Unique Code	Description	Count	Corresponding SITC	Unique SITC	Count		3 digit	Unique 3 digit	Count
901380	Optical devices, appliances and instruments, nes	2	87193	87193	1		871	871	3
902790	Microtomes, parts of scientific analysis equipment	3	87449	87449	1		874	874	20
847989	Machines and mechanical appliances, nes	3	72849	72849	3		728	728	4
902730	Spectrometers, spectrophotometers, etc using light	1	87443	87443	3		874	663	2
902780	Equipment for physical or chemical analysis, nes	3	87446	87446	1		874	748	1
680690	Mineral heat or sound insulating materials and articles	1	66353	66353	1		663	785	2
902720	Chromatographs, electrophoresis instruments	3	87442	87442	1		874	512	2
902710	Gas/smoke analysis apparatus	3	87441	87441	1		874	657	1
847990	Parts of machines and mechanical appliances nes	2	72855	72855	1		728	899	2
848360	Clutches, shaft couplings, universal joints	1	7486	7486	1		748	?	1
871200	Bicycles, other cycles, not motorised	1	7852	7852	1		785	658	1
871411	Motorcycle Saddles	1	78535	78535	1		785	264	1
220710	Undenatured ethyl alcohol > 80% by volume	2	51215	51215	1		512	691	1
560790	Twine, cordage, ropes and cables, of other materials	1	65751	65751	2		657	697	2
960310	Brooms/brushes of vegetable material	2	89972	89972	2		899	711	4
560721	Binder or baler twine, of sisal or		65751	89974					

Example of Excel grid used to identify products necessary for the green transition.

Overview of the Data Fellowship

This summer I received the opportunity to work in the Economy and Environment team at the Institute for Public Policy Research, where I was introduced to the team's Green Industrial Strategy Project. The primary objective of this project was to demonstrate that sustainable growth and economic growth can occur simultaneously through a robust green industrial strategy, which will help the UK to reduce emissions while maximising economic benefits. I was tasked to conduct an in-depth analysis of the UK's strengths and weaknesses in the production and export of sustainable goods by compiling trade data on internationally recognised "green" products. I also explored the opportunities that arise for the country's economy from the global transition to net zero by conducting comprehensive literature reviews of existing studies analysing the UK's green economy. Throughout the internship I was supported by the team and had the chance to engage with external academics in the field to exchange knowledge and insights on the project.

Data Analysis

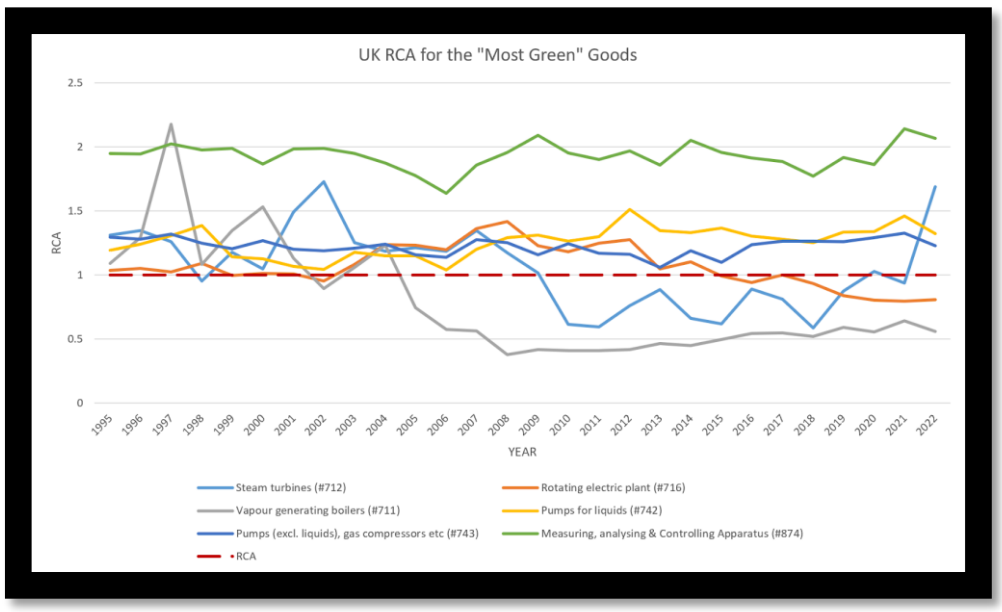
I began my analysis by compiling four internationally accepted environmental goods lists from the OECD, WTO and APEC to identify products necessary for the green transition. The lists utilise different nomenclature, so I converted all product codes to SITC3 using RStudio. Next, I used the combined list to analyse the UK's export performance of "green" products by looking at revealed comparative advantage (RCA) data. Knowing which "green" goods the UK has RCA in reveals future economic opportunities and indicates the industries that should be targeted by the green industrial strategy. I produced various time series graphs on Excel with the RCA data to visualise how the UK's strengths in the export of "green" products has developed over time. To complement the RCA analysis, I also drew on the UK's top exports by SITC3 data from the HMRC Overseas Trade Statistics. Finally, I compared the UK's export performance to China and the rest of the G7 countries to determine the UK's competitiveness amongst the other advanced economies.

Findings

- One of the main "green" strengths for the UK lies in the sector for low carbon electricity, with an emphasis on wind power, which generated 26.8% of the UK's total electricity generation in 2022. Investment in wind technology and innovation will be crucial for the UK in the upcoming years to reach net zero.
- The adoption of electric vehicles will accelerate in the upcoming years, presenting opportunities for the UK along the supply chain, in particular the production of electric batteries. The automotive battery market is estimated to reach a size of £12 billion in the UK as early as 2025.
- The UK has shown consistent RCA in the export of the most important products relevant for net zero, such as measuring, analysing and controlling apparatus. These products are crucial for climate change mitigation.
- The transport sector remains the largest polluter in the UK while there has been slow progress in decarbonising the buildings and construction sector. These should be priority areas for decarbonisation in the UK's green industrial strategy.

Key Skills Learnt

Throughout this fellowship I developed my quantitative analysis and data visualisation skills, as well as the ability to assess information critically and structuring my research effectively. I gained more confidence in analysing large pools of data and using various software in my statistical investigations, which has been very useful in my subsequent research projects. Furthermore, I improved my presentation and verbal communication skills as I had the opportunity to discuss and present my findings to the Economy and Environment team. I also learned a lot about policymaking and the wider political context in the UK. This is extremely valuable to me as I have gained more confidence to join discussions on current affairs and greater ability to assess policy proposals.



Example of time series graphs produced to observe the UK's relative comparative advantage (RCA) in particular "green" products over time.