Luigi Dante Gaviano

Italian citizen, born on 26.10.1998 | ldg26@cam.ac.uk | www.luigidantegaviano.com
Trinity College, Cambridge CB2 1TQ

Research Interests

Corporate Finance, Innovation, Environmental Economics.

Education

University of Cambridge, Trinity College — Cambridge, U.K.
PhD in Economics — *2023 – 2028*
Supervisor: Elisa Faraglia, Advisor: Constantine Yannelis

Coursework: Networks, Computational Methods, Advanced Macro I & II

Bachelor of Arts (Hons) in Economics, Upper Second Class honours — *2016 – 2019*

Geneva Graduate Institute — Geneva, Switzerland
Master's degree in International Economics — *2021 – 2023*
GPA: 5.88 out of 6.00

University of Oxford, Oriel College — Oxford, U.K.
MPhil in Economic and Social History — *2019 – 2021*
Distinction

Research

- *Tangible risk, intangible investments* (ongoing)

with Dominik Damast (LUISS).

- *Climate shocks, firm liquidity shortfalls and credit linkages* (ongoing)

with Margherita Bottero and Michele Cascarano (Bank of Italy).

- *Unfinished business: how temporary cash flow shocks can leave permanent scars* (WP)

This paper examines the conditions under which temporary cash flow shocks on firms can generate lasting scarring effects. If adverse weather conditions force the interruption of work, contractual payments to the firms assigned to the project are delayed. This impairs their short-term liquidity position. Concurrently, firms cannot fully reduce their labour and capital costs, since they may have to suddenly resume work when the interruption is lifted. This is the liquidity shortfall I quantify using data on Italian construction firms and on their infrastructure projects, obtained from a new database on the universe of public procurement contracts in the country. I isolate the effects of the cash flow shock through a staggered DiD design matching similar firms.
Work interruptions lead to extensive financial damage, with sales dropping on average by 30%, employment by 15.3%, and total assets by 18.5% in the years after a firm is first hit. The negative effects persist for up to five years after the end of the work interruption itself. In other words, temporary liquidity shocks can have persistent, scarring effects. The magnitude and persistence of the adverse effects of cash flow shocks are not driven primarily by interrupted projects, which are directly hit by adverse weather, but rather by the knock-on effects on firms' other projects, which are not hit directly, and yet which also exhibit completion and thus payment delays, as liquidity-constrained firms struggle to cover their running costs.

Work Experience

PhD Intern July-October 2025
Bank of England, Monetary Analysis Directorate, Structural Economics Division *London, U.K.*

Policy Strategy Trainee February-July 2023
European Stability Mechanism (ESM) *Luxembourg*

Research Intern Summer 2022
to Christoph Trebesch (The Kiel Institute) *Kiel, Germany*
Paper: *Guns and Butter: The Fiscal Consequences of Rearmament and War.* Kiel Working Paper No. 2310, December 2025

Research Assistant Winter 2022
to Barry Eichengreen (UC Berkeley) and Rui Esteves (Geneva Graduate Institute)
Paper: *Up and Away? Inflation and Debt Consolidation in Historical Perspective.* Oxford Open Economics, 2022

Research Assistant Summer 2020
to Rui Esteves (Geneva Graduate Institute)
Project: *Gold and Trade: An Empirical Simulation Approach*

Research Assistant Summer 2018
to Solomos Solomou (University of Cambridge)
Project: *Credit Cycles since 1870*

Grants

Keynes Fund for Applied Economics, £39,242 ($\sim$ $50,000) - with Dominik Damast (2026-2029)

Prizes

Rudi Dornbusch Prize for the best MA thesis in cohort, Geneva Graduate Institute, 2022-2023
Charles Feinstein Prize for the best MPhil dissertation in cohort, University of Oxford, 2020-2021

Services to the Profession

Program Committee: London Macro PhD Workshop, London School of Economics (2025)
Teaching: Undergraduate classes - *Macroeconomic Principles I*, *Unemployment and Labour Markets*, *International Macroeconomics* - University of Cambridge (2024-2026)
PhD Students' Representative: Faculty of Economics, University of Cambridge (2024-2026)
Undergraduate admissions: Trinity College & King's College, University of Cambridge (2023, 2025)
Refereeing: *Macroeconomic Dynamics, Rivista di Storia Economica*
Seminars: Convenor, *Economic and Social History Graduate Seminar*, University of Oxford (2020-2021)

Seminar & Conference Presentations

London Macro PhD Workshop, London School of Economics, November 2025
RAPS/RCFS Europe Conference, University of Cambridge, September 2025
MMF Annual Conference, University of Reading, September 2025
Macro Brown Bag Seminar, Bank of England, July 2025
EAERE Annual Conference, NHH (Bergen), June 2025
FMA European Conference, Limassol, June 2025
Midwest Macroeconomics Meeting, Federal Reserve Bank of Kansas City, May 2025
Scotland and Northern England (SaNE) Conference in Applied Microeconomics, Crieff, May 2025
Workshop on the Economics of Adaptation to Climate Change, ifo Institute (Munich), March 2025
Trade and Spatial Economics Reading Group, University of Cambridge, February 2025
ClimaTRACES Workshop, University of Cambridge, November 2024
Macro PhD Workshop, University of Cambridge, October 2024

Austrian Economic Association (NOeG) Annual Meeting, BOKU (Vienna), September 2024
Macro PhD Workshop, University of Cambridge, March 2024

Short Courses

New Developments in the Econometrics of Heterogeneous Workers and Firms (CEMFI, 2024),
Monetary Economics & International Finance Summer Schools (University of Oxford, 2022),
Central Banks and Monetary Policy in Historical Perspective (University of Neuchâtel, 2022).

Languages and Computer Skills

- Native: **Italian, English**
- Fluent: **German** (Goethe-Zertifikat C2)
- Intermediate: **French**
- Proficient in **Dynare, LaTeX, MATLAB, MS Office, SQL, Stata.**

Professor Donald Robertson
Chairman of the Degree Committee

Luigi Dante Gaviano
Trinity College

UNIVERSITY OF CAMBRIDGE
Degree Committee

Faculty of Economics

28th June 2024

Dear Luigi Dante

Certificate of Postgraduate Study 2023-24

I am writing to inform you of the results of your first year examinations, and to confirm that the Degree Committee has recommended the award of the Certificate of Postgraduate Study. The criteria for the award of the CPGS are achieving a pass mark 60% on each component of the Coursework, and obtaining a pass grade on the Research Proposal.

Your marks are as follows:

PhD 20 *Firms Sectors in the Macroeconomy:* 72
PhD 21 *Computation Methods:* 70
R200 *Advanced Macroeconomics:* 72
R201 Advanced Macroeconomics II: 73

A copy of the Examining Panel's report on your Research Proposal is attached.

You will now be expected to continue with your work and submit a 20,000 word dissertation in order to be registered for the PhD degree. The criteria for registration are that you have successfully completed the requirements for the CPGS (above) and submit an acceptable dissertation of not more than 20,000 words. The timetable will be as follows:

Friday 4 October 2024 at 12 noon	Title and summary of the First Year Chapter submitted to Louise Cross via Moodle. Link to be sent to you.
Monday 21 October 2024	First Year Chapter submitted to Louise Cross via Moodle – Link will be sent to you.
Monday 28th, Tuesday 29th & Wednesday 30th October. (Students are expected to keep these dates free).	Oral Examinations
End of November 2024	Results to students
Mid-January 2025	Revised Submission - *if necessary*

Yours sincerely,

Professor Donald Robertson

cc Supervisor: Dr E Faraglia
cc College Tutor: Trinity College

UNIVERSITY OF CAMBRIDGE

Faculty of Economics

Certificate of Postgraduate Study

CPGS research proposals – Vivas - May 2024

Deadline for report and recommendation: 27th May 2024

Student's Name: Dante Gaviano

This candidate successfully passed the viva. We made a number of comments during the viva on the development of their proposed work and these should be taken into consideration for the PhD registration submission. In particular the data gathering has produced a comprehensive dataset which should be a starting point for thinking about the economic mechanisms at work and how these relate to the basic correlations illustrated (which are not in themselves very informative).

Please tick the appropriate box, and sign below.

1.	We recommend a **Pass** for the above student's research proposal for the award of the CPGS.	✓
2.	We recommend a Pass for the above student's research proposal for the award of the CPGS, but we have major reservations about it that the student should address for their PhD registration paper.	
3.	We recommend a **Fail** for the above student's research proposal for the award of the CPGS.	

Dr Toke Aidt: [electronic Signature]

Professor Donald Robertson: [electronic Signature]

Professor Hamid Sabourian: [electronic Signature]

Mrs Gerry Riches
Economics Deputy Faculty Manager

UNIVERSITY OF CAMBRIDGE

10th December 2024

Degree Committee
Faculty of Economics

TO WHOM IT MAY CONCERN

This is to confirm that Luigi Dante Gaviano is registered as a PhD student here at the Faculty of Economics. Dante commenced his studies in October 2023, and has been carrying out his research under the supervision of Professor Elisa Faraglia. Dante completed his first year, which is called the Certificate of Postgraduate Studies, where he was required to complete at least four courses, and submit a research proposal, on which he had a viva. These are listed below with the marks he obtained.

The criteria for the award of the CPGS are achieving a pass mark 60% on each component of the Coursework, and obtaining a pass grade on the Research Proposal.

PhD 20 *Firms Sectors in the Macroeconomy:* 72
PhD 21 *Computation Methods:* 70
R200 *Advanced Macroeconomics:* 72
R201 Advanced Macroeconomics II: 73

Dante submitted his first year chapter in November 2024, on which he had a viva, and was subsequently approved to continue to the PhD. Dante is now in his second year, and we expect him to submit his final PhD thesis by 30 September 2027.

Please let me know if you require any further information.

Yours sincerely

G. Riches

Mrs Gerry Riches

University of Cambridge
Faculty of Economics
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Sidgwick Avenue
Cambridge
CB3 9DD

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Email: deputyfacultymanager@econ.cam.ac.uk

Luigi Dante Gaviano
PhD Student, Faculty of Economics
Trinity College, University of Cambridge
ldg26@cam.ac.uk

February 12, 2026

NBER Innovation Research Boot Camp 2026
Selection Committee

Dear Members of the Selection Committee,

I am writing to apply to the NBER Innovation Research Boot Camp 2026. I am a third-year PhD student in Economics at the University of Cambridge, under the supervision of Profs. Elisa Faraglia and Constantine Yannelis. My research examines how the exposure to disaster risk reshapes firms' capital allocation, with a particular focus on the implications for innovation and long-run productivity growth. The Boot Camp would provide an invaluable opportunity to deepen my engagement with the economics of innovation, a field that is central to my current research and to the trajectory I envision for my academic career.

My primary research project, "Tangible Risk, Intangible Investments," joint with Dominik Damast (LUISS), investigates whether exposure to natural disaster risk induces firms to substitute tangible for intangible capital. The core insight is that tangible assets - equipment, structures, inventory - are vulnerable to physical destruction, while intangible assets - patents, R&D knowledge, organisational capital - are largely immune to it. As climate change increases the frequency and severity of natural disasters, the relative return to intangible investment rises, potentially triggering a systematic reallocation of firm resources. We combine establishment-level data from the National Establishment Time Series (NETS) with FEMA flood risk measures and employ a shift-share identification strategy, exploiting the interaction of firms' baseline geographic risk exposure with aggregate fluctuations in attention to natural disasters. Our preliminary evidence, based on earnings call data (Sautner et al., 2023) and USPTO patent filings, supports this mechanism: firms that become exposed to physical risk increase their intangible investment share and, among large firms, their patent filings.

What motivates my application to the Boot Camp is that the most policy-relevant dimensions of this project are fundamentally questions about the economics of innovation. Beyond documenting the tangible-to-intangible substitution, the project asks: does the composition of innovation change? Do firms pursue higher-quality patents, shift toward climate adaptation technologies, or instead divert resources toward less productivity-enhancing forms of intangible capital such as marketing and customer capital? Using worker-level data from Revelio Labs, which links employees to firms and to patents, I can distinguish R&D hiring - indicative of innovation-driven adaptation - from hiring in advertising and marketing, which corresponds to customer capital accumulation. Whether climate adaptation spurs the former or the latter has first-order implications for total factor productivity and long-run growth, a question that sits squarely within the domain of innovation economics.

The Boot Camp is especially well suited to my needs at this stage of my career. I completed my PhD coursework in microeconomics, macroeconomics, and econometrics, but - as the Boot Camp's own description notes - the economics of innovation is rarely taught as a separate field course, and I have had limited formal exposure to its foundational ideas, key institutions, and

frontier questions. This gap is particularly pressing as I prepare this project as my Job Market Paper for the Autumn 2027 academic market. Engaging with the Boot Camp's curriculum and its instructors on key topics such as innovation measurement and policy, market structure, and the organisation and funding of science would strengthen both the theoretical grounding and the policy framing of my research. Attending the NBER Summer Institute Innovation Policy sessions during the Boot Camp week would further expose me to the research frontier and to the community of scholars working in this area.

More broadly, my research agenda is oriented toward understanding how firms' innovative capacity responds to environmental shocks and institutional frictions. A related strand of my work examines the portability of innovative knowledge: when disaster risk forces firms to relocate establishments, do the inventors they employ sustain their patenting activity, and does their innovation trajectory adapt to the characteristics of the destination location? This question connects to fundamental issues in agglomeration economics and the geography of innovation, drawing on the same data infrastructure I am assembling for the main project. I am also interested in how financial frictions - particularly the limited collateralisability of intangible capital - moderate firms' ability to finance the substitution toward innovation, with implications for monetary policy transmission and financial stability. The Boot Camp would help me situate these interconnected projects within the broader innovation literature and identify the most impactful avenues for future work.

A letter of recommendation will be provided by my advisor, Prof. Constantine Yannelis (University of Cambridge). I would be grateful for the opportunity to participate in the Boot Camp, and I am confident that the experience would have a lasting impact on the quality and ambition of my research. Thank you for considering my application.

Yours sincerely,

Luigi Dante Gaviano

NBER Innovation Research Boot Camp 2026

Tangible Risk, Intangible Investments

Luigi Dante Gaviano*

February 12, 2026

*University of Cambridge, Trinity College (ldg26@cam.ac.uk). Project in collaboration with Dominik Damast (LUISS).

Introduction

A central question in the economics of innovation is what forces shape firms' decisions to invest in intangible capital - R&D, patents, organisational knowledge - and how these decisions affect long-run productivity growth. This project investigates a novel determinant of firms' innovative activity: the rising physical risk associated with climate change. As natural disasters become more frequent and severe, tangible capital faces growing risk of destruction, lowering its expected return (Erda, 2025). Intangible capital, by contrast, is largely immune to physical damage, making it relatively more attractive. We test whether this mechanism induces a systematic substitution from tangible to intangible capital, and examine its consequences for the nature and composition of innovation.

This substitution matters for innovation economics in several ways. First, risk-driven innovation may differ qualitatively from innovation induced by taxes (Dechezleprêtre et al., 2023), market structure (De Ridder, 2024), or regulation (Aghion et al., 2023) - it may be directed toward climate adaptation technologies (Moscona and Sastry, 2023), or take the form of defensive investment in customer capital rather than productivity-enhancing R&D. The distinction has first-order implications for TFP dynamics. Second, if disaster-prone regions see firms shift toward intangible-intensive production, the resulting changes in workforce composition and patenting patterns will affect innovation clusters and agglomeration dynamics (Desmet and Rossi-Hansberg, 2012; Oberfield et al., 2024). Third, the limited pledgeability of intangible capital may constrain firms' ability to finance the substitution (Falato et al., 2022; Caggese, 2019), so that only financially unconstrained firms can innovate adaptively - with implications for the distribution of innovative activity across the economy and for innovation policy in a changing climate.

Technical Description

Literature. This project relates to two strands of the literature. First, it adds to work on the impact of physical climate risk on firms. Physical risks destroy capital (Erda, 2025; Leiter et al., 2009), raise operating costs (Ponticelli et al., 2023), interrupt revenues (Brown et al., 2021; Gaviano, 2025; Giroud et al., 2012), and propagate through supply chains (Barrot and Sauvagnat, 2016; Carvalho et al., 2021). The most closely related papers, Leiter et al. (2009) and Erda (2025), study how floods affect productivity through physical capital. We differ by testing for substitution toward intangible capital and by examining the long-term adaptive response to anticipated risk, thereby connecting this literature to core questions in the economics of innovation. Second, we contribute to the literature on intangible capital creation (Crouzet et al., 2022), which has emphasised taxation (Dechezleprêtre et al., 2023; Lichter et al., 2025), regulation (Aghion et al., 2023), market power (Akcigit and Kerr, 2018; De Ridder, 2024), and automation (Hémous et al., 2025). The few papers at the intersection of climate risk and innovation focus on aggregate effects rather than the firm-level mechanisms we study (Kruttli et al., 2025; Long and Wang, 2025; Miao and Popp, 2014).

Empirical set-up. We estimate the effect of physical risk on the composition of firm investment:

$$\frac{\text{Intangible Investment}_{i,t}}{\text{Total Investment}_{i,t}} = \beta \text{ Physical Risk}_{i,t} + \boldsymbol{\gamma X_{i,t}} + u_i + v_{s,t} + \varepsilon_{i,t} \tag{1}$$

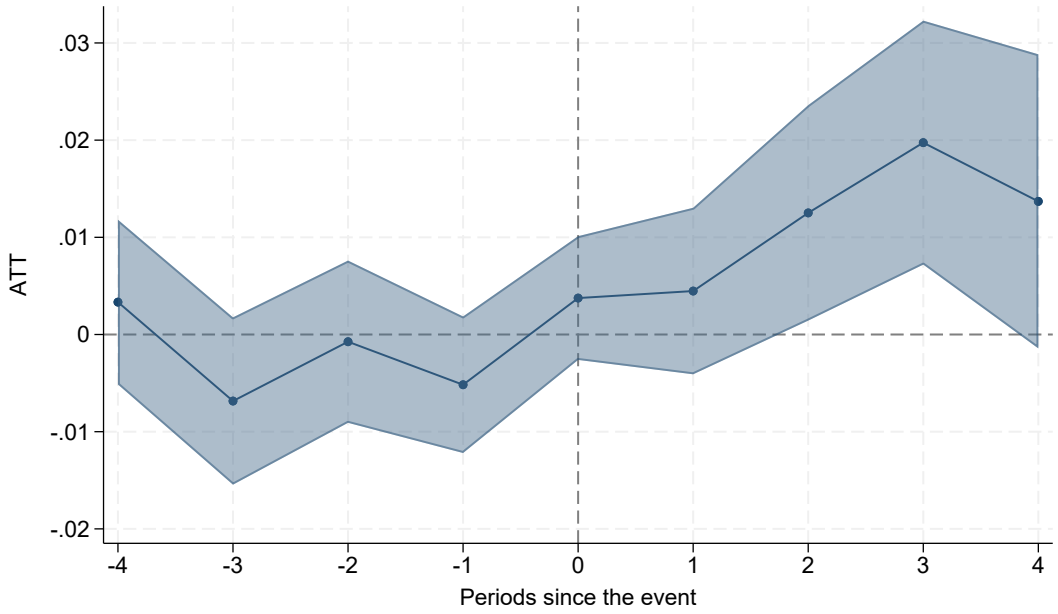
where u_i and $v_{s,t}$ are firm and industry-time fixed effects, and $\boldsymbol{X_{i,t}}$ are firm-level controls. We measure investment using *Compustat* balance sheet data (Falato et al., 2022; Peters and Taylor, 2017), defining intangible investment as R&D expenditures and tangible investment as capital expenditure.[1]

Identification and data. Physical risk is slow-moving, creating an identification challenge. We focus on flood risk and exploit updates to FEMA's Flood Insurance Rate Maps (FIRMs), which revise regulatory flood risk classifications based on updated hydrological modelling. Prior evidence confirms that market participants treat these updates as informative shocks (Ge et al., 2025; Sastry, 2022). We combine flood maps with establishment-level data from the *National Establishment Time Series* (NETS), a yearly quasi-census of U.S. business establishments (1990–2023) widely used for granular spatial analysis (Addoum et al., 2020, 2023; Oberfield et al., 2024). Using NETS, we geo-locate firms' establishments and aggregate local flood risk to the firm level using employment weights (Crane and Decker, 2019).

1 Following Peters and Taylor (2017): $capx$ for capital expenditure, and $xrd + 0.3 \cdot (xsga - xrd - rdip)$ for R&D.

Preliminary evidence. Using the physical climate risk exposure metric from Sautner et al. (2023), based on earnings call mentions, we find that risk exposure is associated with a significant rise in intangible intensity (Figure 1). These results are encouraging for statistical power: detecting effects with coarse measures suggests the underlying relationship is economically meaningful, and estimates are likely attenuated by measurement error. The granular data we are assembling will substantially improve precision.

Figure 1: Intangible investment share response to physical climate exposure



Note: All firms, DiD matching on firm size and SIC sector, following Callaway and Sant'Anna (2021).

Innovation composition. Beyond the baseline substitution, we examine how the *nature* of innovation changes. Using USPTO data (*PatentsView*, *Patent Assignment Dataset*), we test for shifts in patent quality (Akcigit et al., 2016; Kelly et al., 2021) and technology composition - in particular, whether firms direct innovation toward climate adaptation. Using worker-level data from *Revelio Labs*, we distinguish R&D hiring from marketing and advertising hiring, corresponding respectively to productivity-enhancing innovation and customer capital accumulation (He et al., 2024). Whether climate adaptation spurs the former or the latter has first-order implications for long-run growth.

Broader implications. This project opens several avenues at the frontier of innovation economics. Physical risk may function as a selection pressure favouring specific technology classes, analogous to the role of factor prices in inducing automation (Hémous et al., 2025). Our firm-worker-patent linkages enable us to study inventor mobility in response to physical risk - whether inventors at exposed establishments relocate, and whether their subsequent patenting adapts to the technology profile of their destination - connecting to questions about the portability of innovative knowledge. Finally, since intangible capital cannot easily serve as loan collateral, the substitution we document may interact with financial constraints to shape which firms can pursue adaptive innovation - and thus where in the economy the next generation of climate-relevant technologies originates.

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UNIVERSITY OF CAMBRIDGE
Faculty of Economics

Constantine Yannelis
Janeway Professor of Financial Economics
Faculty of Economics, University of Cambridge
cny21@cam.ac.uk

Date: 1 February 2026

To: **NBER**
Summer Fellow Program

Letter of Support for Dante Gaviano

Dear Selection Committee,

I am writing to offer very strong support for Dante Gaviano as a fellow. Dante is doing tremendously interesting work in the intersection of macroeconomics and corporate finance, and I expect that Dante has a bright academic career ahead of him. This summer fellowship would give Dante the opportunity to showcase his interesting work, and receive comments from the broad, top-notch and diverse group at the NBER summer program.

Dante is one of our top PhD students in the Economics program at Cambridge. He did his undergraduate degree, before doing a masters at Oxford where he earned distinction. The faculty were delighted to invite Dante back to Cambridge for a PhD given his stellar academic performance, and I got to know him first a year and a half ago when I visited Cambridge for summer. That summer led me to permanently move to Cambridge, and I have had the pleasure of talking to Dante about his research.

We have spoken the most about his paper "Unfinished Business: Weather Shocks, Contract Suspensions and Firm Dynamics." This is a top-notch paper and I expect that it will be published in one of the very best finance journals. The paper studies an important topic, how climate change will affect firms, using a new dataset to which Dante obtained access. Getting new data highlights Dante's entrepreneurial spirit, and is a bright sign for his future academic career.

His paper is motivated by the fact that weather shocks are becoming more frequent and intense due to climate change, causing both physical damage and economic disruptions. In many weather-sensitive sectors like construction, adverse conditions can halt projects, making it unsafe or technically impossible to continue work. This results in suspended public contracts, leading to a temporary stoppage of payments from the public sector to affected firms, imposing significant liquidity constraints. The study aims to quantify the costs firms face due to weather-related contract interruptions. The focus is on Italian public construction contracts. Public contracts are particularly relevant due to the availability of detailed and standardized data from the National Database of Public Contracts (BDNCP), which comprises all public contracts in Italy.

Italy serves as an excellent laboratory due to its frequent exposure to climate-related shocks such as floods, landslides, and heat waves, as well as the growing frequency and intensity of these events due to climate change. Data from the BDNCP indicates that approximately 8% of Italian public infrastructure projects, valued at €28.8 billion, have been suspended due to weather since 1999. Legally, when a project is suspended, payments from the public sector to the firm are halted, creating financial distress. To analyze the impact of these suspensions, the study merges BDNCP data with firm-level financial information from Orbis Historical. A matched difference-in-differences approach is employed, comparing firms that have experienced contract suspensions for the first time with similar firms that have not yet faced such disruptions but will in the future. This methodology controls for unobserved factors, such as technological capacity or political connections, that might influence both suspensions and firm performance. This paper is very well executed and up to the top standards in empirical microeconomics, but studying a topic of interest in macroeconomics and corporate finance.

Findings suggest that weather-related contract suspensions significantly reduce firm sales by around 30%, total assets by 18.5%, and employment by 15%, with these effects persisting for three to four years. The inability to efficiently reallocate labor and machinery, combined with liquidity constraints, results in delays across a firm's entire portfolio of contracts. This indicates that Italian construction firms have limited insurance against cash flow disruptions caused by weather-related suspensions, even when no physical damage occurs. The implications extend beyond directly affected firms, as suppliers and subcontractors also experience financial strain. Without improved risk-sharing mechanisms, contract suspensions may lead to longer and costlier construction projects, ultimately placing a heavier financial burden on taxpayers.

I think both Dante and the NBER would benefit if he spent time at the institution. If you have any questions, I am very willing to support Dante further and can be reached at cny21@cam.ac.uk. Thank you for considering Dante, and I very much hope that you take his application.

Sincerely,

Constantine Yannelis
Janeway Professor of Financial Economics
Faculty of Economics, University of Cambridge

