

## **COVER LETTER POID - RASMUS DURET**

I am writing to express my keen interest and qualifications for the role of Graduate Research Assistant on the Programme on Innovation and Diffusion.

The need for rapid technological advances to fuel the green transition in contrast to decelerating productivity growth has in recent years resulted in an increased interest in the design of policies and institutions aimed at promoting and sustaining innovation, and ensuring its fruits spread quickly to where they will be the most beneficial.

Throughout my studies, I have taken as many opportunities as possible to familiarise myself with modern literature on innovation-driving policy, notably by critically reviewing modern evaluations of South Korea's 1970 Heavy Chemical and Industry Drive using trade models in my Advanced International Economics course. I have in particular taken an interest in how modern network models can be used to model complex systems such as the diffusion of innovation, which have become increasingly powerful thanks to the advent of Big Data over the past decade. Although my undergraduate dissertation focused on social networks, I reviewed literature examining how the structure of supply chains could incentivise individually marginal innovations which accumulated into significant gains, how new technologies and innovations spread through person-to-person or firm-to-firm spillovers, and how informed policy design can leverage these insights to provide particularly impactful policy interventions.

Studying these processes is something I find inherently fascinating for multiple reasons: firstly, the complexity of the process itself, understanding it, and how to best leverage the mechanisms driving it to deliver socially desirable outcomes; secondly, the important and tangible impacts policy informed by such research can have, which can result in significant gains for society at large.

Beyond my genuine interest in the project, I am a strong suit for the role due to my experience with the collection and analysis of new data for economic research using mathematical models.

I am currently gaining experience with working with large-scale administrative datasets through my graduate dissertation, which is examining the effects of a COVID-induced reform to Sweden's student support system. I am using Stata to analyse Swedish administrative data on the entire Swedish population, enabling me to estimate the reform's impact on students' labour supply, and to simulate counterfactual policies' effects.

Working as RA for Prof. Jonas Hjort over the past year, I was charged with independently finding and collecting financial data on 300,000 firms from the Refinitiv Eikon platform. I then largely automated the extensive process of matching this to separate datasets involving ESG data and treatment/control groups using Python and R. I was fully responsible for designing and implementing the data collection and documenting it, to ensure the project's next steps rested on solid foundations.

My undergraduate dissertation was dedicated to creating a network-based model of social capital, inspired by the empirical work of Chetty et al (2022). I derived sufficient statistics for the macro-level segregation measures studied by Chetty et al, and calibrated my model parameters on their county-level data. Having implemented my model using the NetworkX Python library, I ran 2 million network simulations, and was able to replicate their observations of endogenous segregation by socioeconomic status, contributing a theoretical grounding for their empirical observations.

Building on top of my experience concerned with data collection and literature reviews, this position would allow me to gain experience with the more fundamental design, implementation, and evaluation of novel economic research using large-scale administrative data and advanced quantitative

models in an area I find fascinating and highly impactful. This would serve as an ideal preparation for a future PhD in Economics, and a stepping stone towards my goal of becoming a professional economist able to design, implement, and evaluate policy-relevant economic analysis.

Thank you for consideration, I look forward to hearing back from you.

Kind regards,

Rasmus Duret