

How does study abroad experience influence the gender wage gap?

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Research Domains

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Abstract

We bring together two strands of literature: research on the gender wage gap and on returns to study abroad experience (SAE). The first strand demonstrates that women tend to earn less than similarly qualified men. The resulting gender wage gap is particularly pronounced among higher education graduates. The second strand shows that SAE can positively influence graduates' wages. Considering that women are more likely to study abroad in most industrialised countries, we shed light on gender-specific returns to SAE, and thus on how SAE influences the gender wage gap. Using entropy balancing and additionally accounting for selection on unobservables, we analyse nationwide data capturing the early career trajectories of higher education graduates from Germany. We find that male graduates experience higher earnings' gains after SAE than female graduates. Consequently, gender-specific returns to SAE constitutes a – so far largely ignored – determinant of the gender wage gap.

Full paper

We bring together two strands of literature: research on the gender wage gap and on returns to study abroad experience (SAE).[1] The first strand amply demonstrates that women earn less than similarly qualified men. The resulting gender wage gap is particularly

pronounced among higher education graduates (Francesconi & Parey 2018). The second literature strand shows that SAE positively correlates with graduates' wages (Netz & Cordua 2021; Waibel et al. 2017). What is striking here is that women are more likely to study abroad in most industrialised countries (Cordua & Netz 2022; Van Mol 2022). However, do they also benefit from SAE to similar extents as men do?

Existing evidence on this question so far is rather a by-product from robustness checks: Schmidt and Pardo (2017) find larger wage effects of SAE for women among graduates of a liberal arts college in the USA, albeit statistically insignificant. Takeuchi (2021) finds larger effects of SAE among high-skilled women in several larger Asian cities. Sorrenti (2017) finds that women benefit more from SAE, when acquiring language skills, as these pay off a little more for women in the Italian labour market. Overall, these findings provide an inconclusive picture, arguably resulting from differences in samples, operationalisations, and methods.

Against this background, we examine gender-specific effects of SAE on graduates' earnings in the German labour market. We go beyond existing research by approximating gender-specific (causal) effects of SAE on earnings, and by examining how these returns unfold over a time frame of ten years. As a theoretical advancement, we examine SAE as a potential determinant of the gender wage gap. Simultaneously, we expand the literature examining social inequalities in the returns to SAE.

We complement the literature by estimating average treatment effects on the treated (ATT) instead of local average treatment effects (LATE). Many economic studies on SAE use IV approaches (e.g. Di Pietro 2012, 2015; Messer & Wolter 2007; Oosterbeek & Webbink 2011; Parey & Waldinger 2011; Schmidt & Pardo 2017). Their conclusions are thus limited to individuals affected by the respective instruments. Our analysis combines entropy balancing with a method for measuring the stability on coefficients (Oster 2019) to address selection on observables and unobservables.

After thoroughly controlling for gender-specific selection into SAE through entropy balancing and the method by Oster (2019), we find that SAE has positive effects on the earnings for both female and

male graduates in the German labour market. Looking at the subsample estimates of SAE on earnings shows that they hardly differ by gender at one year and ten years after graduation. However, female graduates with study abroad experience have lower earnings five years after graduation compared to male graduates. This could possibly reflect the so-called first child penalty. Yet, compared to female graduates without SAE they still earn more five years after graduation.

Considering our results SAE may not be a determinant of the gender wage gap in Germany. Both men and women benefit from their study abroad experience with regards to earnings, suggesting that participation in study abroad programmes is less likely to function as inadvertent drivers of gender inequality. Given that SAE significantly affects graduate earnings, it should nevertheless be considered more broadly in the literature on gender wage gaps.

[1] SAE denotes stays outside the country where students obtained their higher education entrance qualification or where they first enrolled in higher education (e.g. study periods, internships, language courses, and other study-related stays abroad).

References

Cordua, F., & Netz, N. (2022). 'Why do women more often intend to study abroad than men?', *Higher Education*, 83/5: 1079–101.

Di Pietro, G. (2012). 'Does studying abroad cause international labor mobility? Evidence from Italy', *Economics Letters*, 117/3: 632–5.

—. (2015). 'Do study abroad programs enhance the employability of graduates?', *Education Finance and Policy*, 10/2: 223–43.

Eagly, A., & Karau, S. (2002). 'Role congruity theory of prejudice toward female leaders', *Psychological Review*, 109/3: 573–98.

Eddleston, K., Ladge, J., Mitteness, C., & Balachandra, L. (2016). 'Do you see what I see? Signaling effects of gender and firm characteristics on financing entrepreneurial ventures', *Entrepreneurship Theory and Practice*, 40/3: 489-514.

Francesconi, M., & Parey, M. (2018). 'Early gender gaps among university graduates', *European Economic Review, Gender Differences in the Labor Market*, 109: 63-82.

Hainmueller, J., & Xu, Y. (2013). 'Ebalance: A Stata package for entropy balancing', *Journal of Statistical Software*, 54/7.

Kratz, F., & Netz, N. (2018). 'Which mechanisms explain monetary returns to international student mobility?', *Studies in Higher Education*, 43/2: 375-400.

Messer, D., & Wolter, S. (2007). 'Are student exchange programs worth it?', *Higher Education*, 54/5: 647-63.

Netz, N., & Cordua, F. (2021). 'Does studying abroad influence graduates' wages? A literature review', *Journal of International Students*, 11/4: 768-89.

Netz, N., & Grüttner, M. (2021). 'Does the effect of studying abroad on labour income vary by graduates' social origin? Evidence from Germany', *Higher Education*, 82/6: 1195-217.

Oosterbeek, H., & Webbink, D. (2011). 'Does studying abroad induce a brain drain?', *Economica*, 78/310: 347-66.

Oster, E. (2019). 'Unobservable selection and coefficient stability: Theory and evidence', *Journal of Business & Economic Statistics*, 37/2: 187-204. Taylor & Francis.

Parey, M., & Waldinger, F. (2011). 'Studying abroad and the effect on international labour market mobility: Evidence from the introduction of ERASMUS', *The Economic Journal*, 121/551: 194-222.

Petzold, K. (2021). 'Heterogeneous effects of graduates' international mobility on employers' hiring intentions—experimental evidence from Germany', *Higher Education*, 82/6: pages1093-1118.

Schmidt, S., & Pardo, M. (2017). 'The contribution of study abroad to human capital formation', *The Journal of Higher Education*, 88/1: 135-57.

Sorrenti, G. (2017). 'The Spanish or the German apartment? Study abroad and the acquisition of permanent skills', *Economics of Education Review*, 60: 142-58.

Takeuchi, M. (2021). 'Determinants of earnings and gender earnings gaps among highly educated workers within major cities in Asian countries', *Asian Economic Journal*, 35/2: 166-86.

Tompkins, A., Cook, T., Miller, E., & LePeau, L. (2017). 'Gender influences on students' study abroad participation and intercultural competence', *Journal of Student Affairs Research and Practice*, 54/2: 204-16.

Van Mol, C. (2017). 'Do employers value international study and internships? A comparative analysis of 31 countries', *Geoforum*, 78: 52-60.

——. (2022). 'Exploring explanations for the gender gap in study abroad: a case study of the Netherlands', *Higher Education*, 83/2: 441-59.

Waibel, S., Rüger, H., Ette, A., & Sauer, L. (2017). 'Career consequences of transnational educational mobility: A systematic literature review', *Educational Research Review*, 20: 81-98.