

# Is staying a career risk or a hidden opportunity? International university graduates and their career outcomes in Dutch regional labour markets

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## Introduction

Understanding how university graduates navigate local labour markets is important for the economic futures of regions. The presence of a highly educated workforce generates knowledge spillovers and human capital externalities (Corcoran and Faggian 2017; Faggian and McCann 2009), which in turn enhance productivity and facilitate high-technology activities (Consoli, Vona, and Saarivirta 2013). Human capital remains one of the strongest predictors of sustained economic vitality (Abel and Deitz 2012), and so graduate labour mobility not only shapes individual career trajectories but also has broader implications for regional economic competitiveness and development.

A particularly relevant group within labour mobility research is international graduates—individuals who pursue higher education in a country different from their country of origin. After graduation, these individuals face a range of mobility decisions: they may remain in their study region, relocate within the host country, or leave the country altogether. This group has received growing attention in political and economic discussions due to concerns about their net contribution to local economies. A prevailing narrative suggests that public resources are allocated toward their education, yet they frequently leave without contributing to the local labour market. The assumption that regions with local universities automatically benefit from increased human capital holds true only if graduates choose to stay in the region (Venhorst, Van Dijk, and Van Wissen 2010). Many regions focus on graduate retention as a strategy to sustain their human capital and encourage graduates to contribute to the local economy to regain public investment in their education (Krabel and Flöther 2014). Despite its increasing policy relevance, empirical research on the underlying mechanisms of international graduate labour market entry remain underexplored (Calonge et al. 2023), particularly from a regional perspective.

This paper aims to address the existing research gap by quantitatively examining the career outcomes of international university graduates in the Netherlands at a regional level. **Do international graduates that stay in their university region have worse career outcomes than graduates who opt to move to another region within the country after graduation? (RQ)** Empirical evidence suggests that graduates who change location fare better than those who do not change location or industry, but those who change both location and industry do worse in the short term, both in terms of lower earnings and lower career satisfaction (Abreu, Faggian, and McCann 2015). International graduates are a special case however, as their labour market integration is influenced by both advantages, such as diverse skill sets, and disadvantages, including language barriers, visa difficulties, and weaker local professional networks (Nikou, Kadel, and Gutema 2023; Gutema, Pant, and Nikou 2023; Calonge et al. 2023).

For the analysis we utilize a rich administrative dataset that contains all persons registered in the Netherlands, including personal information, place of residence, educational background, country of origin, work history (including salary, contract type, sector).

Our empirical approach consists of two parts: a) descriptive analysis, b) comparative analysis of regional stayers vs leavers in relation to career outcomes. Per university region, what is the leave-rate of graduates, stay-rate of graduates, average job search duration, job switch frequency within first 5 years (job-to-job mobility), likelihood of sector job match with. International graduates statistics vs Dutch graduates; how do internationals deviate from the "average" graduate in terms of job matching?

We operationalise career outcomes via income progression, job search duration, likelihood of obtaining a permanent contract, and finding work in the same sector as the degree program (career alignment). We control for degree program, country of origin (EER vs non-EER), and sectoral differences. Comparison of trends with Dutch counterpart graduate population will also be performed in order to identify whether the observed career outcomes are the result of international specific reasons or because of local labour market reasons (i.e., the local labour market absorptive capacity is more important than being non-Dutch)

The goal of our work is to contribute to a more comprehensive understanding of graduate labour market integration and its broader implications for regional economic development.

## Methodology

### Data collection & processing

Within the secure microdata environment of Statistics Netherlands (CBS), we create a dataset that contains all university graduates where we distinguish between international students and Dutch natives.

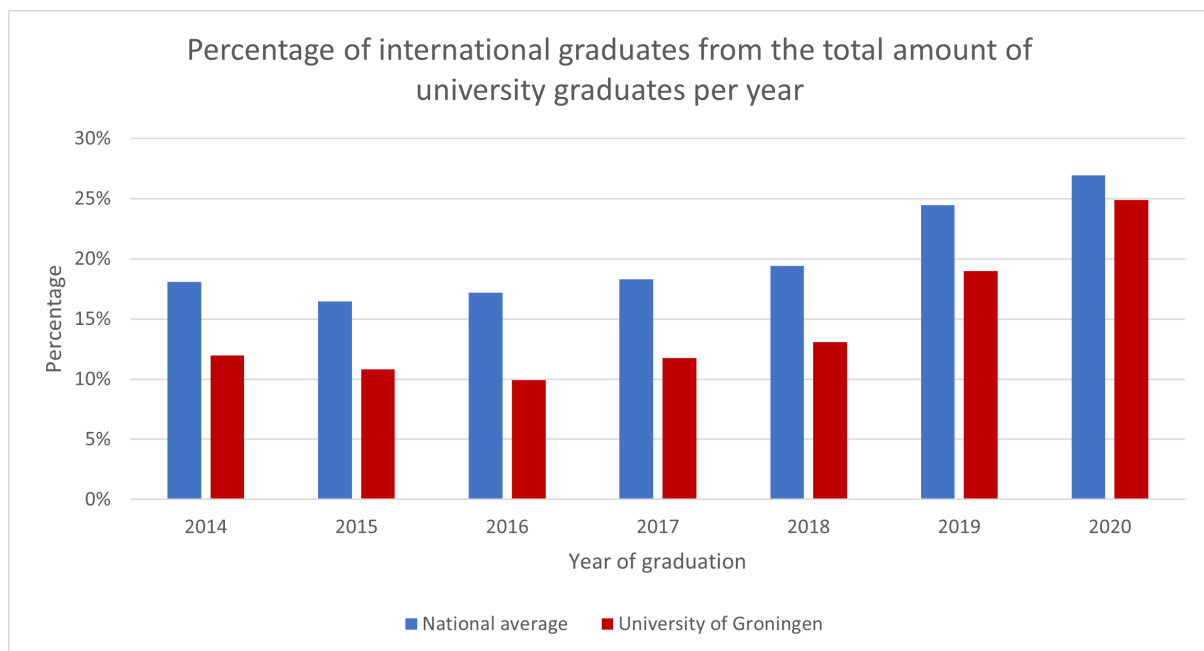
We select everyone who graduated between 2013 and 2020 with a WO (i.e., not College/University of Applied Sciences) first master's degree. Unfortunately, due to inconsistent coding within the diploma file, a small subset of graduates is excluded from the analysis. Some masters with a professional phase at the end are not registered as a master phase, but instead with the code "professional phase". This also applies to the group of master's degree graduates in medicine; these are added separately. All professional phase master graduates will be included in a follow-up analysis, but this still requires investigation into the overlap.

We retrieve the following information for each individual and merge them onto our dataset:

- Personal information: gender, month of birth + year, country of birth of parents, origin, nationality, place of residence (district/neighbourhood, municipality, province, region, labour market region)
- Education information: Training number (corresponds to the specific training), educational institution (encrypted), CROHO sector, language of instruction of the training, previous education (high school)
- Work information: self-employment, income (basic wage), socio-economic status (SECM), collective labour agreement sector, contract type, sector of the job, type of job, number of hours, employment relationship, location of the job (headquarters), nature of the job.

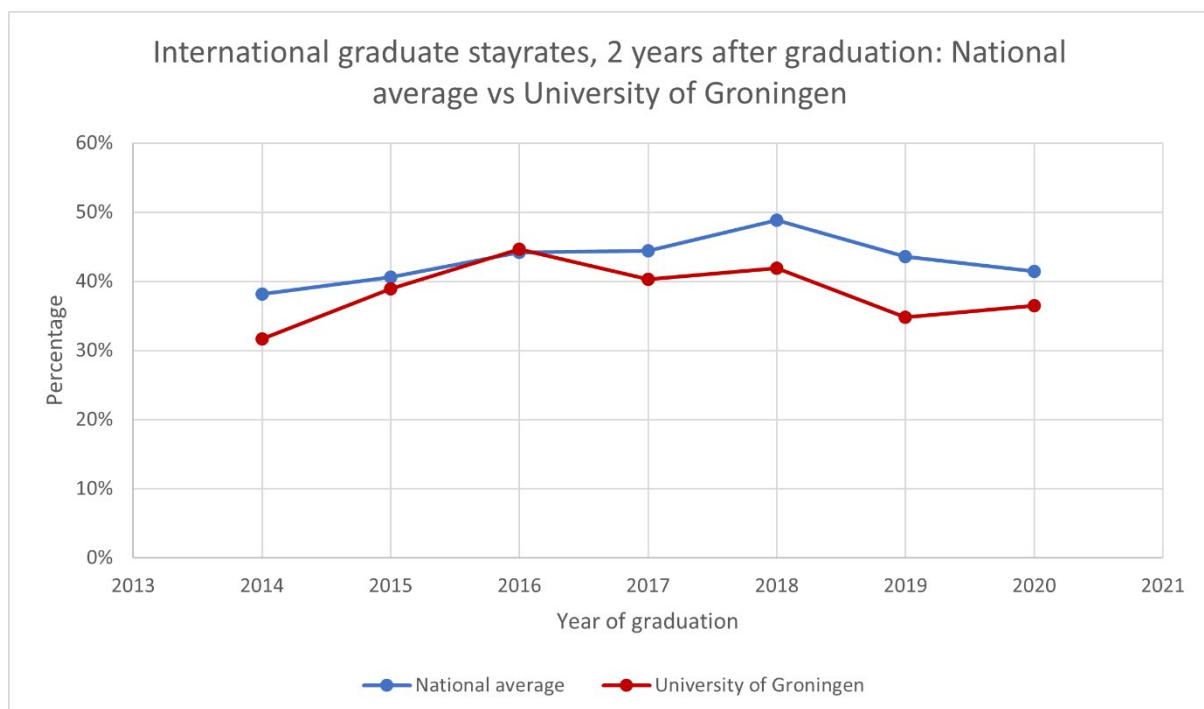
Ultimately, we assess each person's status each year based on their graduation year. We do this for work information, residential location, nationality, independence, socio-economic status. We measure annually, from -5 years before graduation to +5 years after graduation. So for someone who graduated in 2012, we assess the status for the years 2007 (t-5), 2008, 2009, 2010, 2011, 2012 (t0), 2013, 2014, 2015, 2016, 2017 (t5). The consequence of this is that not every person can be fully followed because they have just graduated (e.g. 2020) and we do not have data for 2024 and 2025, or it has been so long that the data for this is also insufficiently available. We aggregate these individual reference moments into cohorts based on year.

## Preliminary findings: descriptive statistics



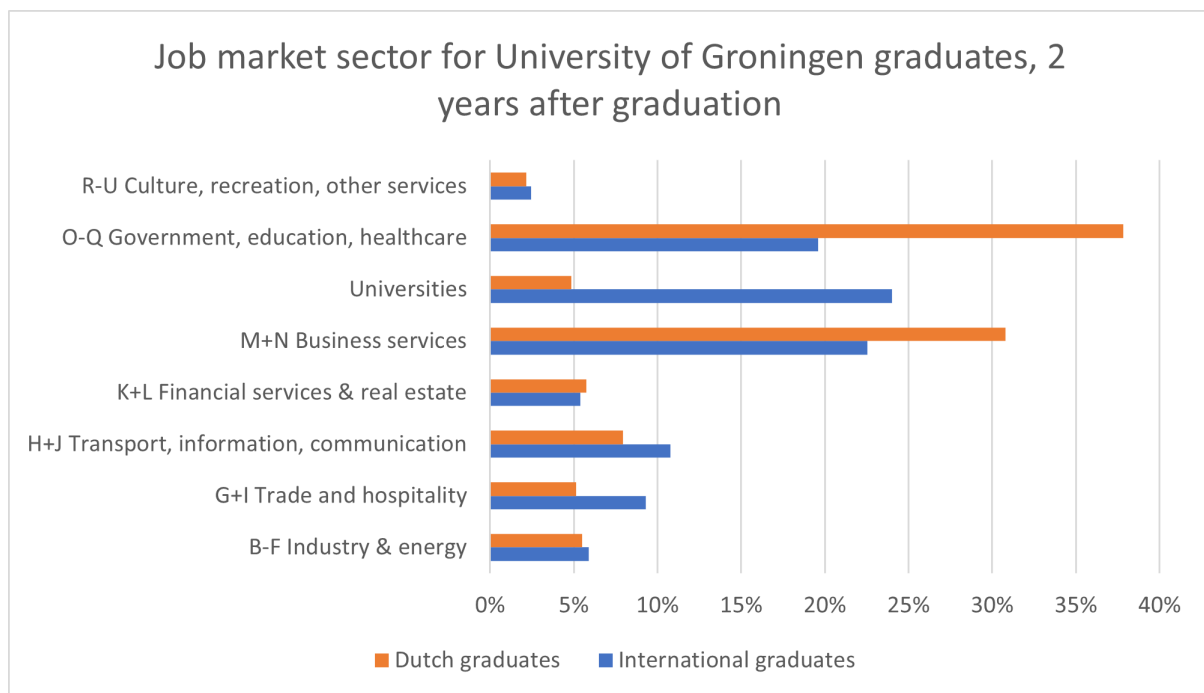
**FIGURE 1**

In figure 1, the percentage of international graduates as part of the total graduate amount has increased over the years, from around 18% in 2014 to above 25% in 2020 nationally. For the University of Groningen the increase is from around 12% to 25%. We also observe a slight dip in the years before 2016 for both the national average as well as for the University of Groningen separately, with a strong upward trend after 2016 for both.



**FIGURE 2**

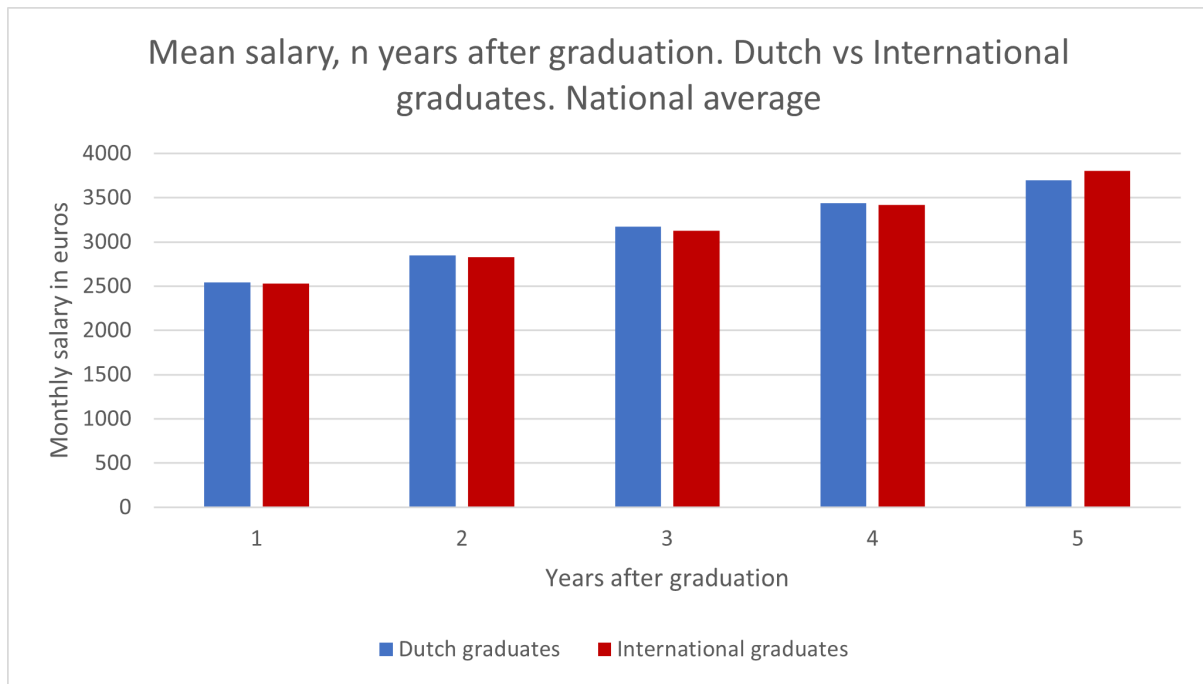
In figure 2 we can observe that of the international master's graduates who graduated in 2020, 36% are still in the Netherlands two years after graduation. That is lower than at (the average of) the other universities, where we see an international stay rate of 41%. The RUG's stay rate has fallen since 2017 compared to the national picture. The pandemic may have played a role in this; we see a decrease both at the RUG and nationally in the outflow cohorts that have been affected by the pandemic. On average between 2014 and 2020, the RUG had a stay rate of 38%, compared to 43% at the other universities. Five years after graduation, 30% of internationals still live in the Netherlands.



**FIGURE 3**

We observe in figure 3 that the international graduates who stay in the North of the Netherlands (University of Groningen region) seem to largely end up at the University of Groningen (RUG) itself, while internationals who come to work in other sectors much more often leave the periphery.

Per sector we see the following: of the RUG internationals working at the universities, 85% live in the periphery and will therefore probably remain affiliated with the RUG. Most internationals (82%) have also remained on the periphery in Government/Education/Healthcare. We also see that internationals and Dutch graduates working in these sectors remain in the periphery approximately equally often.



**FIGURE 4**

Figure 3 shows the mean salary after graduation, up to five years after graduation. We do not observe any big salary differences between Dutch and International university graduates at the start of their careers.

## References

- Abel, Jaison R., and Richard Deitz. 2012. "Do Colleges and Universities Increase Their Region's Human Capital?" *Journal of Economic Geography* 12 (3): 667–91. <https://doi.org/10.1093/jeg/lbr020>.
- Abreu, Maria, Alessandra Faggian, and Philip McCann. 2015. "Migration and Inter-Industry Mobility of UK Graduates." *Journal of Economic Geography* 15 (2): 353–85. <https://doi.org/10.1093/jeg/lbt043>.
- Calonge, David Santandreu, Mariam Aman Shah, Pablo Medina Aguerrebere, Nadia Abdulla, Melissa Connor, Mira Badr, and Emma Blakemore. 2023. "Should I Stay or Should I Go? International Students' Challenges and Opportunities to Secure Employment in Their Host Country after Graduation. A Scoping Review Using PRISMA." *Journal of Applied Learning and Teaching* 6 (2): 187–201. <https://doi.org/10.37074/jalt.2023.6.2.20>.
- Consoli, Davide, Francesco Vona, and Toni Saarivirta. 2013. "Analysis of the Graduate Labour Market in Finland: Spatial Agglomeration and Skill–Job Match." *Regional Studies* 47 (10): 1634–52. <https://doi.org/10.1080/00343404.2011.603721>.
- Corcoran, Jonathan, and Alessandra Faggian. 2017. "Chapter 1: Graduate Migration and Regional Development: An International Perspective." In . <https://www.elgaronline.com/edcollchap/edcoll/9781784712150/9781784712150.00005.xml>.
- Faggian, Alessandra, and Philip Mccann. 2009. "Universities, Agglomerations and Graduate Human Capital Mobility." *Tijdschrift Voor Economische En Sociale Geografie* 100 (2): 210–23. <https://doi.org/10.1111/j.1467-9663.2009.00530.x>.
- Gutema, Dandi Merga, Sukrit Pant, and Shahrokh Nikou. 2023. "Exploring Key Themes and Trends in International Student Mobility Research —A Systematic Literature Review." *Journal of Applied Research in Higher Education* 16 (3): 843–61. <https://doi.org/10.1108/JARHE-05-2023-0195>.

Krabel, Stefan, and Choni Flöther. 2014. "Here Today, Gone Tomorrow? Regional Labour Mobility of German University Graduates." *Regional Studies* 48 (10): 1609–27. <https://doi.org/10.1080/00343404.2012.739282>.

Nikou, Shahrokh, Bibek Kadel, and Dandi Merga Gutema. 2023. "Study Destination Preference and Post-Graduation Intentions: A Push-Pull Factor Theory Perspective." *Journal of Applied Research in Higher Education* 17 (7): 76–96. <https://doi.org/10.1108/JARHE-04-2023-0149>.

Venhorst, Viktor, Jouke Van Dijk, and Leo Van Wissen. 2010. "Do the Best Graduates Leave the Peripheral Areas of the Netherlands?" *Tijdschrift Voor Economische En Sociale Geografie* 101 (5): 521–37. <https://doi.org/10.1111/j.1467-9663.2010.00629.x>.