

Deloitte Productivity Project

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8 JUNE 2022

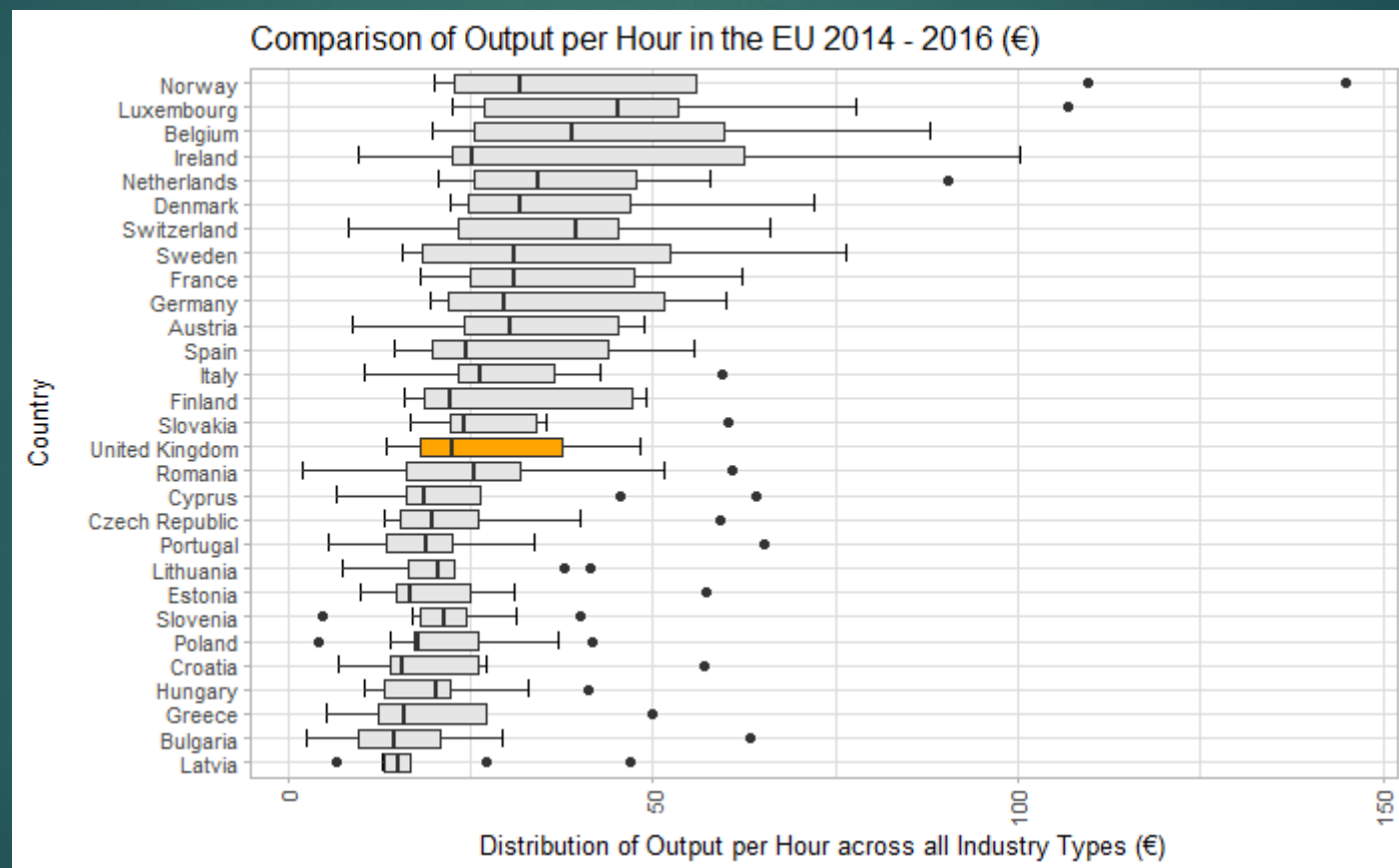
Background

- ▶ How can we improve productivity within Scotland and the UK overall?
 - ▶ Data
 - ▶ Approximately 60 excel workbooks donated by Deloitte from the Equifax Ignite Direct open source data platform
 - ▶ Ethics and Bias
 - ▶ Data anonymised before release – no personal identifiers in the data
 - ▶ Data sourced mainly from OECD and ONS limits the overall global representation, but allows comparisons between countries of similar economic status (Europe, N. America, Australasia, Chile and Japan)

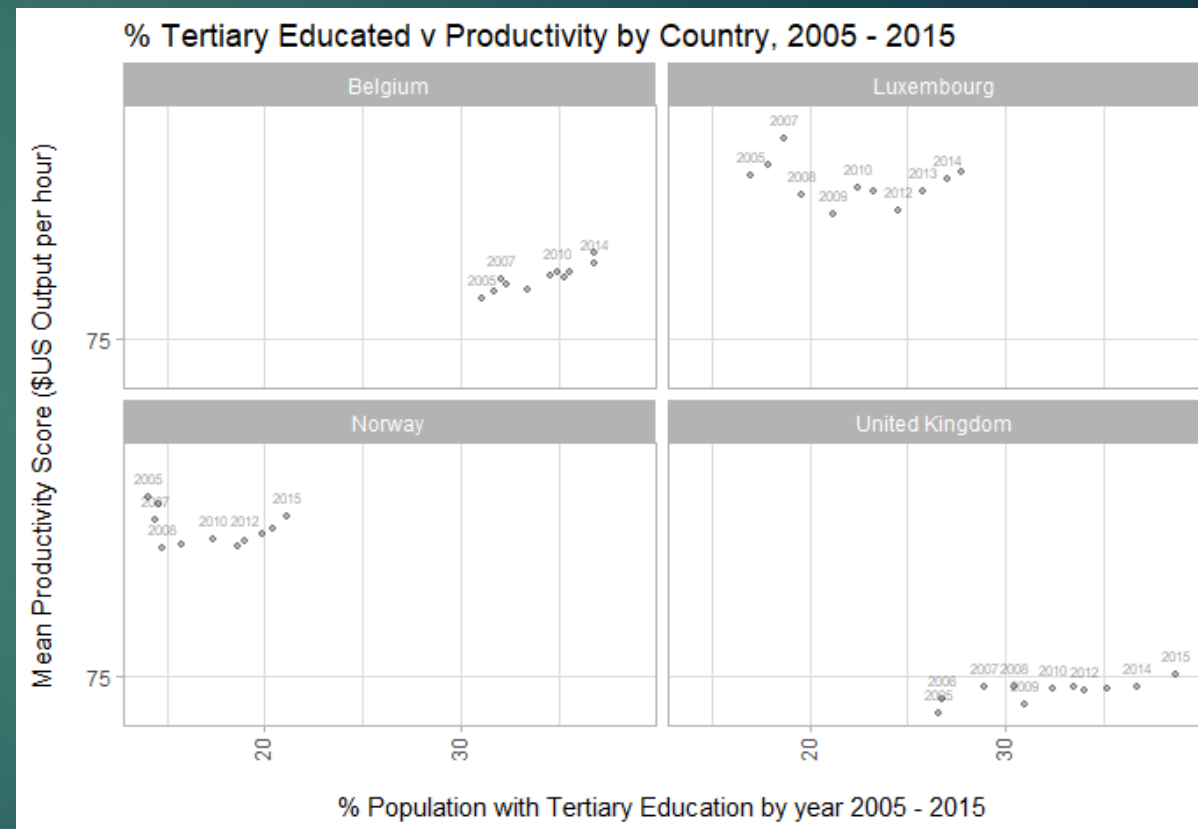
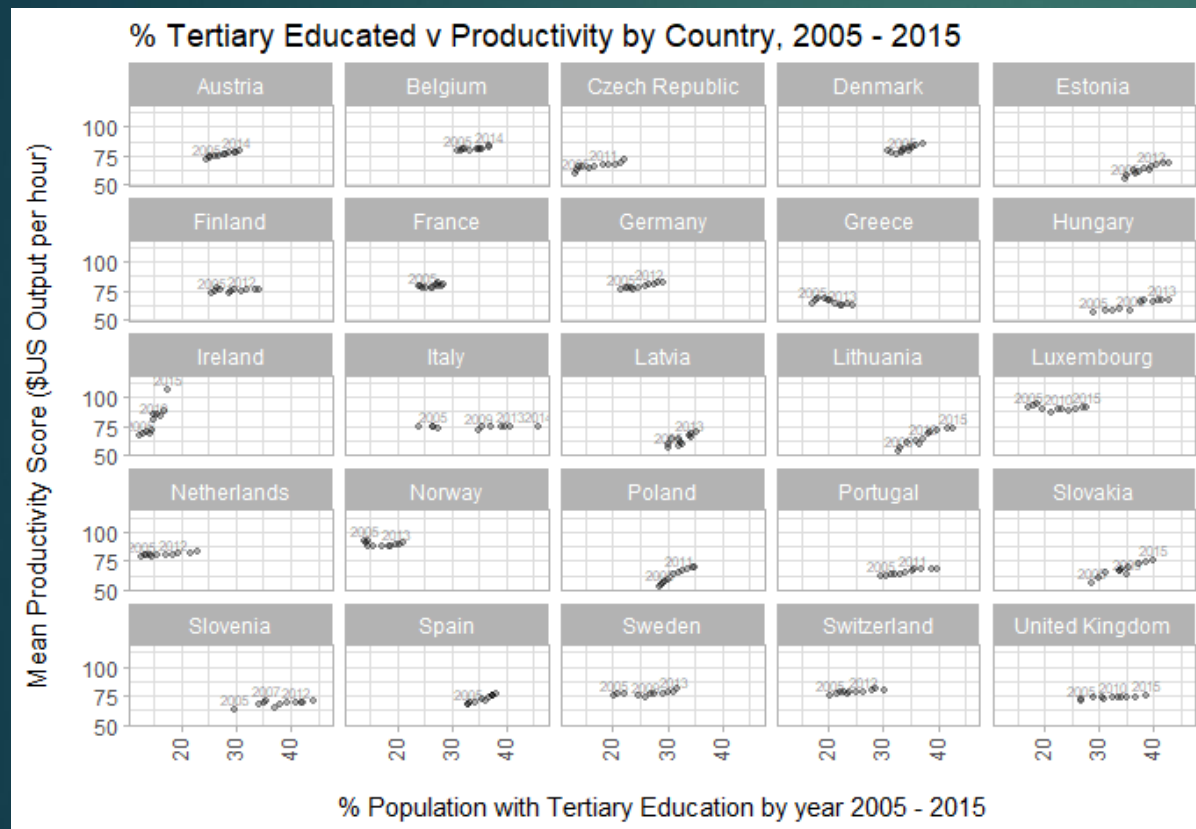
Challenges

- ▶ Quantity of data
- ▶ Format of data (merged cells, multiple worksheets per workbook, differences in timescales and measures used by ONS, OECD etc., industry types represented only by codes)
- ▶ Lack of cohesion between OECD data and ONS data
- ▶ Extensive data cleaning, formatting and joining needed
- ▶ Repetitive data cleaning on multiple files

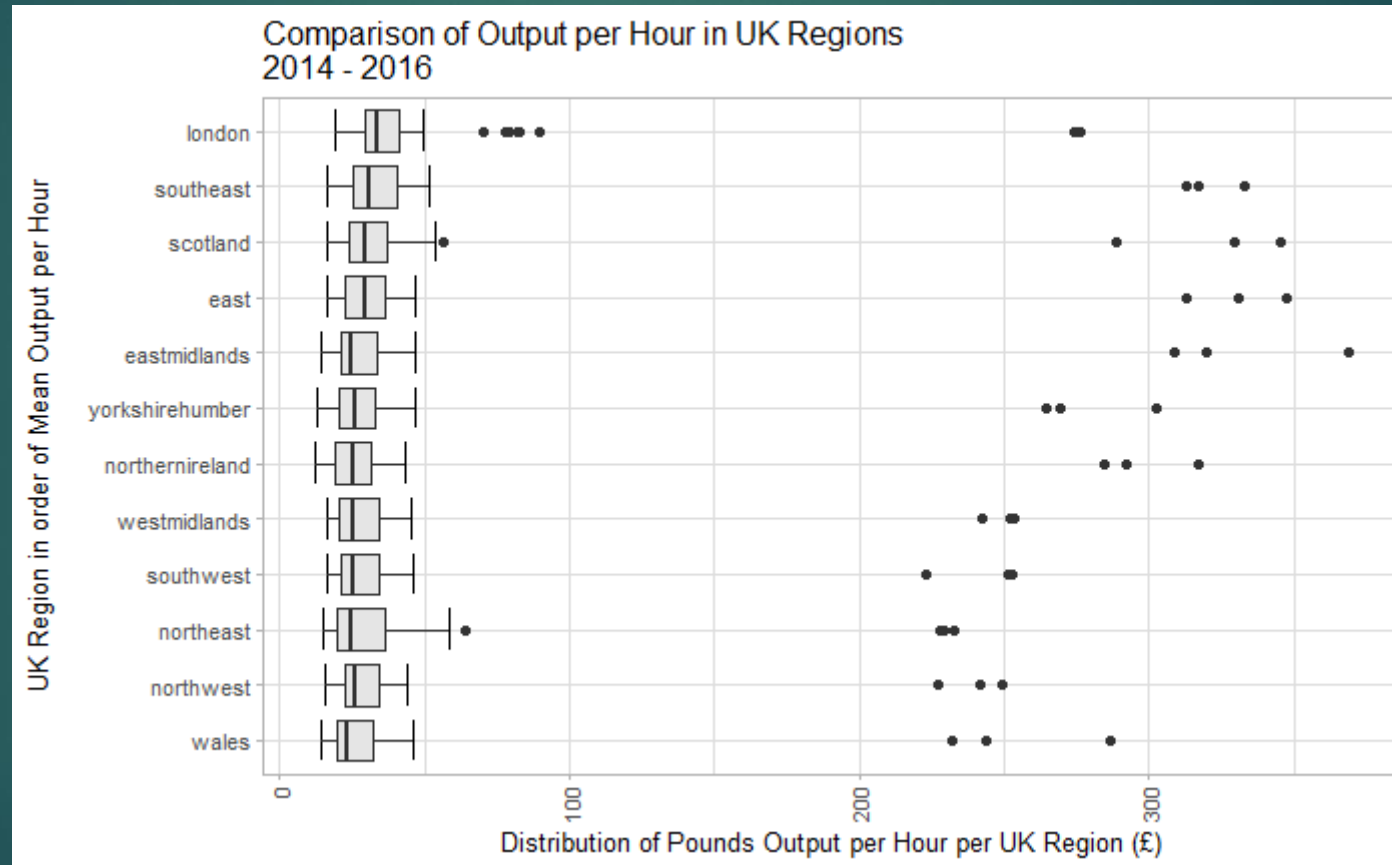
UK Productivity v EU



Tertiary Education in the EU

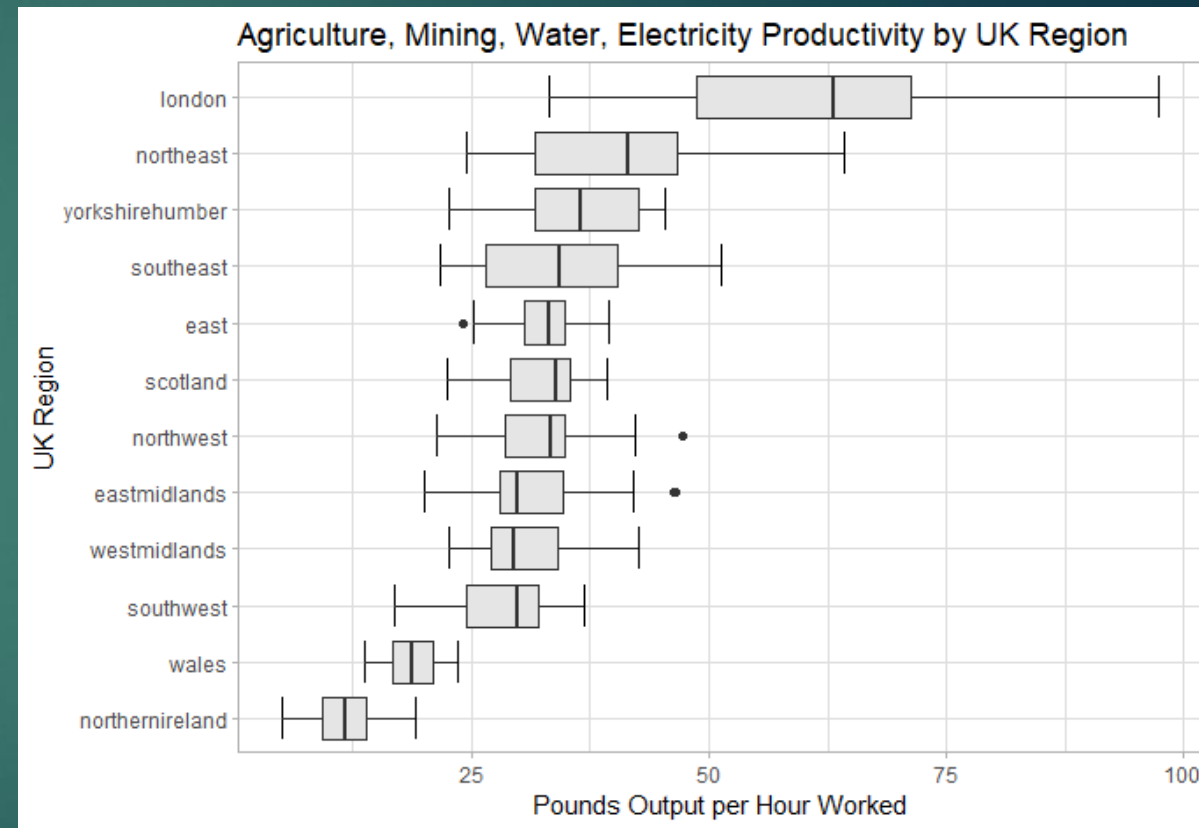
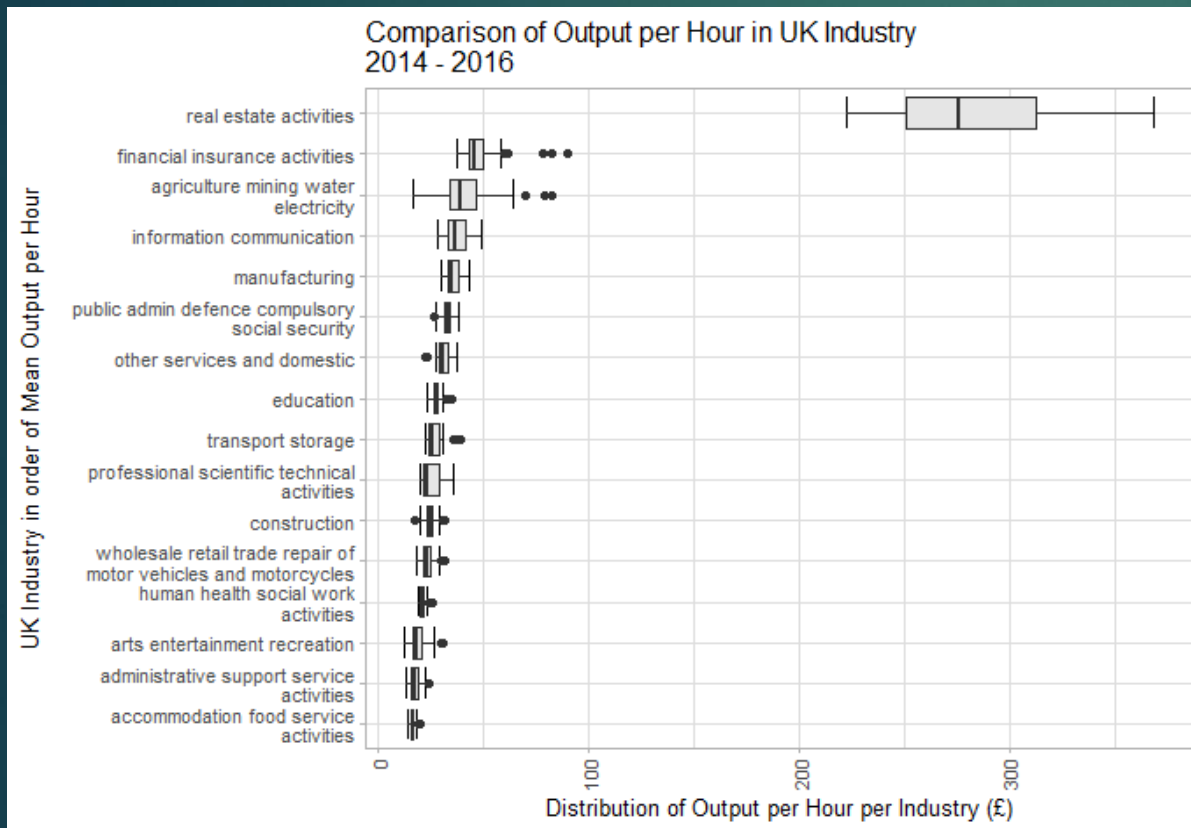


UK Output by Region

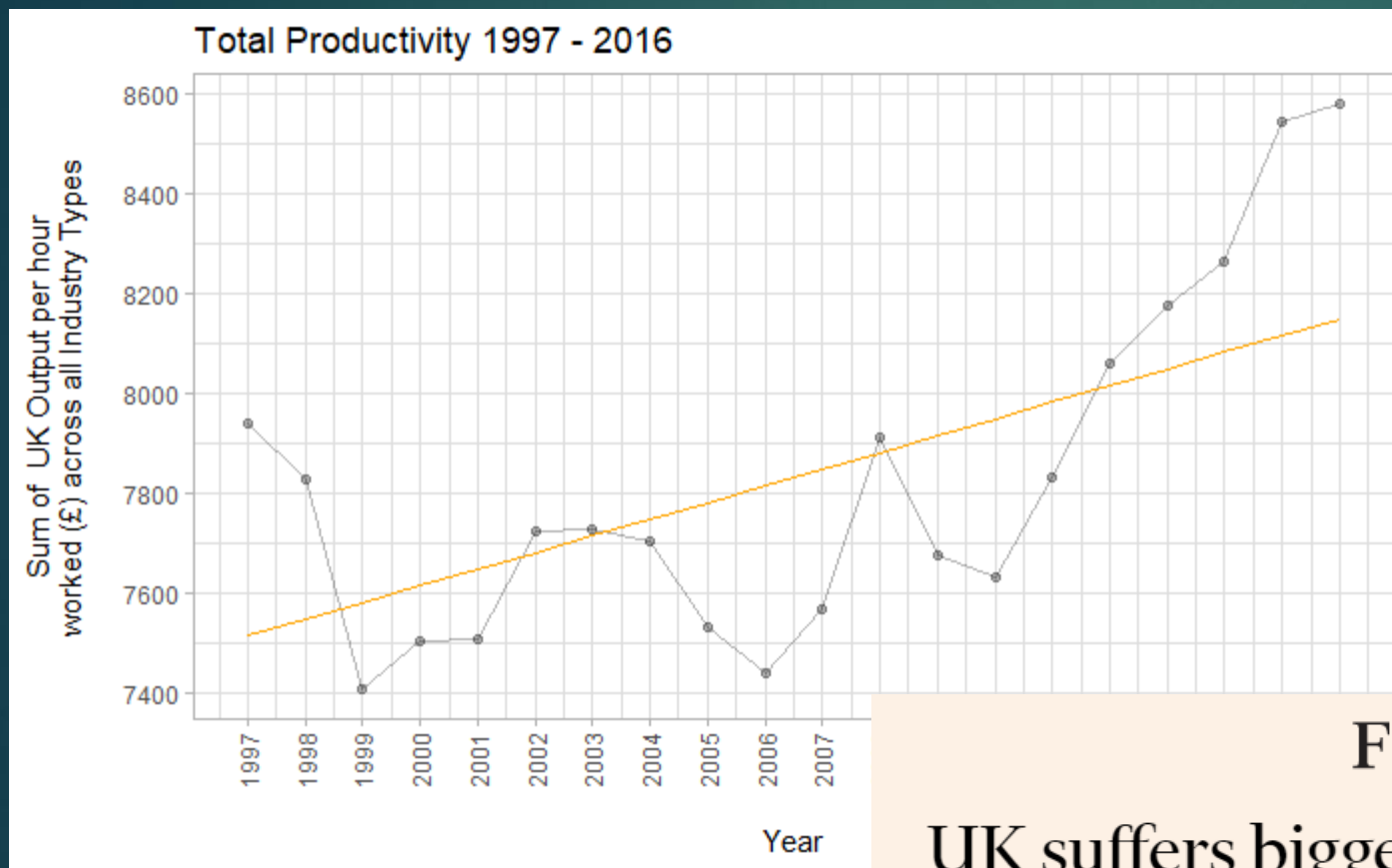


Based on Gross Value Added calculation using 2018 prices

Output by Industry - UK



Model Fit and Predictions



FINANCIAL TIMES

UK suffers biggest drop in economic output in 300 years

Gloomy outlook for early 2021 after pandemic savages economy but hopes raised for spring recovery

Summary

- ▶ The data under consideration in this case did not provide a solid foundation upon which to build a detailed model
- ▶ There is no statistically significant difference between the average productivity of the UK v the average productivity of “most productive” EU countries
- ▶ There is a statistically significant difference between the most and least productive regions within the UK
- ▶ Real Estate provided the most £ output per hour worked within the UK, although the exact measurement methodology for this is not clear
- ▶ London was the most productive region by this measure, Wales was least productive, although specific, actionable reasons for this were not found in the data
- ▶ The best fit linear model described UK national productivity as a function of Industry Type, Region, and Year
- ▶ No model will ever be able to reliably predict one-off events such as Covid

References

- ▶ [Deloitte UK | Audit, Consulting, Financial Advisory and Tax services](#)
- ▶ [Productivity measures - Office for National Statistics \(ons.gov.uk\)](#)
- ▶ [Home page – OECD](#)

Productivity Measures

GVA

Gross Value Added is the value generated by any unit engaged in the production of goods and services

CVM

GDP at Chained Volume Measure is a series of GDP statistics adjusted for the effect of inflation to give a measure of 'real GDP'