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Sustainable Development Goals: Indentifying Interlinkeages

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Overview of the Data Fellowship

In 2015 the United Nations launched the Sustainable Development Goals (SDG). They entail a comprehensive approach to end global poverty, social inequalities and to protect the planet. In practice, however, the interaction between the goals is not neutral: we can find synergies or trade-offs. The deadline for the goals is 2030 and it is essential to investigate these interlinkeages to maximise their efficiency. As a result, there has been a growing interest on assessing the relationships between the goals.

The Office for National Statistics has one departement dedicated to collect the UK SDGs data and report the progress of the goals. During my 8 week internship I was part of the Interlinkeages project launched by the ONS. The aim of the project was to undertand the potential synergies and trade-offs between the goals. This research would ultimately inform public policy in order to achive meaningful change and meet the SDGs deadline.
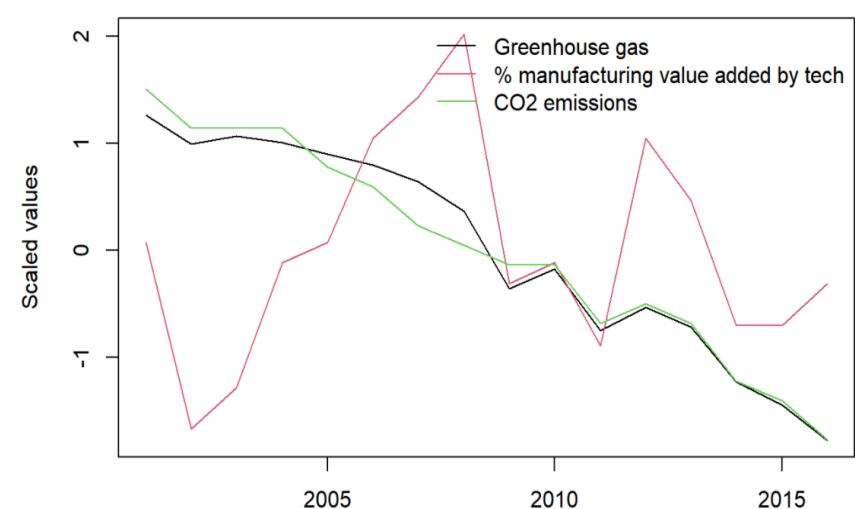
Data Analysis

The purpose of my internship was to identify goals that may be logically interlinkeaged. The research was of an exploratory nature, following statistical theory and expert knowledge, and using RStudio. Therefore, I will only describe the analysis methods we found relevant. The database on the SDGs is time series, so we first de-trended and scaled

Synergy 8 years (2008-2016)
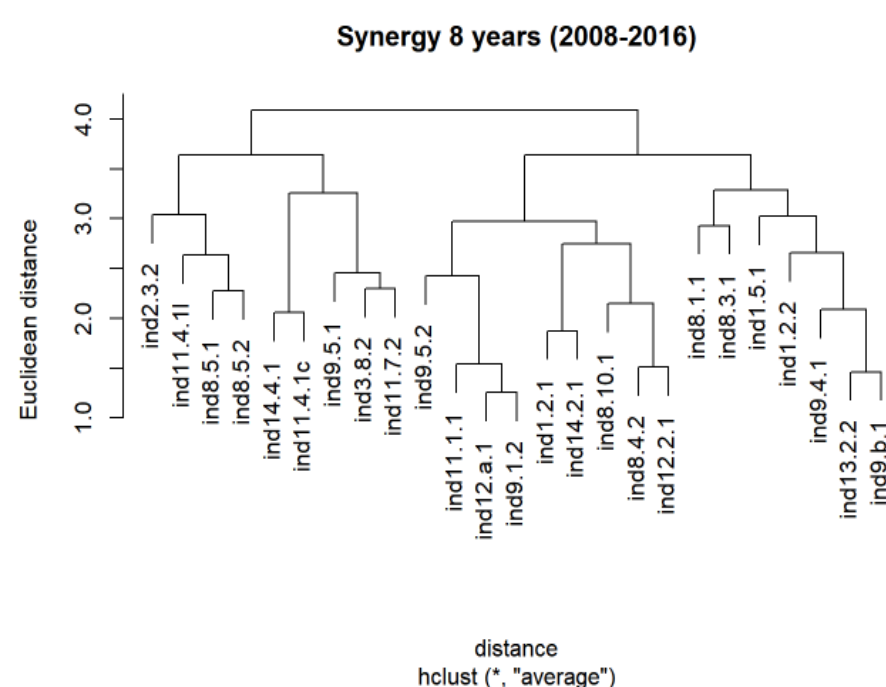
Hierarchical clustering for synergies

the data. Then we performed a hierarchical clustering method which helped to identify commondalities among pairs of goals. Once we narrowed down the potential pairs we performed cross-relation functions. This is a time series analysis to find how two indicators move together over time, and we corroborated the results exploring Granger causality

Synergy cluster 13.2.2, 9.b.1, 9.4.1

De-trended and scaled data for a pair of synergies

and DTW. In addition to this, we also performed simple regression analysis to account for missing values. This was done on raw data and we also tested the residuals with the Breusch-Godfrey test.

Findings

Due to the nature of this project we had two main findings:

- Designed an innovative SDGs research framework: set up a statistical methodology for finding potential linkeages. Further research should also include policy evidence and qualitative literature.

- Interlinkeages: most pairs founds were between the environment and labour/industry sectors, e.g. synergy between domestic material consumption and material footprint; and between greenhouse green emissions and manufacturing value added by tech industries.

Key Skills Learnt

In addition to the data analysis skills I have outlined above, I believe that the other main takeaways from the internship are professional skills. My univeristy degree has given me an important theoretical basis but work experience meant a deep understanding of the role. I built on my communication and networking skills by talking with different people, engaging in meetings and reaching out to other development organisations.

Ultimately, I gained confidence which has shaped my aspirations to pursue a professional career as a woman in data analysis. It is encouraging to see more female representation in this sector - and this internship has allowed me to be part of it.

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