Extended Abstract

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Natural Disasters and the Green Occupational Aspirations of Young Adults

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Given the global policy goal of mitigating climate change, investigating why individuals aspire to occupations with green skills (i.e., skills that contribute to the green energy transformation) is crucial. To achieve this goal, many countries have committed to reaching net zero carbon emissions in the near future by transforming the fossil-based economy into one based on green energy (e.g., European Commision, 2023a, 2023b; Jobs and Skills Australia, 2023b). This transformation presents a challenge, especially for countries still heavily relying on fossil fuels (e.g., Barbier, 2010; OECD, 2011) and achieving it requires a workforce that possesses green skills. Consequently, the increasing demand for an adequately skilled workforce leads to a rise in occupations that contain green skills (Lobsiger & Rutzer, 2021; Vona et al., 2018). However, to meet the rising demand for green skills, young adults also need to acquire those skills by choosing to learn green occupations. Because occupational and educational decisions that individuals make at a young age are highly predictive for their future jobs (e.g., Hoff et al., 2022), examining the reasons for adolescents choosing green occupations or green educational programs is crucial.

The occupational choices of labor market entrants (i.e., their choice of which type of human capital to acquire) have long been of great interest to economists. Economic theory predicts that individuals, given their competencies and interests, choose the occupation that maximizes their utility (Becker, 1964; Todd & Zhang, 2020) and therefore, labor market expectations play an important role (Baker et al., 2018; Wiswall & Zafar, 2014). However, numerous studies have also analyzed external factors that influence individuals' considerations in the occupational choice process. For example, a growing literature in education economics examines the determinants of gender differences in occupational choices, which are driven by local gender norms (Kuhn & Wolter, 2023; Palffy et al., 2023), math performance relative to that of peers (e.g., Brox et al., 2024; Delaney & Devereux, 2021), or the people-versus-things orientation of occupations (e.g., Kuhn & Wolter, 2022).

However, research on the determinants of choosing green occupations (i.e., occupations containing green skills) is largely missing. One exception, a recent study by Lehnert and Pfeifer (2024), shows that the worldwide Fridays for Future movement (i.e., student protests demanding more action against climate change) motivated adolescents to choose green occupations. Their study suggests that the choice of a green occupation constitutes a form of pro-environmental behavior originating from an increase in environmental awareness (i.e., increased knowledge about environmental issues) (Iosifidi, 2016; Khan et al., 2022; Liu et al., 2020; Ribeiro et al., 2023). Lehnert and Pfeifer (2024) thus demonstrate the impact of a social movement that increases environmental awareness by demanding more action against climate

change on the occupational choices of young adolescents. However, the individual level of environmental awareness and educational decisions can have other, more direct origins, such as experiencing the direct consequences of climate change in the form of exposure to natural disasters (Andrews et al., 2023; Asai et al., 2022; Baccini & Leemann, 2021; Berrebi et al., 2021; Davidsson, 2020; Gust, 2024; Iwo et al., 2024; Munoz-Morales, 2024; Wang, 2023).

This paper analyzes the relationship between the exposure of adolescents to natural disasters as one potential origin of environmental awareness and their choice of green occupations. We expect that early-life exposure (i.e., during childhood or adolescence) to the immediate consequences of climate change has a long-term impact on the individual level of environmental awareness. Therefore, we argue that individuals who experience natural disasters are more likely to behave pro-environmentally and thus have stronger aspirations to work in green occupations.

For our analysis, we draw on Australian data for the following three reasons. First, natural disasters are relatively common and occur with increasing frequency as a result of climate change (e.g., Satherley, 2022). Australia is in the top ten of countries impacted by climatological and meteorological disasters (Shen & Hwang, 2019). As their occurrence varies regionally and temporally across Australia, exposure to a disaster and the simultaneous formation of environmental awareness quasi-randomly depends on the location of an individual. Second, as Australia still heavily relies on fossil fueled energy (Commonwealth of Australia, 2023, 2024), transforming the country toward a green economy with its own workforce has been declared a highly important policy goal (Albanese, 2024). Third, upon entering upper-secondary education, Australian students can choose from a wide range of programs, both vocational and academic, thereby having the option of various pathways into a green occupation. They make this choice at age 16 when their occupational aspirations are not yet confounded by the demand side of the labor market, i.e., firms and their hiring decisions. Additionally, at this age they typically begin to self-responsibly behave according to their opinions and attitudes, including pro-environmental ones (e.g., Eckstein et al., 2012; Stevenson et al., 2019).

To answer our research questions, we use three main data sources. First, to measure occupational choices, we use the Longitudinal Survey of Australian Youth (LSAY). The LSAY follows PISA cohorts by surveying individuals annually for 10 years from the age of 15. Therefore, we can use all the information in PISA in addition to the LSAY survey information and administrative data from linked datasets. Specifically, we use the answers to the survey

questions on occupational aspirations (classified according to the Australian and New Zealand Standard Classification of Occupations, ANZSCO). Importantly, individuals are asked multiple times about their occupational aspirations, allowing us to observe changes in their aspirations over time. Moreover, to rule out potential confounders, we can control for a wide range of individual characteristics. Second, to measure the greenness of the occupations, we use the Australian Skills Classification (ASC, provided by Jobs and Skills Australia, 2023a), which identifies all skills among occupations, thereby making the skills comparable across occupations. These skills are then aggregated to what the ASC calls "skill clusters" and "skill cluster families." In our analysis, for each occupation, we use the weight that is attributed to the skill cluster family "Environmental Management" as our proxy for the greenness of an occupation. Third, to determine whether individuals were exposed to natural disasters prior to their articulated aspirations, we draw on the Australian Institute for Disaster Resilience (AIDR) Disaster Mapper. This database, a comprehensive list of disasters, offers a reliable measure of disaster exposure.

Our findings from a cross-sectional OLS regression reveal that individuals who were quasi-randomly exposed to a natural disaster in the three years prior to the survey aspire to occupations with a higher greenness score. This relationship holds when we control for individuals' cognitive abilities through, for example, math and science test scores. We also find that exposure to a natural disaster is correlated with a higher level of environmental awareness, suggesting that an increase in environmental awareness is indeed the channel through which natural disasters shape occupational choices. Additionally, we run a placebo test with disasters that are not related to climate change and show that these disasters are not related to the greenness score.

The results of our study have important implications for education and labor policies. Given a continuing increase in the demand for green skills for mitigating climate change, ensuring that enough individuals aspire to and ultimately choose green occupations is a crucial policy goal. We provide evidence that environmental awareness plays an important role in shaping occupational aspirations of adolescents and thus the future workforce.