

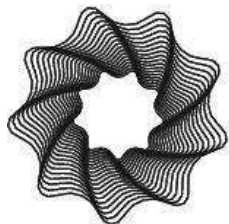
How mobile are physics students?

And how does it affect their prospects?

Tracking from domicile (home), through HE to graduate employment (work)...

23rd July 2020. Alastair Buckley & Andrew Hirst.

Using 1.87m DLHE records for graduating cohorts between 2011 to 2017.



**WHITE
ROSE
INDUSTRIAL
PHYSICS
ACADEMY**



The
University
Of
Sheffield.



Funding
from:



Data from:



Research questions

How mobile are (WRIPA) physics students compared to other institutions and subjects?

What factors correlate graduate level employment and mobility?

- Ethnicity, gender, education background, schooling etc..

Working towards conclusions for different stakeholders:

- Curriculum design and student support
- Our students
- Policy makers
- Organisations hiring our graduates

Mobility - The Ball classes

<https://luminare.prospects.ac.uk/the-reality-of-graduate-migration>

"Stayers are the smallest group, but are much more likely than average to be in good quality employment, across a range of sectors - particularly in business services and the arts and media. The stronger the local and national economy, the more Stayers we tend to see. Graduates often opt to stay with the social groups they have formed at university, if they feel that they have that option."

"In general, Loyals are the most likely to be women, to be from low participation backgrounds and to be mature graduates. They tend to fare around the average for graduates in terms of likelihood to enter non-graduate employment (unsurprising, as they're much the largest group), and are particularly concentrated in public sector jobs. The large majority of nurses, for example, are Loyals - which has implications for recruitment."

LOYAL: 32%



"Returners are the most likely to struggle in the labour market, although the majority still get graduate jobs. Many return home having not secured work elsewhere on graduation. This group represent a particularly policy and guidance challenge."

RETURNER: 35%

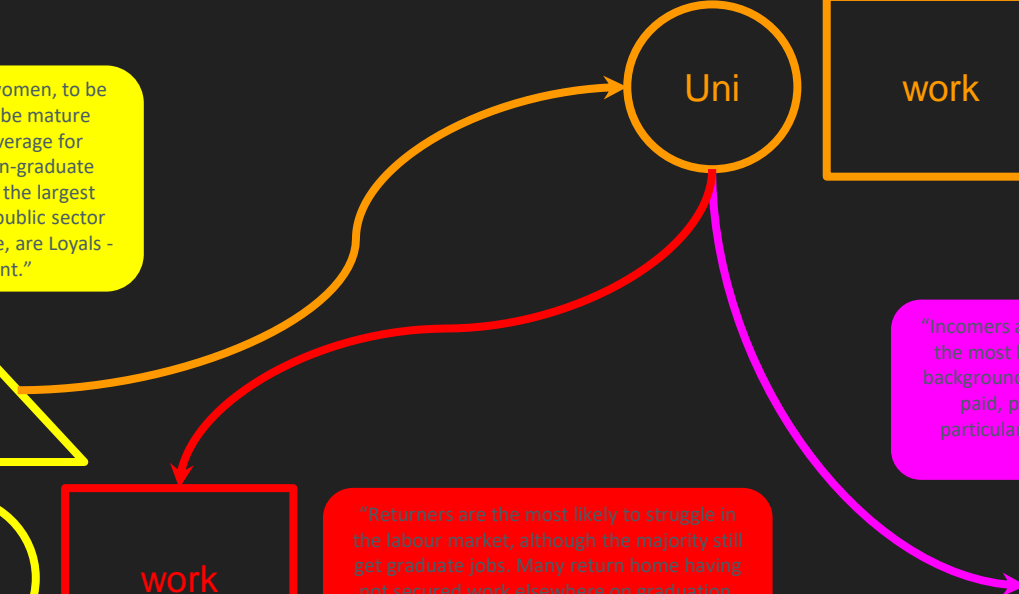


STAYER: 13%

"Incomers are the most likely group to be men, the most likely to be from high-participation backgrounds, and the most likely to be in well-paid, professional-level employment - particularly in engineering, IT and business services roles."

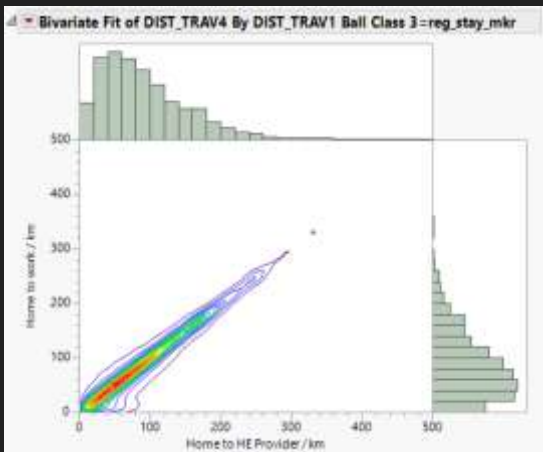
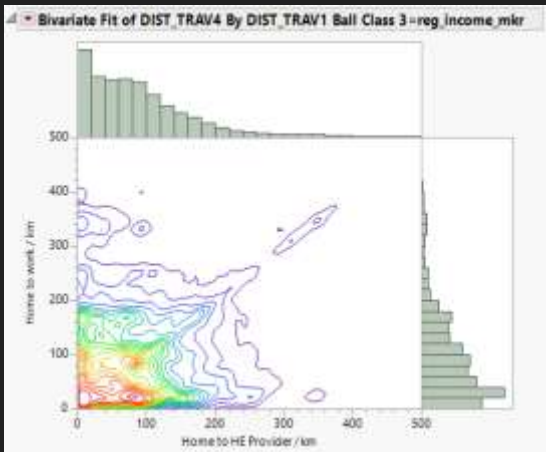


INCOMER: 19%



100 km threshold in terms of the mobility of most students

INCOMER: 19%

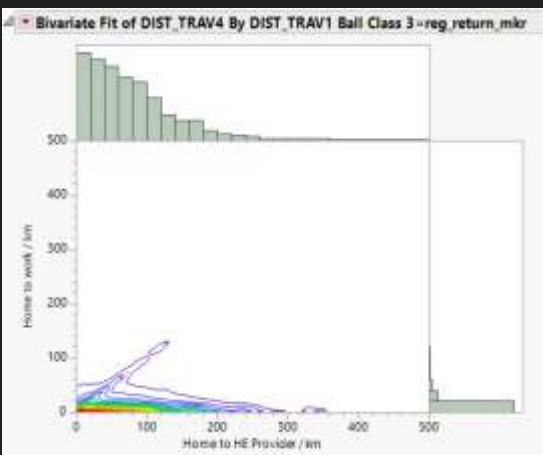
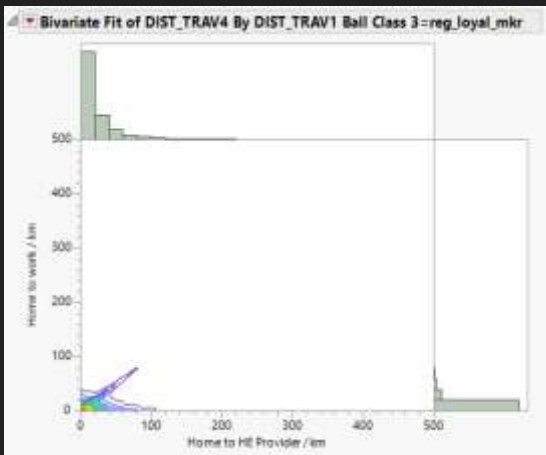


STAYER: 13%

All students

~ 85 % of all students stay within 100 km of home at all times!

LOYAL: 33%



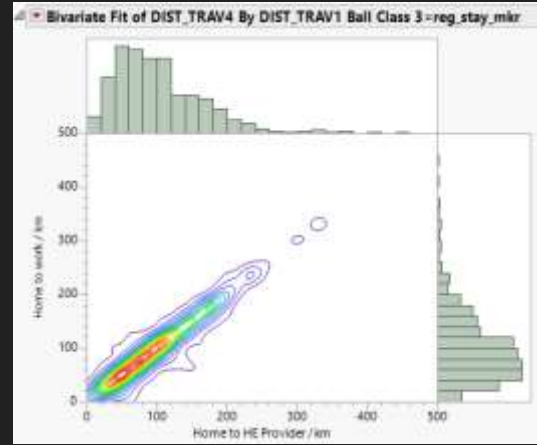
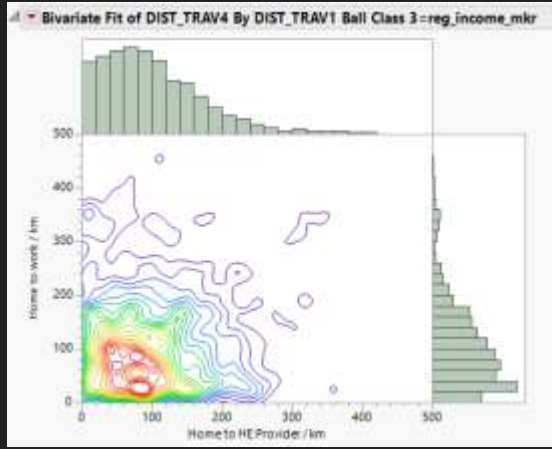
RETURNER: 35%

~ 65% end up working within 20 km of home

20 km home to work range for Returners and Loyals

No difference when we look just at “F3” physics students

INCOMER

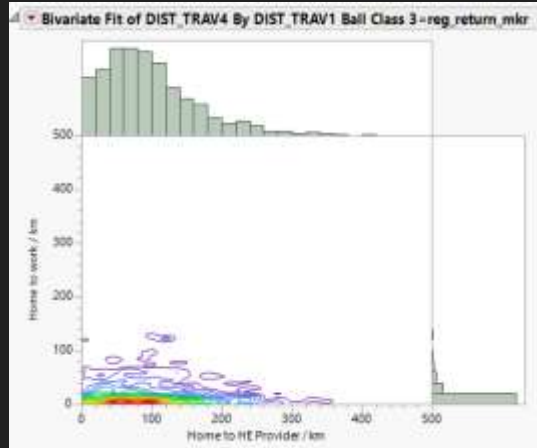
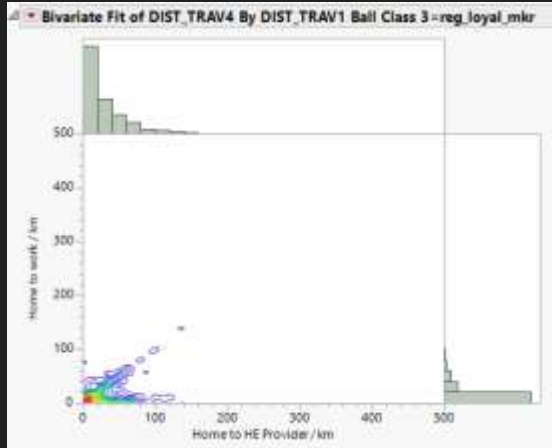


STAYER

Physics students

~ 85 % of all students stay within 100 km of home at all times!

LOYAL



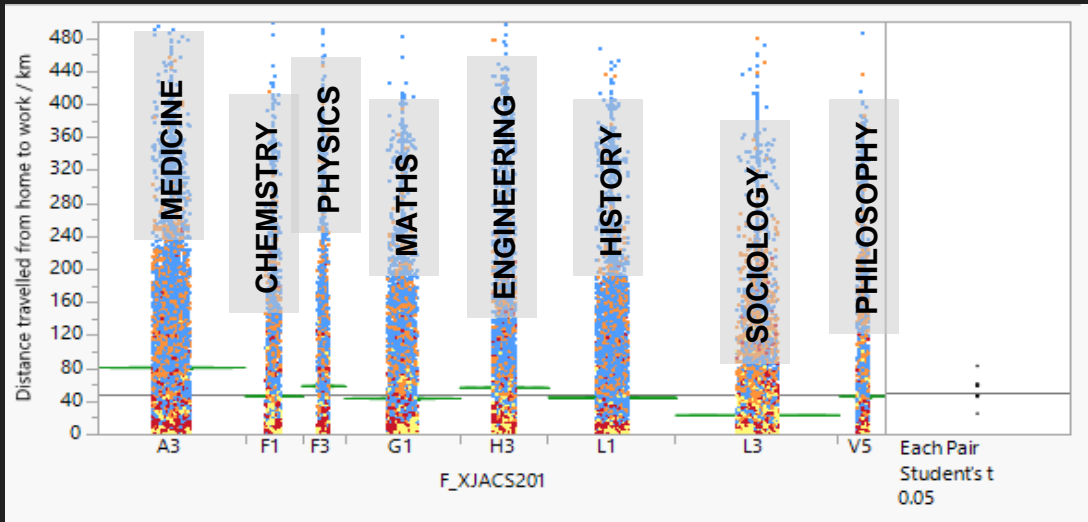
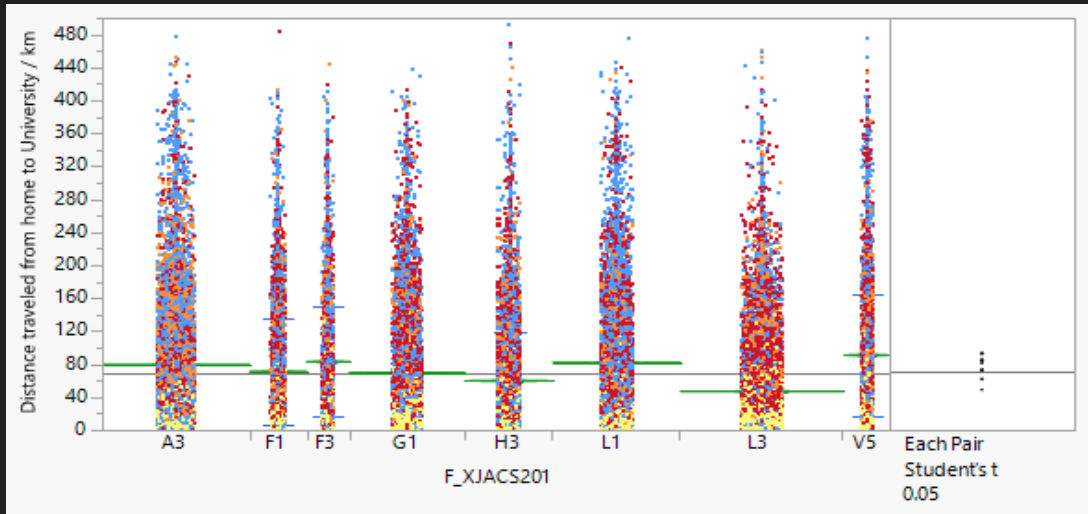
RETURNER

~ 65% end up working within 20 km of home

Mobility by subject

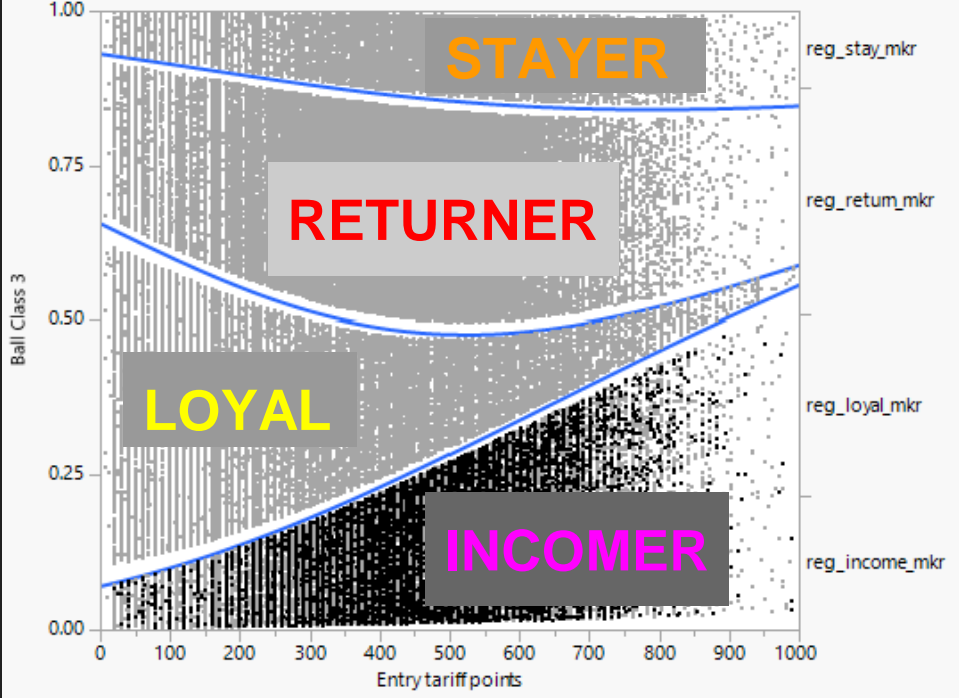
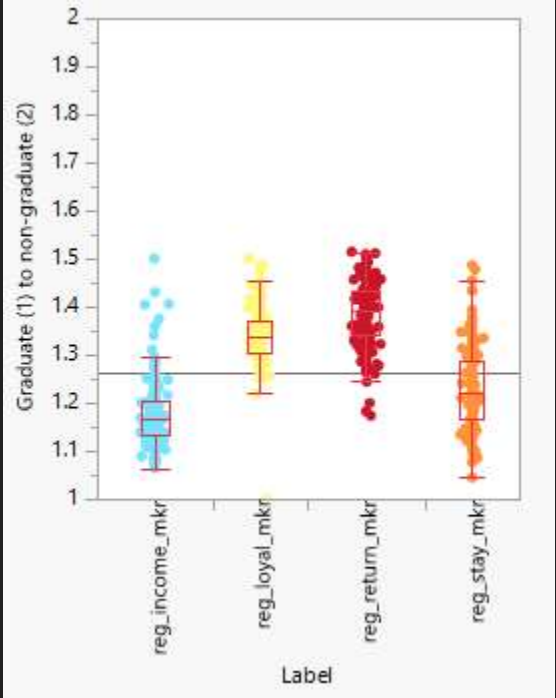
Physicists are slightly more mobile than average coming to University and slightly more mobile than most going to work.

There is some bias due to not all the same Universities offering the same degrees.



If you are a LOYAL or a RETURNER your are 20% less likely to end up in a graduate role. Independent of the region of your work.

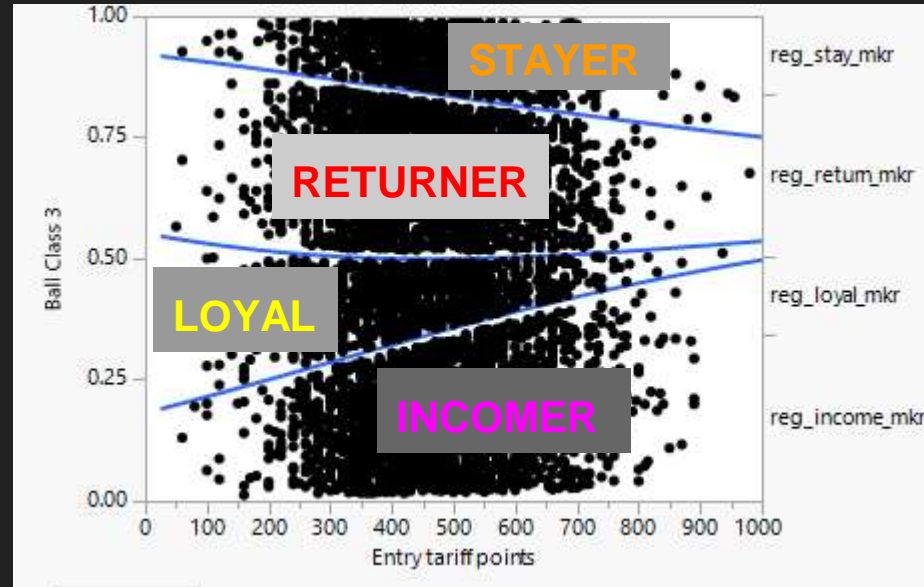
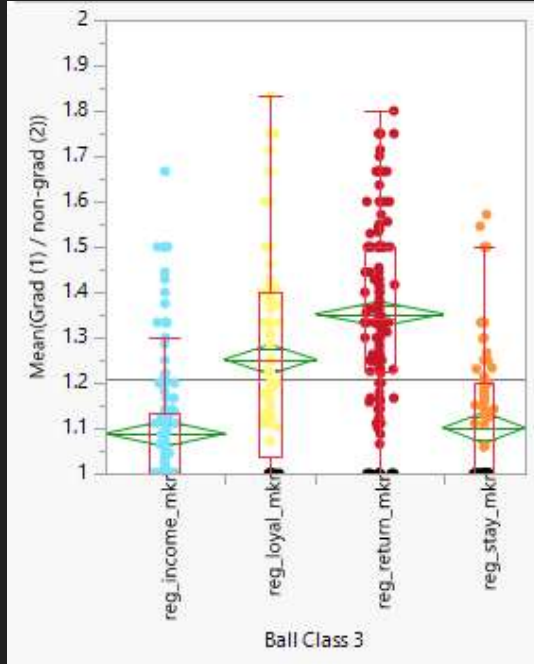
AVG by NUTS3 region of work



All students

For physics students

Physics students



Physics Stayers do really well

Physics, Ball classes, distance traveled and Graduate prospects.

(Physics) Stayers and Incomers get much better jobs than Returners and Loyals.

Physics has slightly fewer Loyals and slightly more Incomers than trend.

If we look for Stayers and Incomers we'll have a good way to measure outcomes.
There is a good reason to mention this!

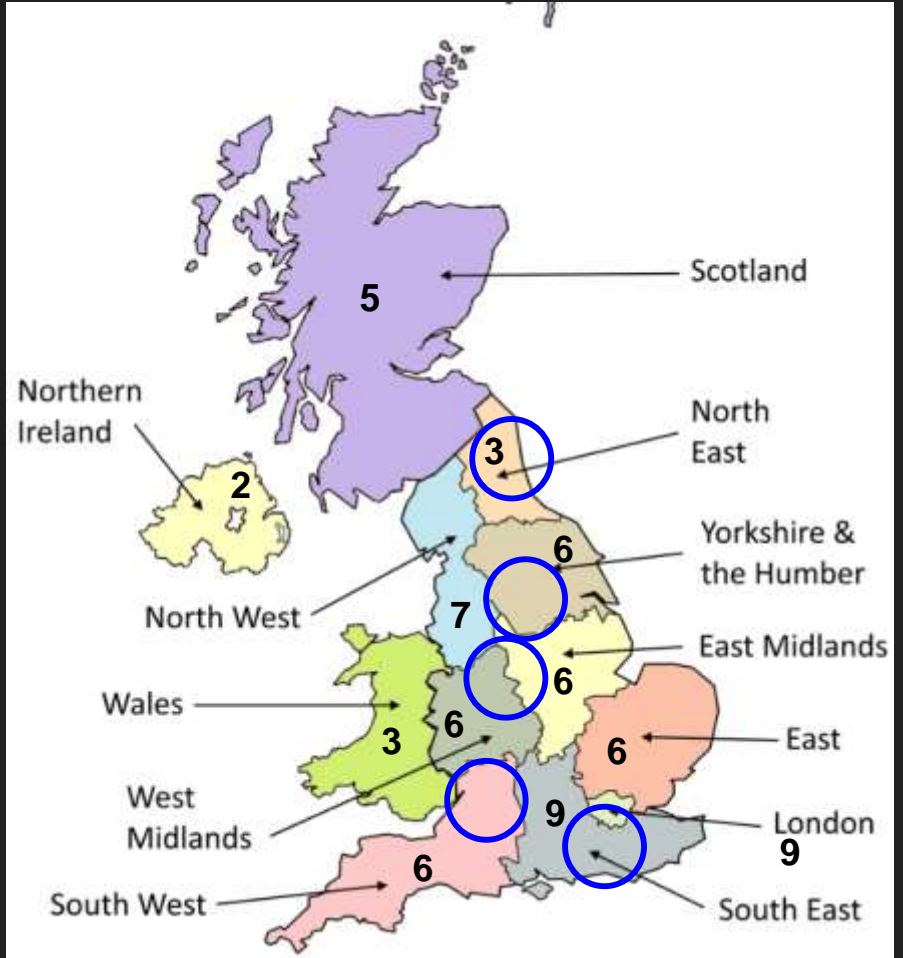
How far is 100 km?

Covers the “heart” of an English region

- Middlesbrough to Leeds
- Sheffield to Hull
- Nottingham to Birmingham
- Brighton to London

And regional populations (in m)? They aren't so different.

- London and the South East are ~9m
- Most other English regions and Scotland: 5-7m
- North East, Wales and Northern Ireland: 2-3m

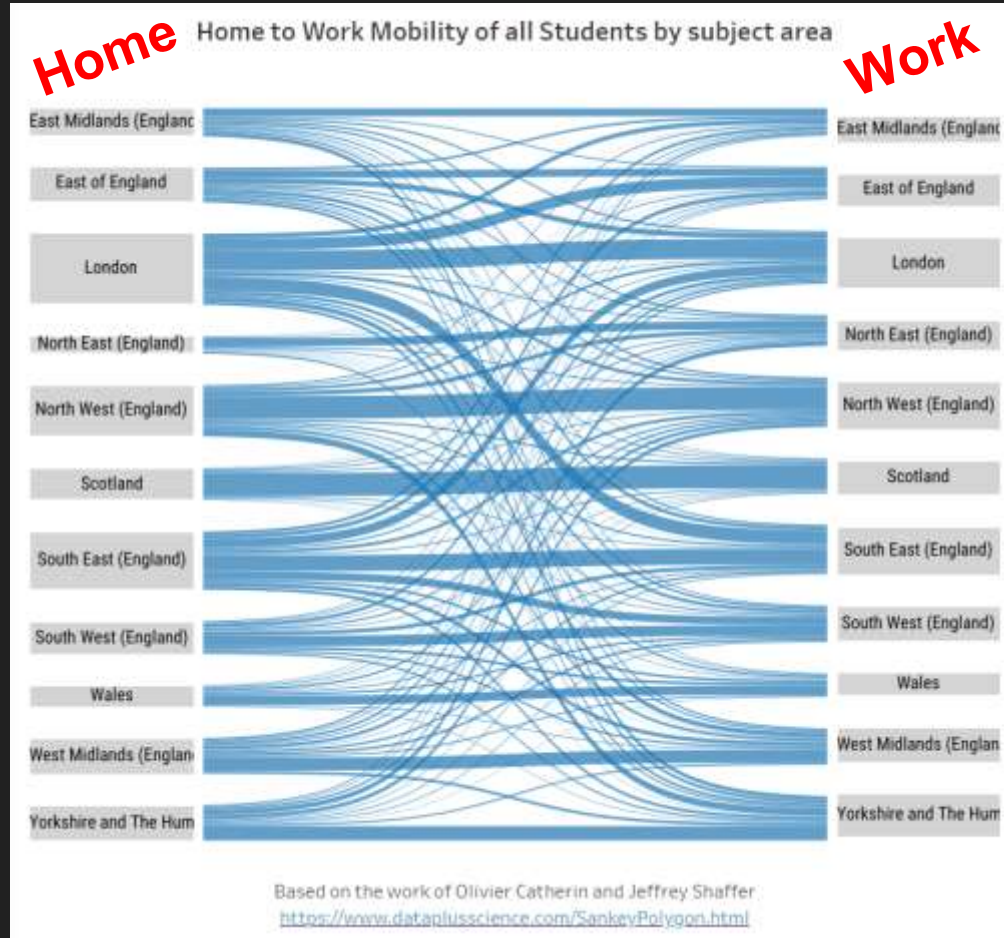


Another way to visualise mobility and migration: Swankey Sankey...

<https://public.tableau.com/profile/alastair6981#!/vizhome/Subjectareastudentmobility/Sankey>



By subject group:
Medicine
Gold Standard of
“balanced” HE
facilitated migration

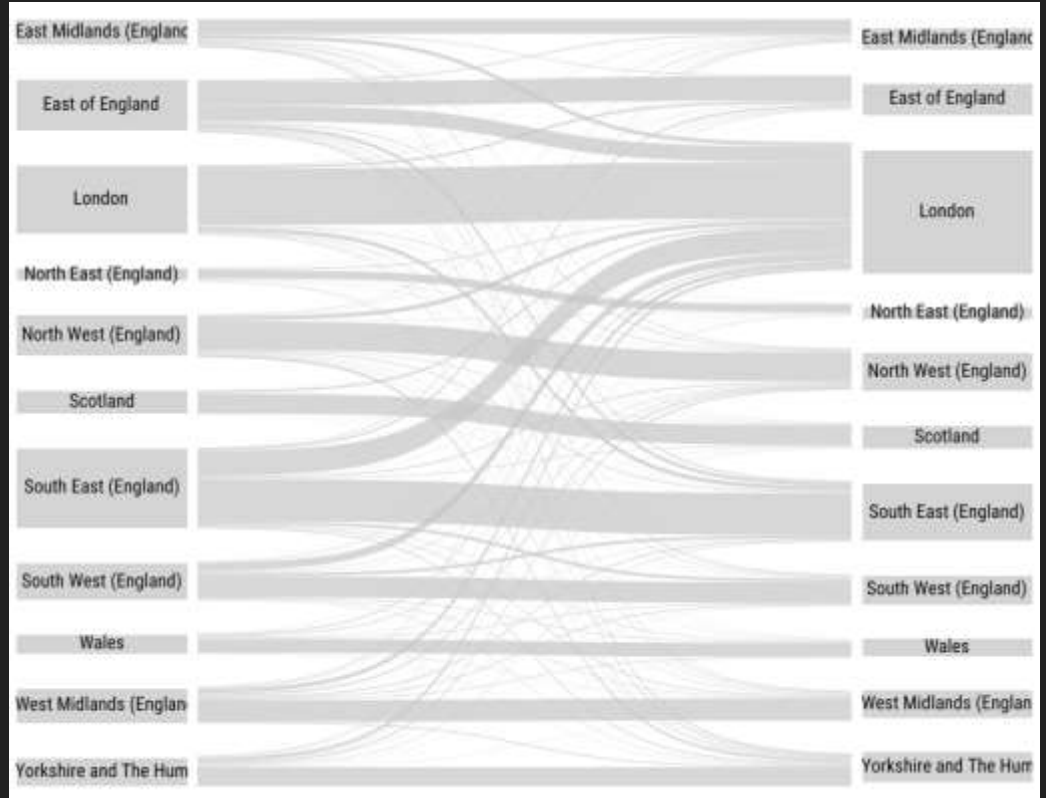


History and Philosophical sciences

Dominated by Loyals and Returners

Less migration overall

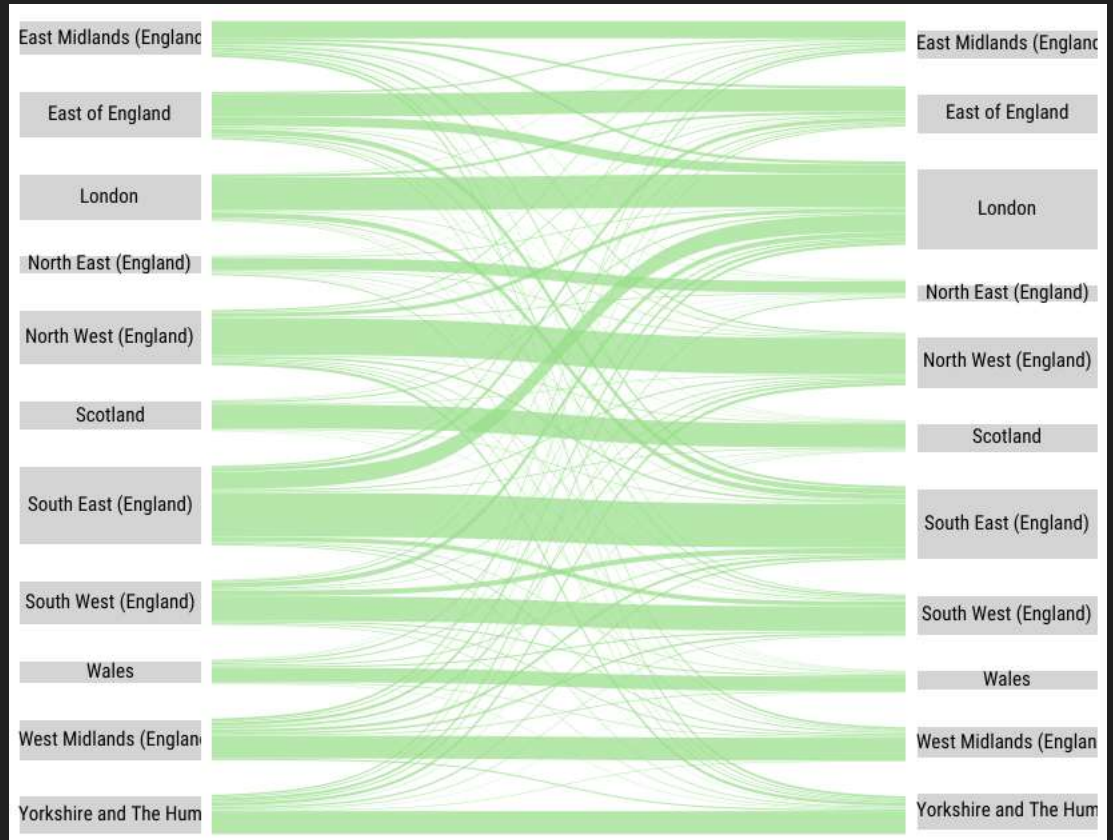
Net migration to London (mostly from the SE)



Physical sciences

Slightly more “balanced” migration - but not as “good” as medicine.

Still net migration to London from SE

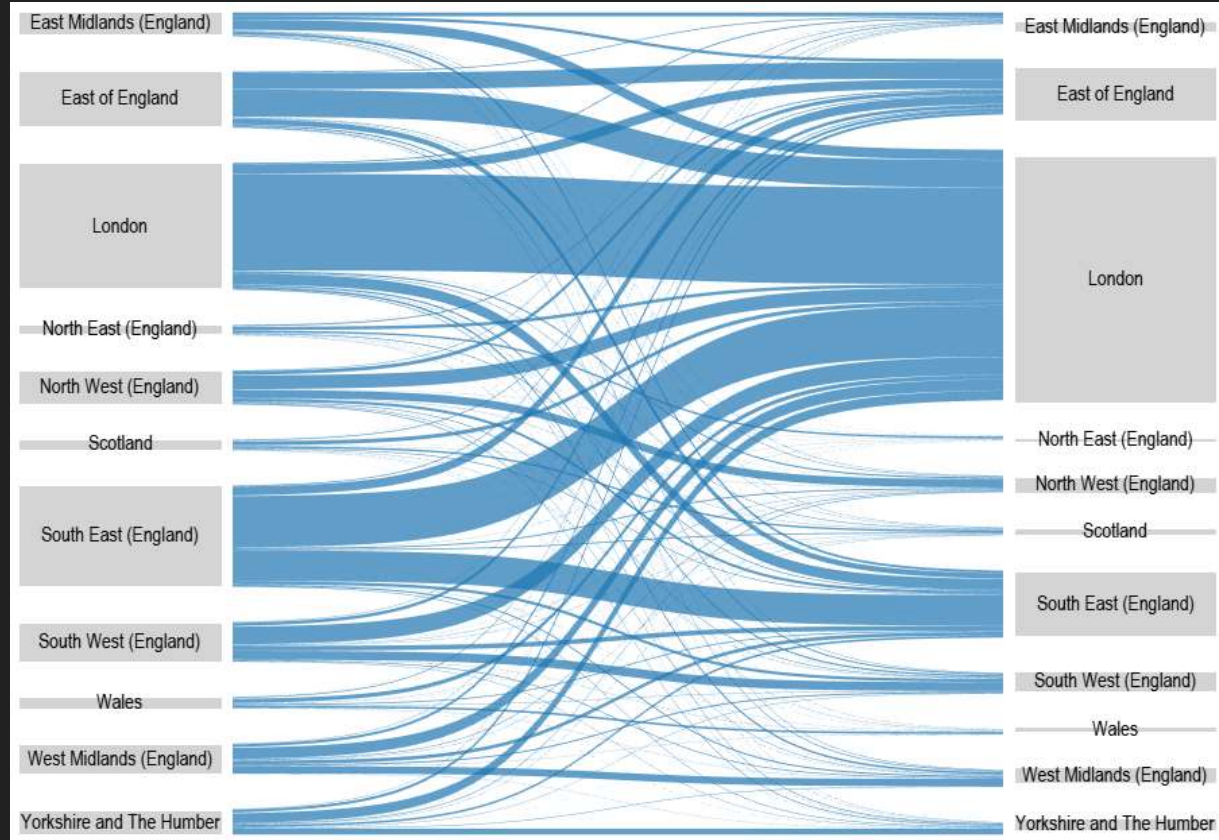


Putting the London effect into context: Rank 1-10 providers.

One way ticket to London dominated by incomers

But why it is that the “best” Uni’s only recruit from the South?

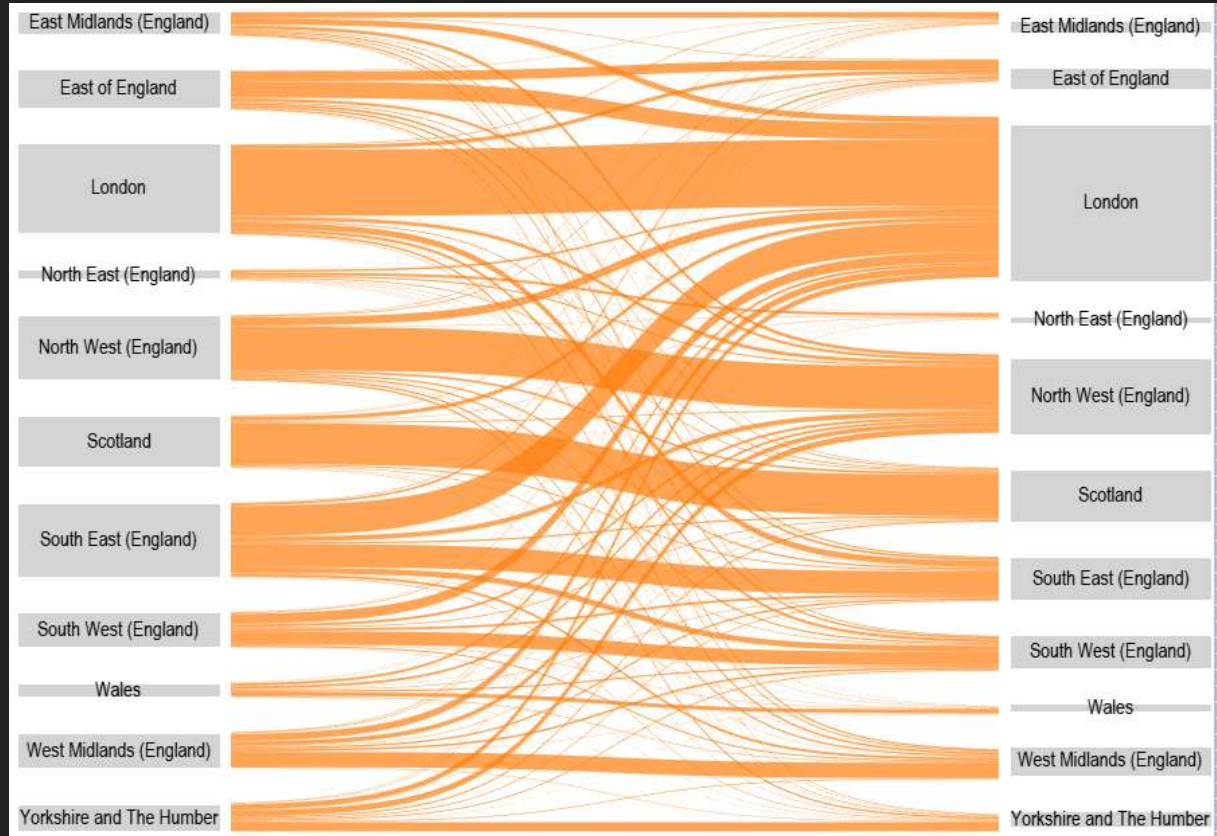
You would have thought that the “best” students would be more mobile in going to Uni?



Rank 10-50

Large numbers of incomers and stayers but also more returners.

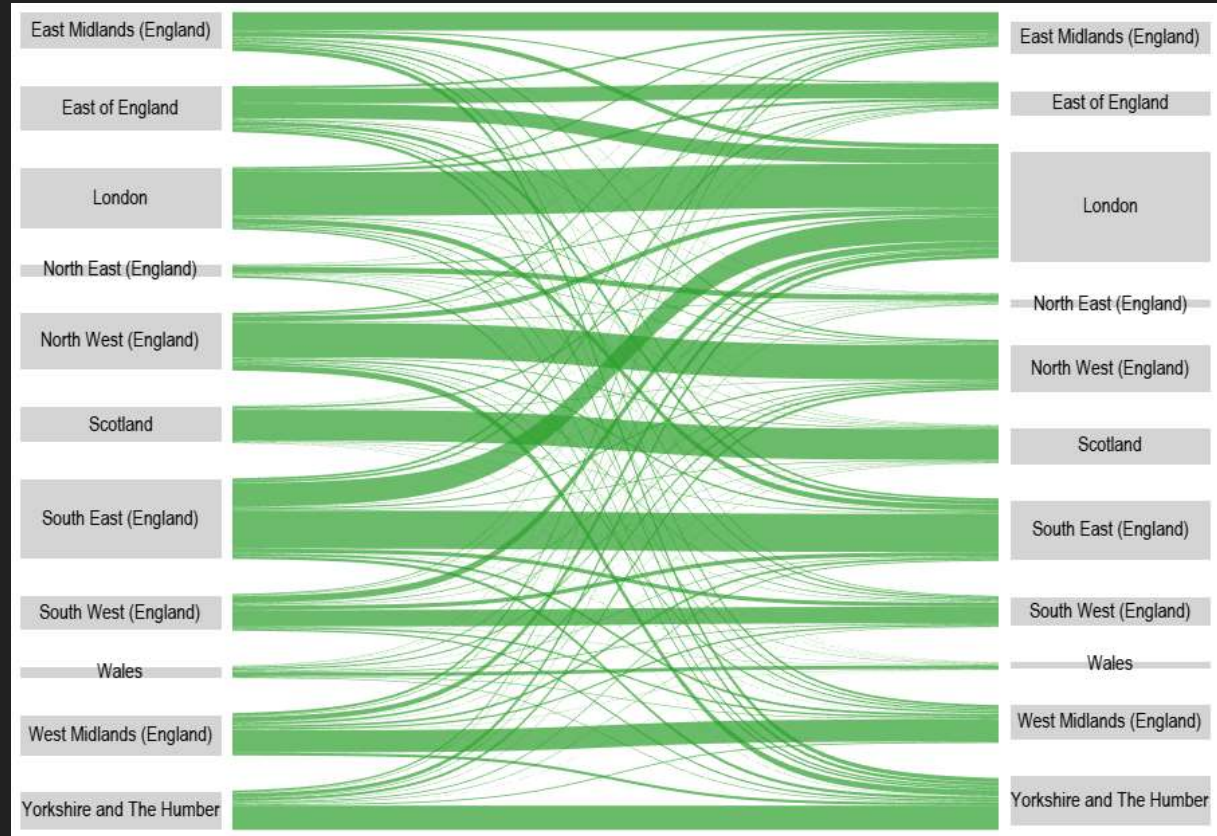
Only the North West (due to Manchester) other than London sees net migration



Rank 50-100

Net positive to Y&H due to Leeds, York, Hull & Sheffield.

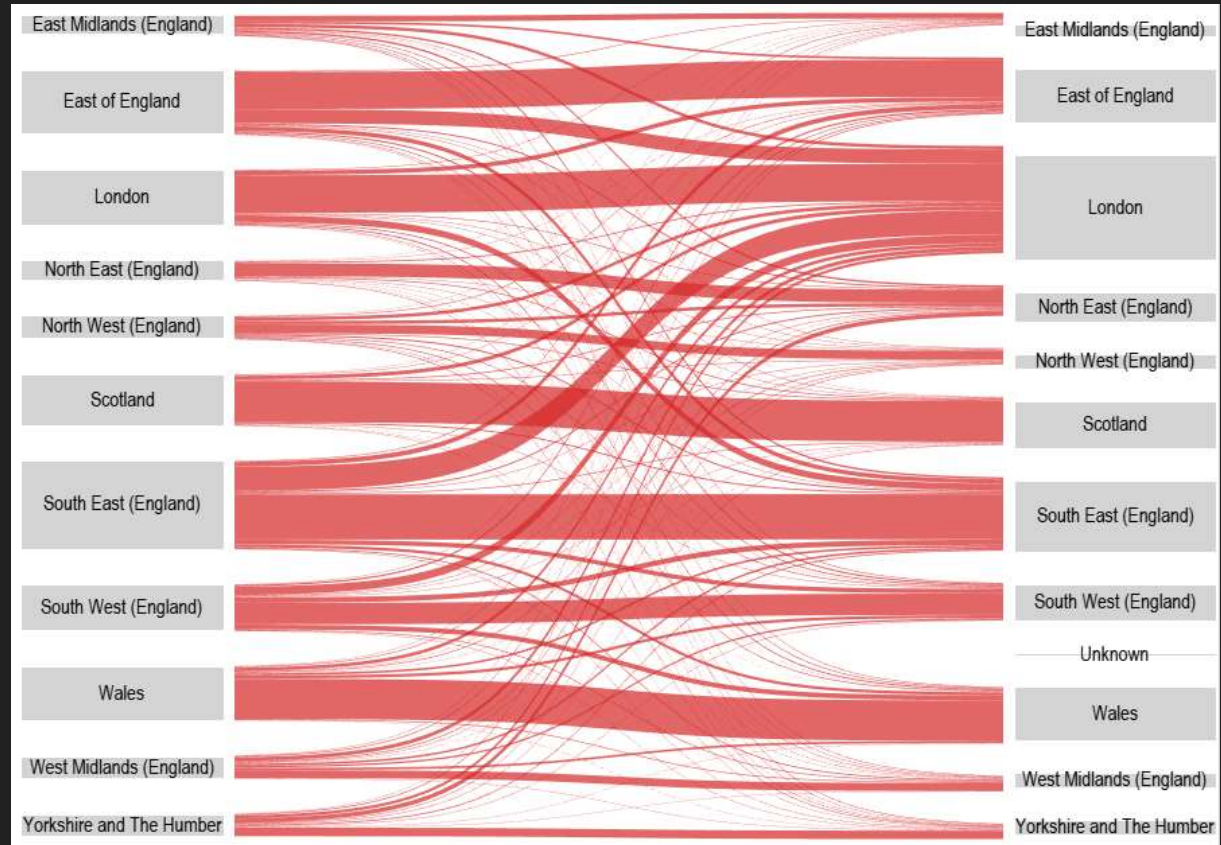
Much more balanced migration than that facilitated by higher ranked HE providers.



Rank 100-200

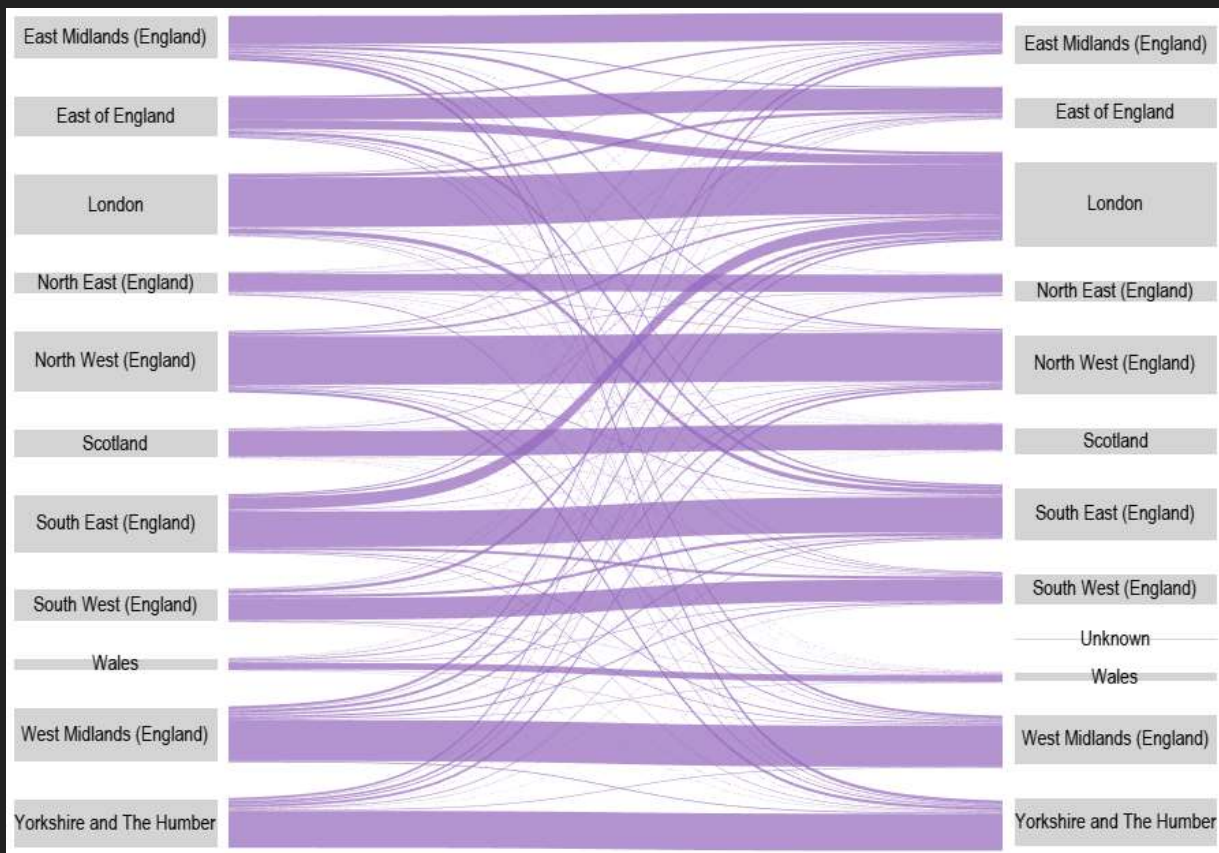
Dominated by Loyals and Returners

With some incomers / stayers - especially SE
→ London



Rank 200-500

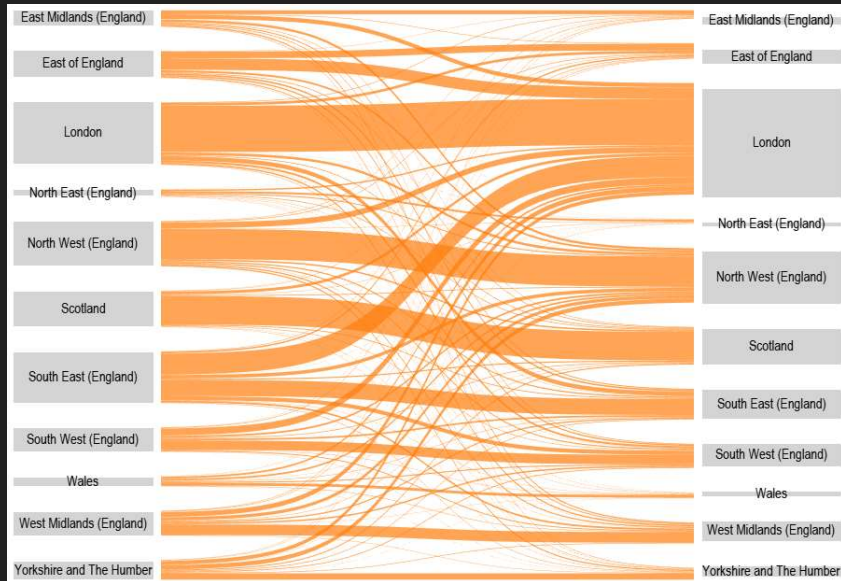
Dominated by Loyals



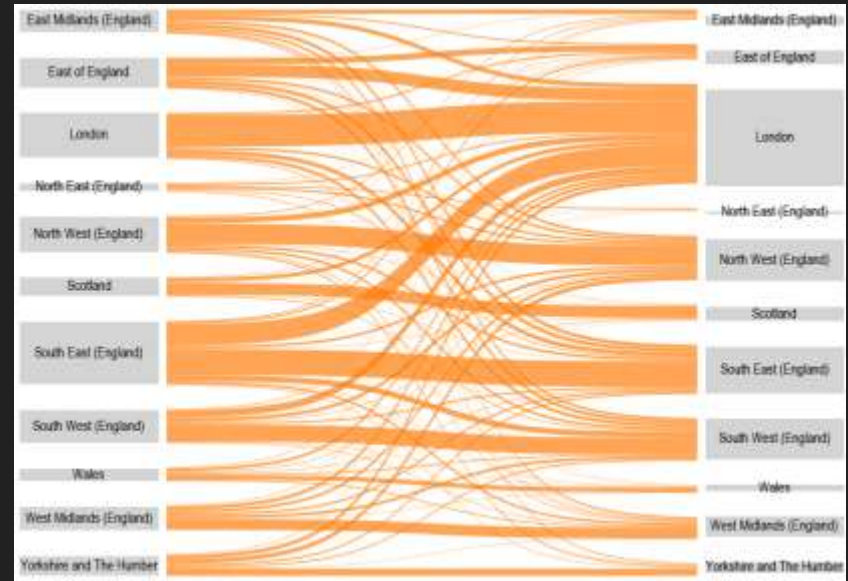
Rank 10-50 (of interest to WRIPA)

Physics is no different to the average migration pattern
Very slightly more balanced

All subjects



F3 - Physics

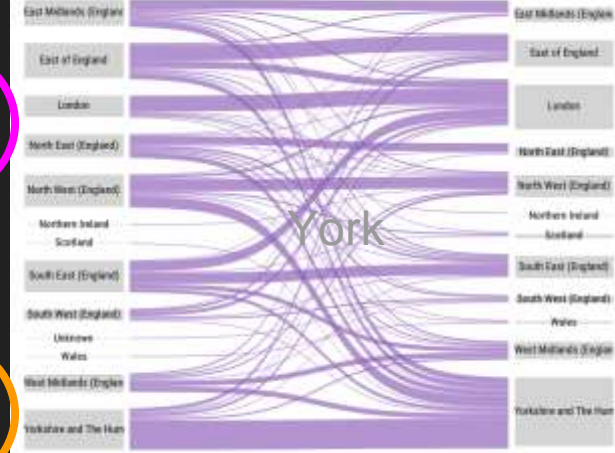


HE facilitated migration is all about regional geography!

Home to Work Mobility of Physics Students



Home to Work Mobility of Physics Students



Home to Work Mobility of Physics Students



Home to Work Mobility of Physics Students



Home to Work Mobility of Physics Students



Conclusions

There is nothing really special about Physics - slightly above trend in Incomers, Stayers and Graduate Prospects. Probably due to the Universities with Physics courses.

London creates a problem for the rest of the UK - it sucks talent in. The “South” is very isolated from the “North” in terms of graduate migration.

But it's not just the “north” and “south” that are geographically isolated. Even Nottingham and Sheffield are isolated from each other. Sheffield is better connected to Birmingham than Nottingham.

- The HE/labour markets are not liquid.
- Students are far from “rational” in an economic sense!

For Students

Take a year out before coming to uni!

RETURNERS are much worse off than INCOMERS or STAYERS.

Think about being prepared to move.

For WRIPA

We were right to focus on supporting students to stay in the region.

Physics students that stay tend to do well.

We've got to develop much stronger relationships with regional companies.

For Policy Makers

The Graduate Prospects metric was flawed!

Good job you changed it.

For Companies

If you struggle to recruit talent then please think about the student point of view.

There is good evidence that (physics) students will stay in their HE region - but only if it works for them!

When will they be looking for jobs?