



The
University
Of
Sheffield.

Understanding physics graduate mobility to develop a regional employer engagement strategy

Alastair Buckley

Department of Physics and Astronomy

The University of Sheffield



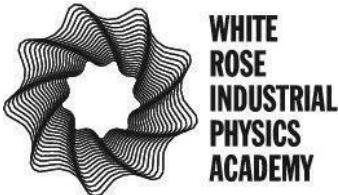
The
University
Of
Sheffield.

White Rose Industrial Physics Academy - WRIPA

Many of our most promising physics graduates turn away from industry because they don't know what it has to offer.

5 year old collaboration between companies and physics students from the universities of York, Sheffield, Hull, Nottingham and Leeds.

- Industrial Projects
- Placement support
- Technical skills development
- Employer engagement





WRIPA+ responding to...

OfS Challenge fund - Industrial strategy and skills – support for local students and graduates

“Around 45 per cent of graduates responding to the 2015-16 Destinations of Leavers from Higher Education (DLHE) survey sought post-study employment in their home region.

Given uneven regional productivity, the variability of labour markets across the country, and constraints to mobility for some graduates, we recognise that successful outcomes may be at risk for graduates who seek post-study employment in areas with lower productivity and growth. We want to support choice for graduates and students and, as set out in the government’s industrial strategy, many regions need their skills and knowledge in order to thrive.

We are particularly interested to understand how providers can help improve employment outcomes for graduates through partnership working with employers and local agencies.”



Outline

Data

- Gross value added productivity - a good starting point?
- Mobility - what does this mean?
- Outcomes - analysing the geographic factors

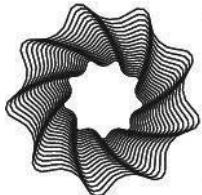
Interventions - Our plans in WRIPA+

Outstanding questions

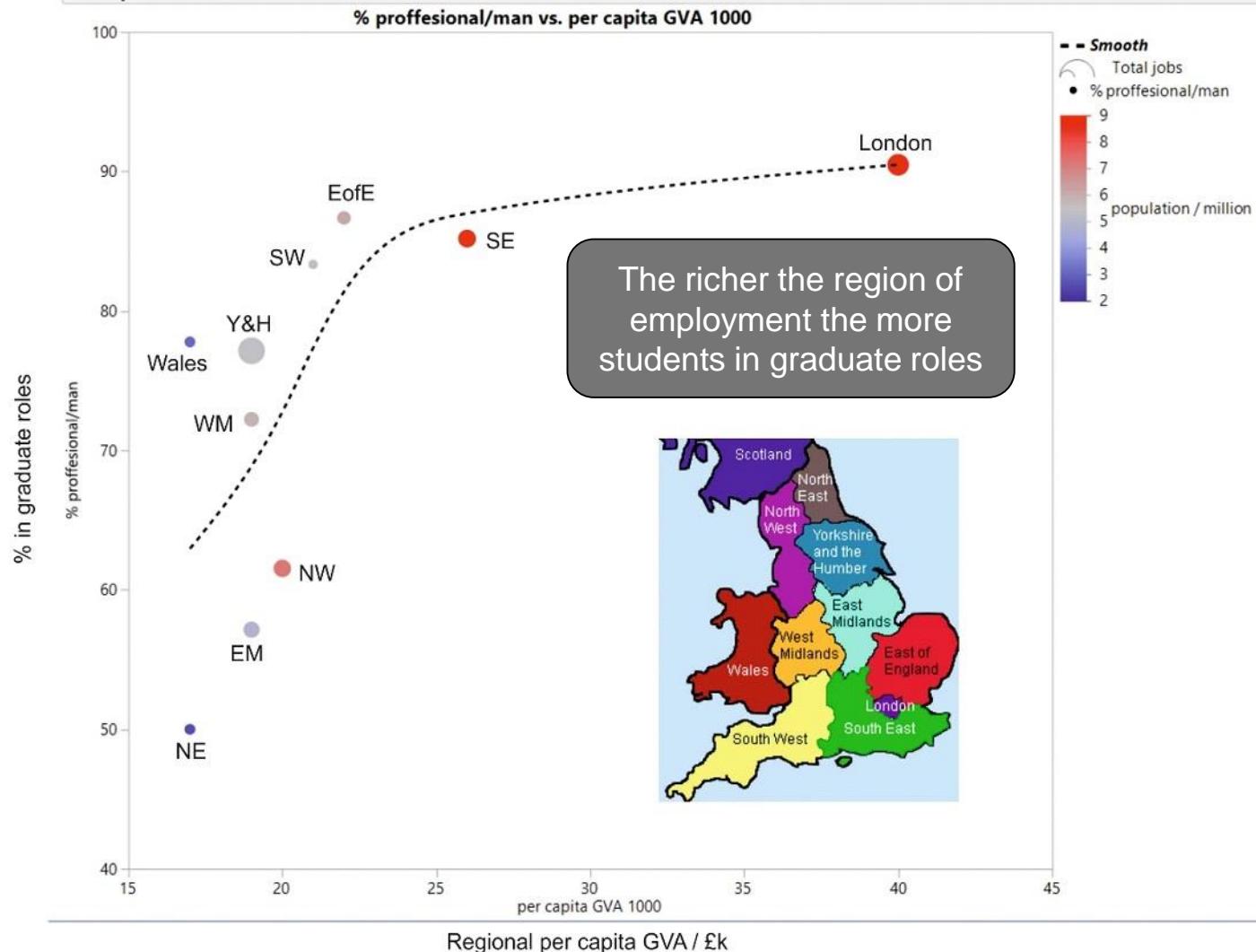


The
University
Of
Sheffield.

Sheffield physics
regional DLHE
destination data.
Excluding further
study. 2011-2017.



WHITE
ROSE
INDUSTRIAL
PHYSICS
ACADEMY



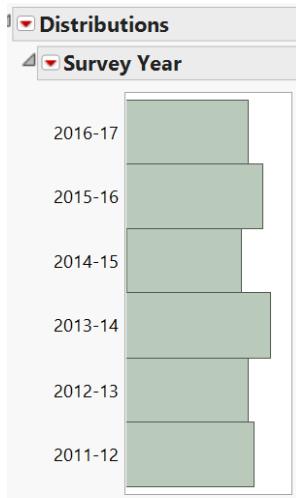


Sheffield DLHE summary

- This analysis supports OfS statement
- Need to focus on regional support for employment
- Bear in mind that SCR has lowest GVA of any city region

But the analysis is at cohort level

There is no knowledge of where a student originates from

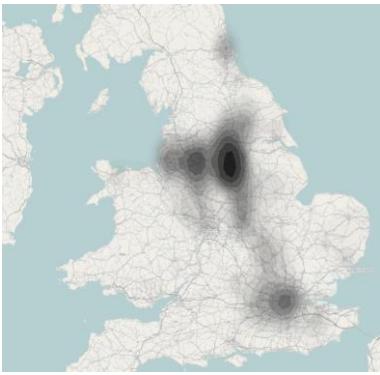


Longitudinal analysis: recruitment through to destination.

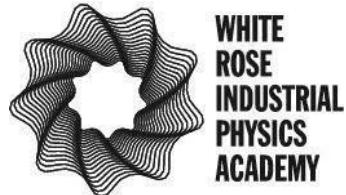
- DLHE survey data from 2011/12 to 2016/17. N = 294. No PhDs.
- Registration data linked individually to student list.
- Postcodes of home address, term address and employer address.
- Postcode look up with lat, long.
- Distances from home to university to work calculated and used as mobility proxy.
- Degree class, title, award.
- SOC code. Job title.
- Postcode look up with POLAR quintiles - measure of historical HE participation. 1=low and 5=high.



The
University
Of
Sheffield.

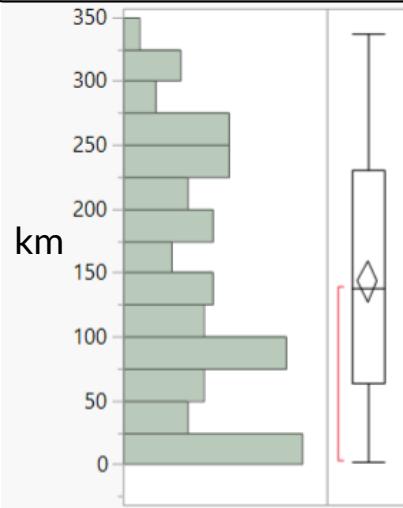


Home location

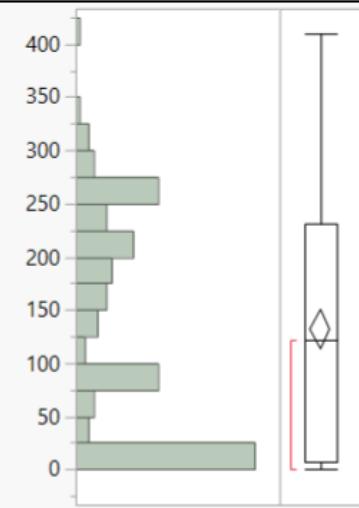


Recruitment mobility

Home to University

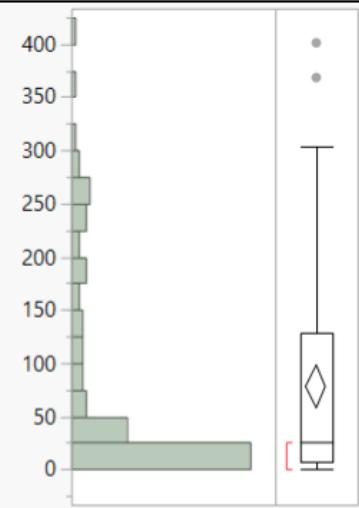


University to work



Work mobility

Home to work



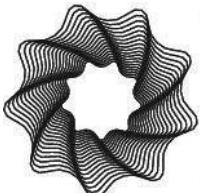
- 64% of all students return to work within 50 km of home
- Much greater mobility in coming to university than in gaining employment.



The
University
Of
Sheffield.

Recruitment
mobility vs work
mobility.

Complex!
Or simple?



WHITE
ROSE
INDUSTRIAL
PHYSICS
ACADEMY

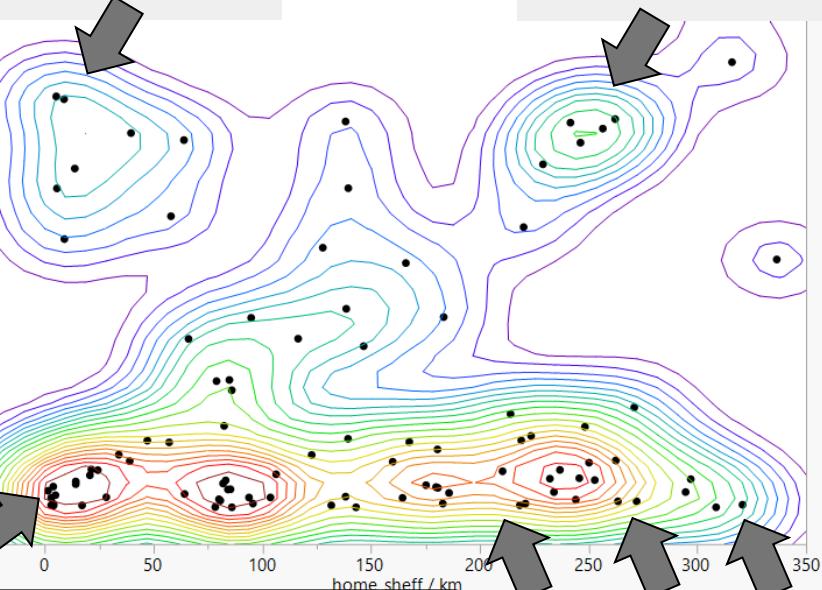
These students come
from near Sheffield
and have moved near
to London to work

home_sheff / km



These students
come from
Sheffield and stay
here to work

Home to work / km



Home to University / km

These students have
come from London
to Sheffield to study
and stayed in
Sheffield to work

These students have
come to Sheffield to
study and have gone
home to work



Mobility vs degree
class

Mobility and graduate / technical

SOC codes converted to 1/0 coding for graduate roles and technical roles using DLHE scheme and “expert judgement” respectively.

SOC - standard occupational classification

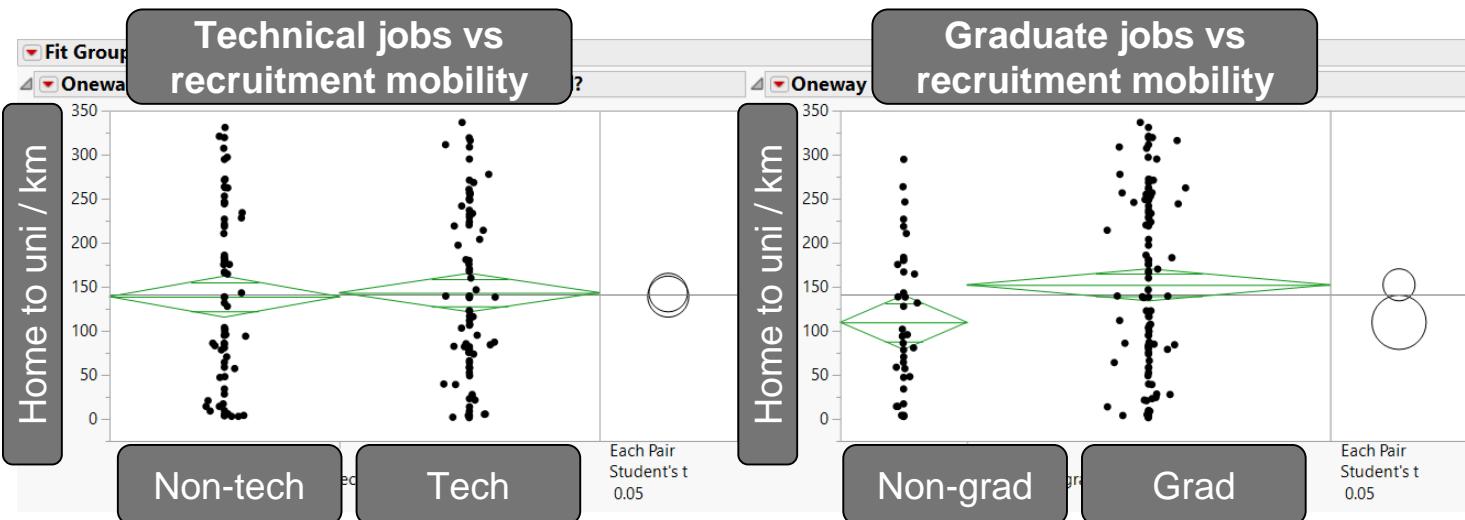
1 = graduate role or technical role

0 = non graduate role or non technical role



Technical roles (~50%) are a subset of graduate roles (~75%).

Recruitment mobility vs destination



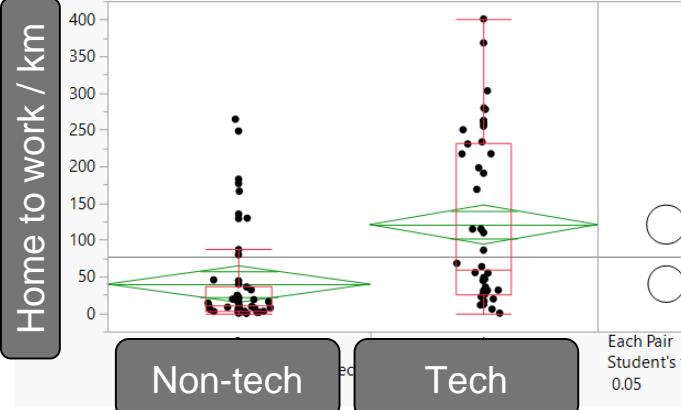
- No difference in recruitment mobility and **technical** destinations
- 50 km difference in recruitment mobility and finding a **graduate** level role.



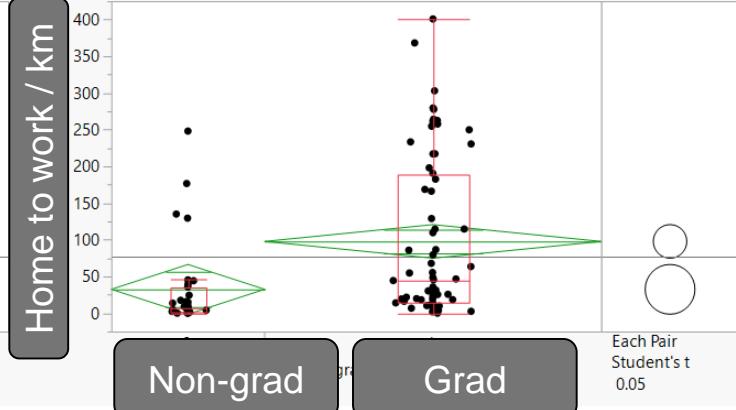
Work mobility vs destination

Technical roles (~50%) are a subset of graduate roles (~75%).

Technical jobs vs work mobility



Graduate jobs vs work mobility

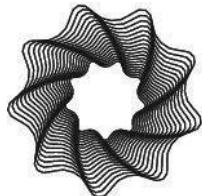


- Technical and graduate level destinations are strongly correlated with mobility from home to work.

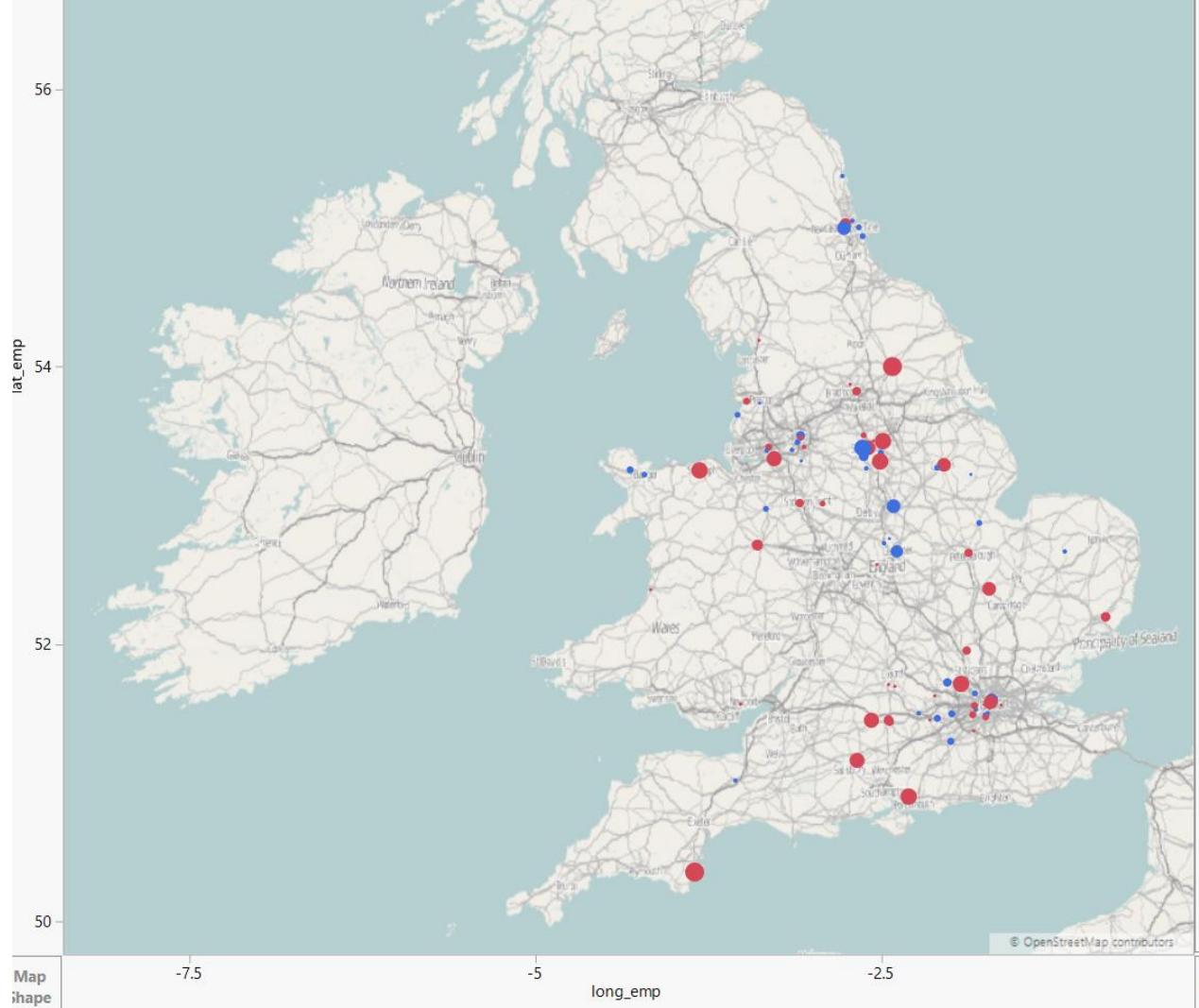


The
University
Of
Sheffield.

Red are technical
roles. Blue are non-
technical. Technical
roles are more
geographically
dispersed. Dot size
is work mobility



WHITE
ROSE
INDUSTRIAL
PHYSICS
ACADEMY





Summary

- 65% of Sheffield physics students return home to work.
 - These 65% of students are not work mobile.
 - Students that are work mobile get better jobs.
-
- Students with 1st's and 2.1's get better jobs.
 - Students with 1st's are much more work mobile.
 - There is no link between recruitment mobility and degree class.
 - Students from lower POLAR quintiles are less mobile in coming to Uni.
 - There is no difference in work mobility depending on POLAR or gender.
 - There is no difference in the outcomes of students depending on gender or POLAR quintile. (But no progression data)
 - There is not enough data to say if industry or year abroad students are more mobile or get better jobs.

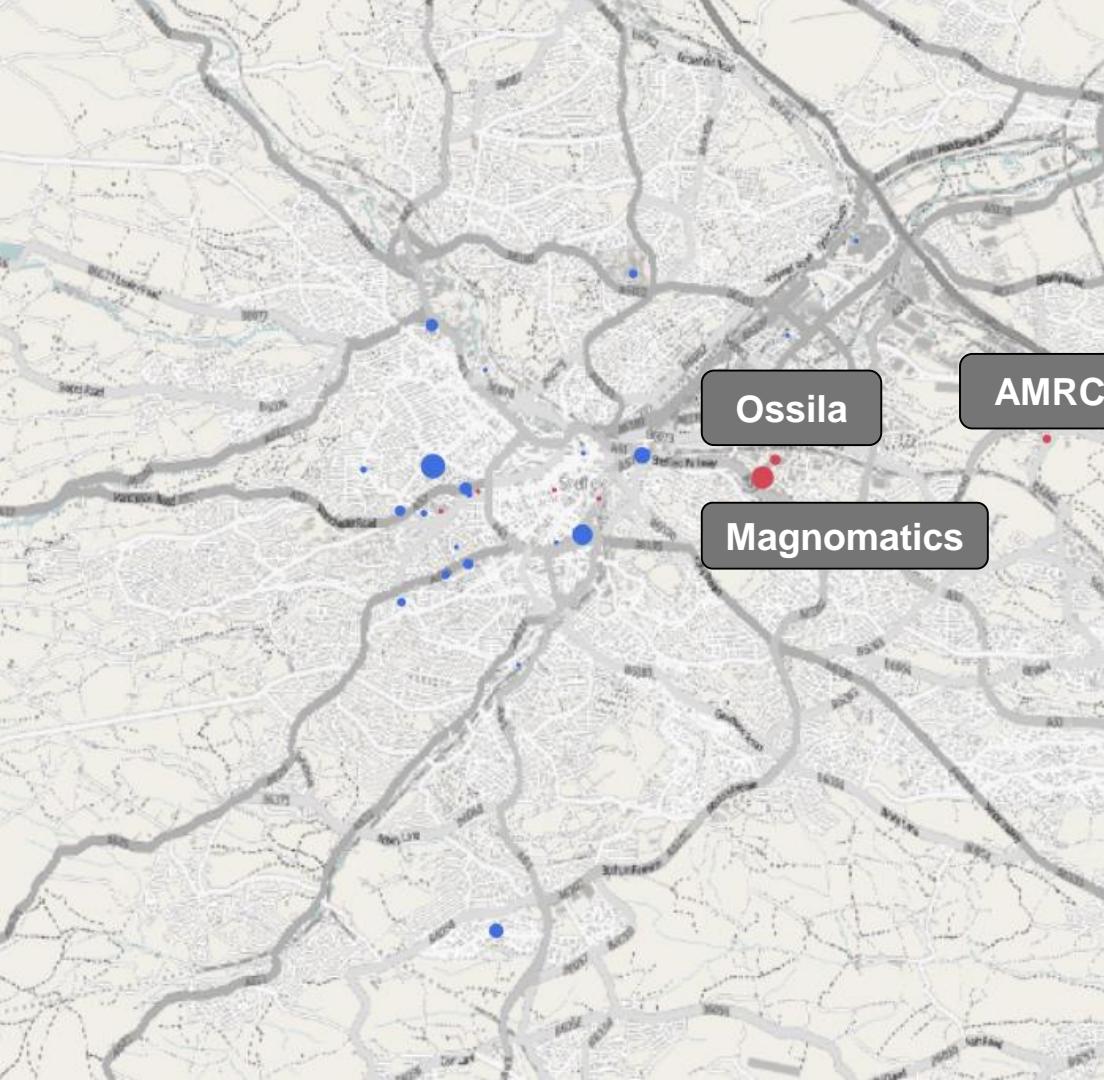


WRIPA+ interventions

Support students to be mobile.

Build many more regional industrial relationships.

- Placements (long and short) & industrial projects
- Involving industry in curriculum delivery
- Travel and subsistence fund to help students work and study with industry.



WRIPA+

- Our research tells us there are ~2000 physics relevant companies in the Y&H region.
- WRIPA has engaged with <<50 of them
- Sheffield has engaged with <<20 of them



Discussion

OfS are encouraging us to support students into local employment through local industrial engagement.

But our data tells us that supporting students to be mobile, and travel to work, will get them better jobs.

So our plans are to use our regional network to help do a bit of both - regional mobility and regional engagement - using our WRIPA network

If only we had a decent regional transport network...



The
University
Of
Sheffield.

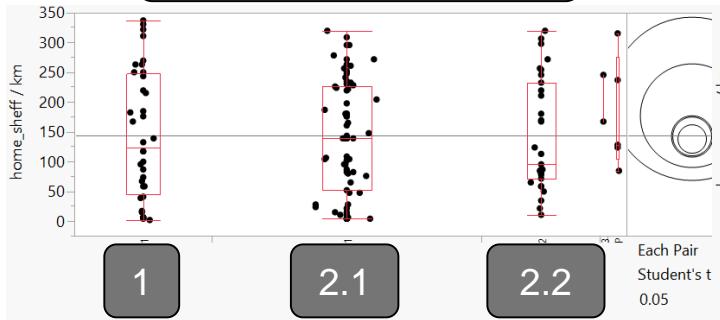
Any Questions?

alastair.buckley@sheffield.ac.uk



The
University
Of
Sheffield.

Mobility vs degree class



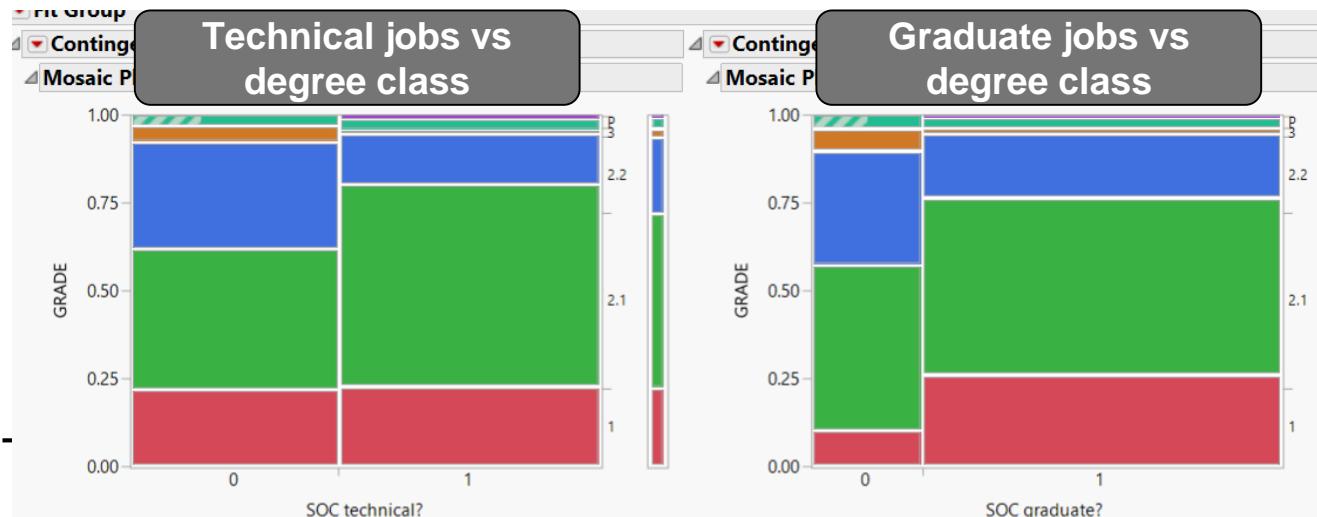
1st class students are more work mobile

Recruitment mobility is not linked to degree class.



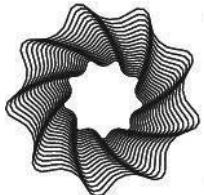
SOC coding vs degree class.

- More likely to go into technical role with a 2.1 or 1st.
- Twice as likely to get non-technical job with 2.2.
- Much more likely to get graduate role with 1st.
- Twice as likely to get non-graduate (and non-technical) role with 2.2 than 2.1.





The
University
Of
Sheffield.

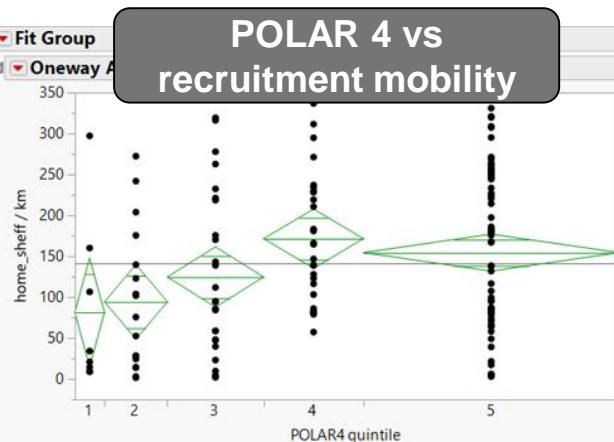
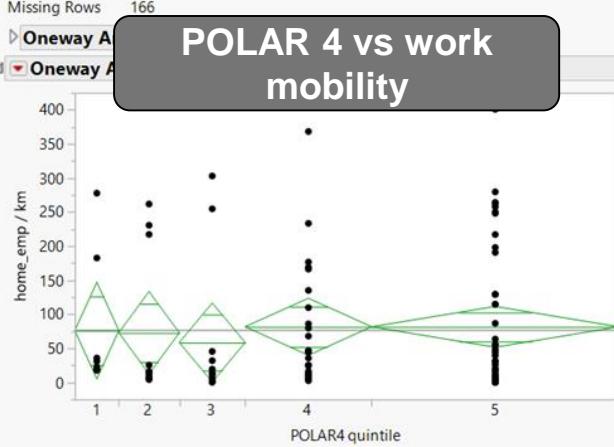


WHITE
ROSE
INDUSTRIAL
PHYSICS
ACADEMY

- No difference in average work mobility... although...
- Students are either mobile (and move south) or are not and stay in Sheffield

POLAR quintiles vs mobility

- Students from lower POLAR quintiles come from closer to Sheffield





Oliver initially joined Ossila back in May 2015 when he was an undergraduate student, and took on a part-time role manufacturing C processing equipment. He later moved on to a Design Engineering role and was awarded Student Employee of the Year - a national award - commercial impact at Ossila. He has since graduated from the University of Sheffield.



Hadi obtained a PhD from University of Sheffield in 2017, area of research being in Robotics. He received his MSc Control and Systems Engineering from the University in 2010. He initially joined Ossila in 2012 with a part-time position in 2017 took up a full-time role as an Electronics Engineer. He is currently working on the development of new products for the company, and works on developing new applications. During his free time, he enjoys playing football and travelling.



Oluchi is a part-time Customer Service Administrator at Ossila currently a PhD student at the University of Sheffield, where she completed an MEng in Chemical Engineering in 2017. She was the Outreach Officer for the Women in Engineering Society. Oluchi handles customer orders and enquiries, and assists with administrative tasks. Passionate about inspiring young women, she volunteers with Girls in Tech. In her spare time, she learns to dance, tries out new hobbies and reads lots of novels.



Monika is the Chief of Operations at Ossila. She is a University of Sheffield graduate with a degree in East Asian Studies, and is currently pursuing a Masters in Human Resource Management. She initially joined in July 2014 as a customer service administrator, utilising her knowledge in five foreign languages (including her native Bulgarian). Her current role involves effortlessly juggling multiple tasks – such as supervising the customer service team, stock purchasing, accounts, and day-to-day HR. Monika has Big Ideas all of the time, and loves creating multiple checklists in order to execute them. However, she loves it most when her team also has Big Ideas – and as a passionate leader, Monika strives to make their vision come true.



Ossila

INNOVATION AWARD 2017
IOP Institute of Physics



or 2014 to develop Ossila's Solar Cells whilst completing his PhD. Tom comes from a family of electrical engineers and embedded systems. He is currently a Product Manager at Ossila. After finishing his PhD, Tom started a full-time role in Ossila's research and development department involved in the development of the majority of lab equipment in Ossila's catalogue.



Tom is a Product Manager at Ossila. He originally joined as a Service Dispatch Assistant at the beginning of August 2016. Through completing an MPhys degree in physics at the University of Edinburgh, Tom's responsibilities include working with Rossia to field customer queries, as well as preparing and packing materials, consult other Ossila products to safely dispatch them to our customer works with Ossila's stock assistants to organise, maintain, and stock levels. He also orders and prepares Ossila's range of substrates. In his spare time, Tom enjoys playing Rugby for the Sheffield team, hill walking, and mountaineering.



Rosanna is a Product Manager at Ossila, and she joined Ossila in 2017. Previously, she graduated from the University of Leeds with a degree in Chemical Engineering. Rosanna is responsible for the spin coating and UV Ozone C equipment, such as the Spin Coater and the UV Ozone C becoming an expert in their manufacture. Her role involves more robust processes that can scale up with increasing customer and wider range of products on offer. She is also responsible for stock management systems, with the goal of enabling mass manufacturing to meet customer demands.

Research Team

If you have any technical questions about any Ossila products, or want some advice on fabrication & processes, please complete this contact form and a member of our Research Team will be happy to help.



Hunan is Ossila's organic chemist, specialising in polymers and materials synthesis, polymeric semiconductors, and pure conjugated polymers. Having achieved an MSc from Shandong University in China, Hunan moved to St Andrews University to study towards his PhD in 2004. He then became a Postdoctoral Research Associate at the University of Sheffield, before working with both the University of Sheffield, before working with both the University of Sheffield and as a KTA associate in 2015.



Lydia joined Ossila in 2013. She is an Electronic Engineer who developed Instrumentation, mainly for test and measurement equipment. Following her PhD, Lydia joined Ossila, where she was a Research Assistant at the University of Manchester's School of Electrical and Electronic Engineering, also obtaining her PhD. She has industrial experience in the electronics industry, having worked as an RF (Radio Frequency) Design Engineer and SAW (Surface Acoustic Wave) Filter Engineer at Lucent Technologies and GEC Plessey Semiconduc-



Max joined Ossila in 2013 after a PhD in inorganic and materials chemistry from the University of Edinburgh, having worked on thin-film processing, small-molecule synthesis and crystal growth for OFET applications. In his role as Technical Sales Manager, Max helps customers with advanced product support and acts as a facilitator between the Operations and Development Teams. Max also leads the Technical Marketing Team, generating online content for improved user support and experience. In his spare time, Max enjoys bouldering, propagating plants and playing with other peoples' pets.



Ian graduated from The University of Sheffield with a Master's degree in Chemistry. Initially starting his career at Ossila with a part-time position on the workshop floor, Ian has risen to be Production Manager of the lab equipment in Ossila's catalogue. As such, Ian has built one of almost every type of equipment that we sell. He now focuses on ensuring that our equipment is ready to be shipped efficiently, without compromising on the quality that Ossila customers can expect.



Rosie is Ossila's Exports Manager. She originally joined as a Customer Service Administrator in February 2016, after completing a degree in Law at Sheffield Hallam University. At Ossila, she tends to both new and existing customers, oversees shipping, and liaises with couriers (and other relevant parties) to facilitate the safe and efficient shipment of parcels. Her other responsibilities include daily administrative tasks and implementing her legal knowledge where possible. Outside of work, Rosie enjoys musical theatre, partaking in the occasional pub quiz, and having a drink or two while she is there.



Jenny is a Customer Service Administrator at Ossila. She is responsible for ensuring the timely completion of customer enquiries and orders in the Operations department. She graduated from Sheffield Hallam University with a BSc in Tourism Management – where she also founded the SHU Malaysian Society in 2015. A language enthusiast, Jenny is fluent in Mandarin, Cantonese, Hakka, and English. She is passionate about travelling and enjoys experiencing different cultures and their cuisines. During her free time, she enjoys reading, watching movies, and playing video games.



Sheffield graduates: 16

Other locations: Leeds, Edinburgh, Karachi



Sheffield Teaching Hospitals NHS
NHS Foundation Trust

