



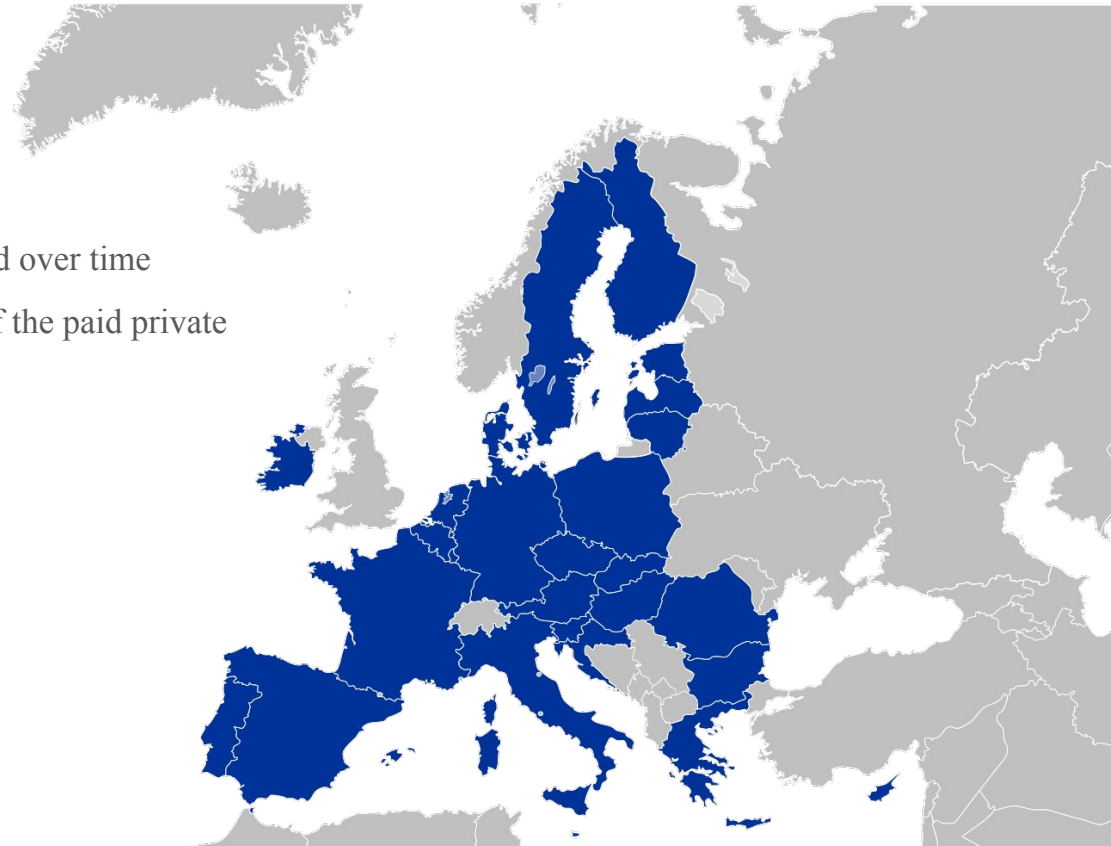
Analysis of Female Share of Private Sector in the European Union

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Overview



- Societal roles and expectations have changed over time
- Is there any difference in the female share of the paid private sector from 2000 to 2018?





Motivation

- By answering the question in the previous slide, one can the engagement of women in the private sector
- In more traditional and conservative nations, women are typically expected to remain in the household, while their spouse (expected to be male) functions as the primary breadwinner
- Furthermore, by examining the female share of the private sector, we can obtain a sense of private sector hiring tendencies, i.e. if more women are hired in a year than men, then the female share will increase compared to the previous year



Dataset

- Data from 130+ countries between 2000 to 2018
- Includes various socio-economic indicators such as: number of employed individuals, female to male wage ratio in the private and public sectors, etc.
- [Link to Data Source \(csv download\)](#)

	Country Name	2000	2001	2002	2003	2004	2005	2006	2007	2008
0	Austria	NaN	NaN	NaN	NaN	0.451399	0.460639	0.463537	0.454800	0.386014
1	Belgium	NaN	NaN	NaN	NaN	0.394609	0.408523	0.402484	0.411294	0.353284
2	Bulgaria	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.405310	0.437140
3	Croatia	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
4	Cyprus	NaN	NaN	NaN	NaN	NaN	0.450963	0.441996	0.448156	0.445168
5	Czech Republic	NaN	NaN	NaN	NaN	NaN	0.422902	0.401150	0.416879	0.394147
6	Estonia	NaN	NaN	NaN	NaN	0.456897	0.441743	0.446947	0.452051	0.444583
7	Finland	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.391210
8	France	NaN	NaN	NaN	NaN	0.432670	0.438436	0.446813	0.444790	0.390090
9	Greece	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.411760	0.386967
10	Hungary	NaN	NaN	NaN	NaN	0.379134	0.383765	0.426076	0.415683	0.403123
11	Ireland	NaN	NaN	NaN	NaN	0.437316	0.437337	0.427949	0.439560	0.416680
12	Italy	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.402698	0.384860
13	Latvia	NaN	NaN	NaN	NaN	NaN	NaN	NaN	0.456640	0.446205
14	Lithuania	NaN	NaN	NaN	NaN	NaN	0.406398	0.401922	0.413751	0.449165
15	Luxembourg	NaN	NaN	NaN	NaN	0.388653	0.391452	0.403243	0.401594	0.377365
16	Malta	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
17	Poland	NaN	0.417802	0.408885	0.407340	0.413139	0.424599	0.418452	0.404973	0.369890



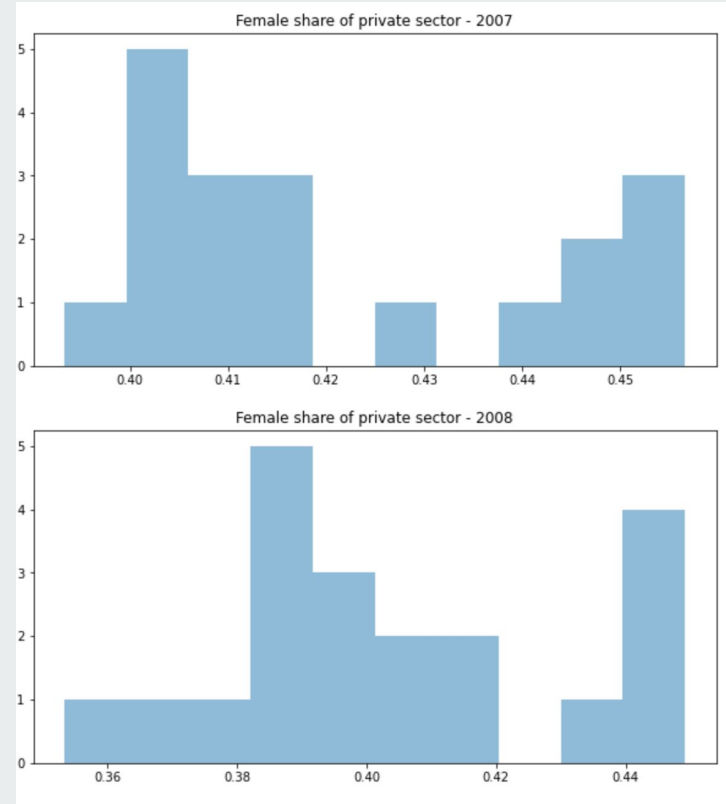
Hypotheses


When performing statistical tests, our hypotheses were the following:

- H_0 : there is no difference in the female share of paid private sector employees in EU member nations between 2012 and 2017
- H_a : there is a difference in the female share of paid private sector employees in EU member nations between 2012 and 2017

Exploratory Data Analysis

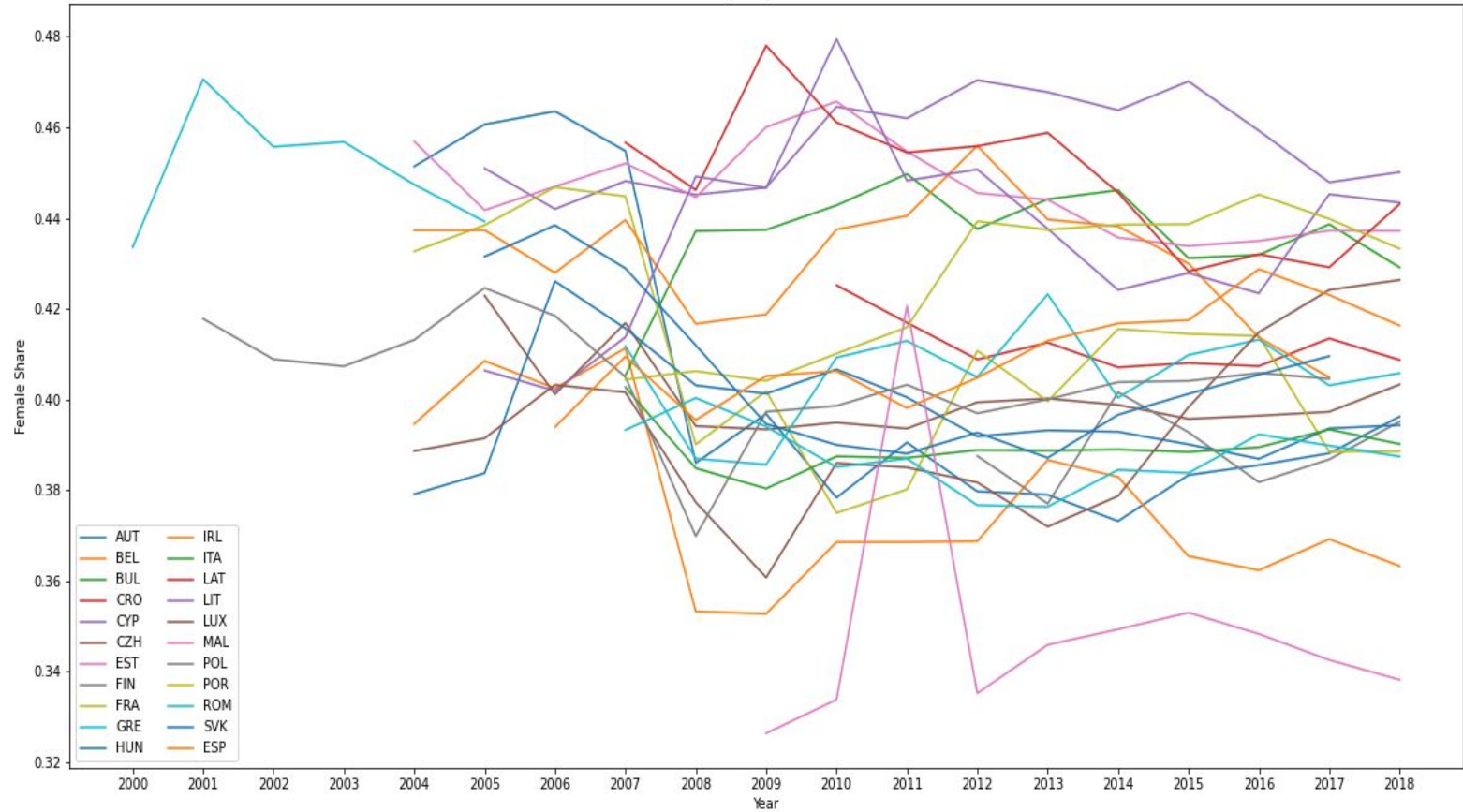
- While exploring the dataset, it became apparent that there were missing entries that could hamper or limit our analysis
- The features we considered were not normally distributed and required further attention
- As the features were normally distributed, we utilized parametric statistical tests such as one-way ANOVA





Year	Normaltest p-value	Shapiro-Wilks p-value
2012	0.937	0.346
2013	0.674	0.548
2014	0.967	0.896
2015	0.726	0.941
2016	0.742	0.971
2017	0.601	0.395

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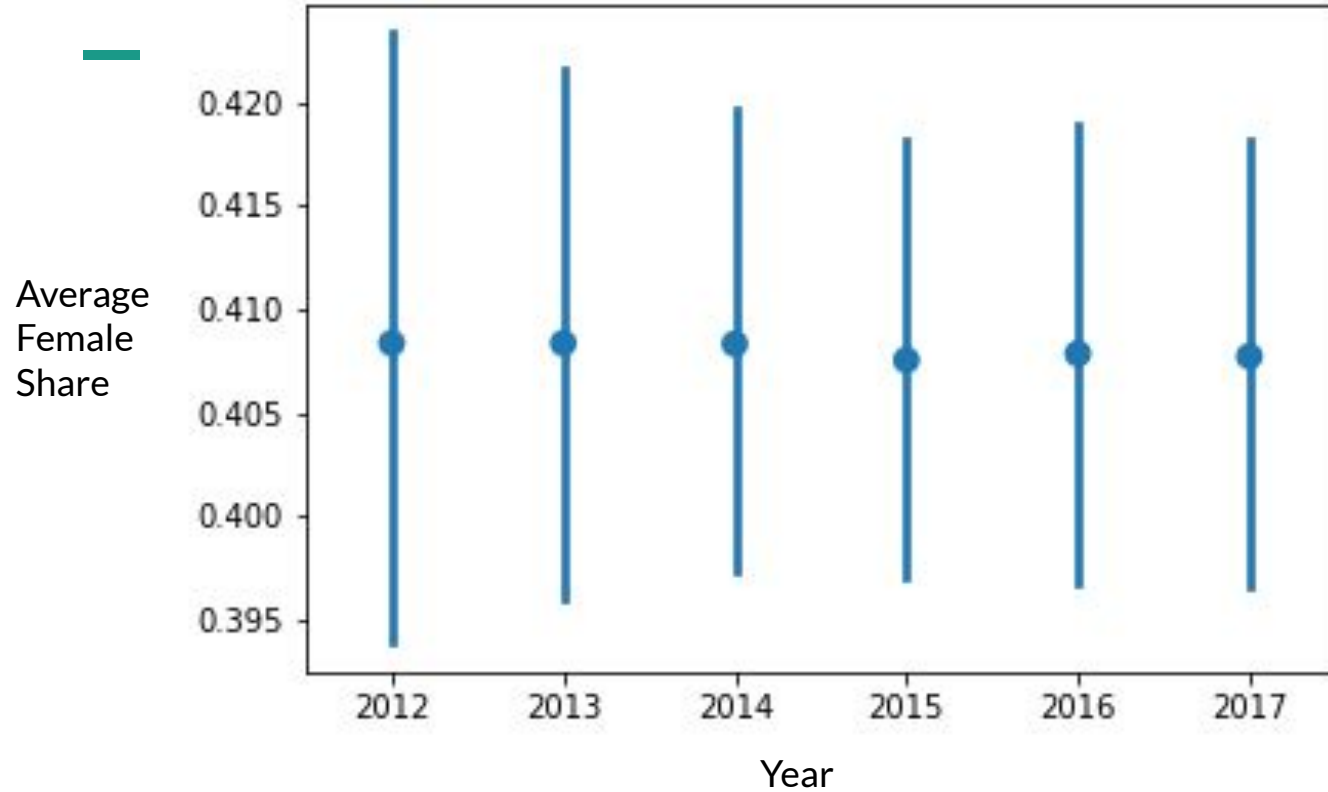


Results



- After performing a one-way ANOVA test, we determined that there were no significant differences between years 2012 and 2017
- The p-value obtained from the one-way ANOVA test was 0.999998
- This was somewhat surprising, as one would expect that over time, more women enter the workforce (private and public sector) at a greater rate due to the prevalence of campaigns towards social justice and gender equality

Point Plot - Female Share of the Private Sector





Results - cont.

- With regard to quantifiable recommendations or results, there do not seem to be any given both the outcome and motivation of the analysis
- One significant recommendation would be to attempt to source similar data from other sources, as the dataset utilized possessed a number of missing entries across years and nations that hampered the potential of the analysis



Afterthoughts

While there was no statistically significant difference between years, there are some thoughts that these results induce:

1. Note the average female share of the private sector
2. Notable EU member nations omitted from analysis
3. Completeness of the dataset



Questions?



Thank you!