See Esping-Andersen, *Social Foundations of Postindustrial Economies* (Oxford, UK, and New York, NY: Oxford University Press, 1999). For a review of the literature on welfare regimes and social policies in industrialized countries, see Emanuele Ferragina and Martin Seeleib-Kaiser, “Thematic review: welfare regime debate: past, present, futures?” *Policy & Politics*, vol. 39, no. 4, pp. 583–611, <https://doi.org/10.1332/030557311X603592>.

¹¹ For more information, see the European Working Conditions Surveys (EWCS) page at <https://www.eurofound.europa.eu/surveys/european-working-conditions-surveys-ewcs>. The EWCS are conducted by the European Foundation for the Improvement of Living and Working Conditions (Eurofound). Eurofound is an agency of the European Union (EU), and its mission is to improve living and working conditions in the EU.

¹² The National Bureau of Economic Research determined that the “Great Recession” in the United States began in December 2007 and ended in June 2009. Nevertheless, payroll employment remained below prerecession levels for several years after the recession ended. Similarly, the unemployment rate remained above prerecession levels for several years after the recession. In Europe, the recessionary effects varied by region, but they generally were the most severe in 2009, with lingering effects on employment and unemployment for several years after 2009. Hence, in our analysis, we consider 2010 to be a recession year and 2005 and 2015 to be economic expansion years.

¹³ For example, a recent OECD report shows that, in terms of relative poverty, social protection, and income inequalities, the Scandinavian countries are among the most egalitarian of the OECD countries. These low educational inequalities in the incidence of working nonstandard schedules in the Scandinavian countries can probably be explained, at least in part, by the opportunities of less-educated workers to avoid working outside regular hours, compared with countries that have lower salaries and lower job protections for less-skilled workers. See *Society at a Glance: 2019 OECD Social Indicators* (Paris: OECD Publishing, 2019), <https://www.oecd.org/els/society-at-a-glance-19991290.htm>.

¹⁴ Recent evidence shows that Central-Eastern European countries experienced the highest levels of precarious conditions in the European Union since the 2007–09 Great Recession, while the risks of having precarious jobs was particularly pronounced among less-skilled workers. See, for example, Nuria Matilla-Santander, Cristina Lidón-Moyano, Adrián González-Marrón, Kailey Bunch, Juan Carlos Martín-Sánchez, and Jose M. Martínez-Sánchez, “Measuring precarious employment in Europe 8 years into the global crisis,” *Journal of Public Health*, vol. 41, no. 2, June 2019, pp. 259–67, <https://doi.org/10.1093/pubmed/fdy114>. Other studies reveal the nature of temporary and fixed-term jobs in Southern European countries, especially among less-skilled workers, with workers facing high levels of job insecurity and risks of experiencing poverty. See, for example, Lefteris Kretsos and Ilias Livanos, “The extent and determinants of precarious employment in Europe,” *International Journal of Manpower*, vol. 37, no. 1, April 2016, pp. 25–43, <https://doi.org/10.1108/IJM-12-2014-0243>.

¹⁵ For a thorough review of different trends in family-friendly and gender-equality policies in Europe, see Jane Lewis, *Work–Family Balance, Gender and Policy* (Cheltenham, UK, and Northampton, MA: Edward Elgar Publishing, 2009), <https://www.e-elgar.com/shop/usd/work-family-balance-gender-and-policy-9781848442115.html>.

¹⁶ See Lewis, *Work–Family Balance, Gender and Policy*, for a detailed discussion of the role of part-time employment among women in the Anglo-Celtic countries, particularly the United Kingdom.

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