

QUADERNI DEL PREMIO «GIORGIO ROTA»

N. 13, 2025

ECONOMIC PERSPECTIVE
ON ART, CULTURE, AND HERITAGE



Centro
di Ricerca e
Documentazione
Luigi Einaudi

Con il sostegno di





Centro
di Ricerca e
Documentazione
Luigi Einaudi

QUADERNI DEL PREMIO «GIORGIO ROTA»

N. 13, 2025

ECONOMIC PERSPECTIVE
ON ART, CULTURE, AND HERITAGE

Iniziativa realizzata con il sostegno di



Gli autori di questo Quaderno:

Francesco Ferlenga

Universitat Autònoma de Barcelona, Barcelona School of Economics, Barcelona Institute of Economics, Spain; CAGE (University of Warwick), UK

Caterina Adelaide Mauri

Brussels Institute for Social and Population Studies (BRISPO), Interface Demography, Vrije Universiteit Brussel

Karol J. Borowiecki

University of Southern Denmark; President of the Association for Cultural Economics International

Centro di Ricerca e Documentazione Luigi Einaudi

Corso Re Umberto 1 • 10121 Torino • segreteria@centroeinaudi.it

www.centroeinaudi.it

Copyright © 2025 by Centro di Ricerca e Documentazione Luigi Einaudi, Torino. Tutti i diritti sono riservati. Nessuna parte di questa pubblicazione può essere fotocopiata, riprodotta, archiviata, memorizzata o trasmessa in qualsiasi forma o mezzo – elettronico, meccanico, reprografico, digitale – se non nei termini previsti dalla legge che tutela il diritto d'autore.

Copyright © 2025 by Centro di Ricerca e Documentazione Luigi Einaudi, Turin. All rights reserved. No part of this publication may be photocopied, reproduced, stored, memorized or transmitted in any form or by any means - electronic, mechanical, reprographic, digital – other than in accordance with the law protecting copyright.

TABLE OF CONTENTS

Il Premio «Giorgio Rota» / The «Giorgio Rota» Award	4
Chi era Giorgio Rota / Giorgio Rota's Profile	8
<i>Karol J. Borowiecki</i>	
Introduction	9
<i>Francesco Ferlenga</i>	
Symbols of Oppression: The Role of Confederate Monuments in the Great Migration	15
1. Introduction	15
2. Conceptual framework	19
3. Setting	20
4. Historical data	24
5. The historical effect of monuments on migration	25
6. Online experiment: Randomizing monuments	33
7. Conclusion	40
References	41
Appendix at https://www.centrocinquanti.it/images/abook_file/Rota_online_Ferlenga_appendix.pdf	
<i>Caterina Adelaide Mauri</i>	
Radio Killed the Dancehall Star	43
1. Introduction	43
2. Empirical strategy	47
3. Conclusion	53
References	53
Appendix	55

IL PREMIO «GIORGIO ROTA»

L'intento del Premio «Giorgio Rota» è di riprendere l'attività di ricerca annualmente condotta dal Comitato / Fondazione Giorgio Rota prima della sua inclusione nel Centro Einaudi, sulla relazione tra il pensiero e l'agire economico e un aspetto (ogni anno diverso) del vivere in società, mantenendo vivo il ricordo e l'insegnamento dell'economista Giorgio Rota, uno dei primi animatori del Centro, prematuramente scomparso.

Dal 2012 il Centro Einaudi ha dunque raccolto questa eredità rinnovando la formula della ricerca: è stato perciò istituito questo premio annuale dedicato a giovani ricercatori, con una qualificazione accademica nei campi dell'economia, sociologia, geografia, scienza politica o altre scienze sociali. I paper possono essere presentati sia in italiano che in inglese, e non devono essere stati pubblicati prima della data della Conferenza Rota, l'evento pubblico nel quale i vincitori hanno modo di presentare il loro lavoro.

La prima edizione aveva per tema *Contemporary Economics and the Ethical Imperative* e la Conferenza Giorgio Rota si è tenuta presso il Centro Einaudi il 25 marzo 2013 con keynote speech di Alberto Petrucci, LUISS Guido Carli, Roma.

La seconda edizione è stata su *Creative Entrepreneurship and New Media* con Conferenza Giorgio Rota presso il Centro Einaudi, 14 aprile 2014 e keynote speech di Mario Deaglio, Università di Torino.

La terza edizione ha analizzato il tema *The Economics of Illegal Activities and Corruption*, con Conferenza Giorgio Rota presso il Centro Einaudi, 15 giugno 2015. Keynote speech di Friedrich Schneider, Johannes Kepler University (Linz, Austria).

La quarta edizione verteva su *The Economics of Migration*. Il 20 giugno 2016 si è tenuta la Conferenza Giorgio Rota presso il Campus Luigi Einaudi, in collaborazione con FIERI. Keynote speech di Alessandra Venturini, Università di Torino. Dal 2016 inoltre il Premio è sostenuto dalla Fondazione CRT.

La quinta edizione trattava di *Economic Consequences of Inequality*, e i saggi vincitori sono stati presentati alla Conferenza Giorgio Rota del 4 maggio 2017, tenutasi presso il Campus Einaudi in collaborazione con il Dipartimento di Economia e Statistica "Cognetti de Martiis". L'Introduzione è di Andrea Brandolini, Banca d'Italia.

La sesta edizione del Premio è incentrata sul tema *The Economics of Health and Medical Care*. I paper vincitori sono stati presentati alla Conferenza Giorgio Rota tenutasi il 1° giugno 2018 presso il Campus Einaudi, in collaborazione con il Dipartimento di Economia e Statistica "Cognetti de Martiis". L'Introduzione è di Fabio Pammolli, Politecnico di Milano.

La settima edizione del Premio è incentrata sul tema *Rural Economies, Evolutionary Dynamics and New Paradigms*. I paper vincitori, riportati qui, sono stati presentati alla Conferenza Giorgio Rota il 6 maggio 2019 presso il Campus Einaudi, in collaborazione con il Dipartimento di Economia e Statistica “Cognetti de Martiis”. Gli autori sono introdotti da un intervento di Donatella Saccone, docente di Economia politica all’Università di Scienze gastronomiche di Bra.

Digital Transformation: Analysis of Economic Impact and Potential è il titolo dell’ottava edizione del Premio. I paper vincitori sono stati presentati alla Conferenza Giorgio Rota l’11 maggio 2020 che a causa della pandemia da Covid si è tenuta online, in collaborazione con il Dipartimento di Economia e Statistica “Cognetti de Martiis”. Gli autori sono stati introdotti alla Conferenza e nel volume da un intervento di Pietro Terna, ex Professore ordinario di Economia dell’Università di Torino e consigliere Centro Einaudi.

La nona edizione del Premio è stata sul tema *Main Economic Tendencies in the Contemporary World Economy*. I paper sono stati presentati il 26 maggio 2021 alla Conferenza Giorgio Rota che si è ancora tenuta per via telematica. Gli autori sono introdotti nel volume da un contributo di Jack Birner, Università di Trento e Comitato scientifico del Centro Einaudi.

La decima edizione del Premio aveva per titolo *Labor, Value, Robots*. I paper vincitori, durante la conferenza tenutasi il 18 maggio 2022 al Campus Luigi Einaudi, sono stati presentati da Elisabetta Ottoz – direttrice del Dipartimento di Economia e Statistica “Cognetti de Martiis” dell’Università di Torino – che introduce anche questo volume.

Urban Economies as Complex Systems è il titolo dell’undicesima edizione del Premio, i cui vincitori – Luca Favero, Iaria Malisan, Giacomo Rosso e Léa Bou Sleiman – sono stati premiati in occasione della XI Giorgio Rota Conference il 30 maggio 2023 al Campus Luigi Einaudi. Il volume che raccoglie i saggi vincitori è introdotto da Francesca Silvia Rota dell’Università di Torino IRCrES CNR.

I paper vincitori della dodicesima edizione del Premio – presentati alla Conferenza Giorgio Rota tenutasi il 15 maggio 2024 al Campus Luigi Einaudi – dal titolo *Climate Economics and (its) Knowledge* sono di Lorenzo Sileci, Alessadra Testa, Konstantin Boss, Costanza Tomaselli e sono introdotti da una presentazione di Silvana Dalmazzone del Dipartimento di Economia e Statistica “Cognetti de Martiis” dell’Università di Torino.

La tredicesima edizione del Premio – dal titolo *Economic Perspectives on Art, Culture, and Heritage* e presentata da Karol J. Borowiecki della University of Southern Denmark, Presidente dell’Association for Cultural Economics International – si è svolta il 10 novembre 2025 presso il Collegio Carlo Alberto. I due paper vincitori sono di Francesco Ferlenga e di Caterina Adelaide Mauri.



THE «GIORGIO ROTA» AWARD

The intent of the «Giorgio Rota» Best Paper Award is to resume the research activity annually conducted by the Giorgio Rota Committee/Foundation before its inclusion in the Centro Einaudi. The focus is on the relationship between economic thought and action and a different aspect of living in society, keeping alive the memory and teaching of economist Giorgio Rota, one of the early members of the Centro, who died prematurely.

Since 2012, the Centro Einaudi has therefore taken up this legacy by renewing the research formula: this annual prize dedicated to young researchers with an academic qualification in the fields of economics, sociology, geography, political science or other social sciences has therefore been established. Papers may be submitted either in Italian or English, and must not have been published before the date of the Rota Conference, the public event at which the winners have the opportunity to present their work.

The first edition's theme was *Contemporary Economics and the Ethical Imperative* and the Giorgio Rota Conference was held at the Centro Einaudi on 25 March 2013 with keynote speech by Alberto Petrucci, LUISS Guido Carli, Rome.

The second edition, was on *Creative Entrepreneurship and New Media* with Conference Giorgio Rota at Centro Einaudi, 14 April 2014 and keynote speech by Mario Deaglio, University of Turin.

The third edition analysed the topic *The Economics of Illegal Activities and Corruption*, with Giorgio Rota Conference at Centro Einaudi, 15 June 2015. Keynote speech by Friedrich Schneider, Johannes Kepler University (Linz, Austria).

The fourth edition focused on *The Economics of Migration*. The Giorgio Rota Conference was held on 20 June 2016 at the Einaudi Campus, in cooperation with FIERI. Keynote speech by Alessandra Venturini, University of Turin. Since 2016, the Prize has also been supported by the Fondazione CRT.

The fifth edition dealt with *Economic Consequences of Inequality*, and the winning essays were presented at the Giorgio Rota Conference on 4 May 2017, held at the Einaudi Campus in collaboration with the Department of Economics and Statistics 'Cognetti de Martiis'. Introduction by Andrea Brandolini, Bank of Italy.

The sixth edition of the Prize, held in 2018, focused on the theme: *The Economics of Health and Medical Care*. The winning papers were presented at the Giorgio Rota Conference held on 1 June 2018 at the Einaudi Campus, in collaboration with the 'Cognetti de Martiis' Department of Economics and Statistics. Introduction by Fabio Pammolli, Politecnico of Milan.

The seventh edition of the Prize focuses on the theme *Rural Economies, Evolutionary Dynamics and New Paradigms*. The winning papers were presented at the Giorgio Rota Conference on 6 May 2019 at the Einaudi Campus, in collaboration with the ‘Cognetti de Martiis’ Department of Economics and Statistics. Introductory talk by Donatella Saccone, Professor of Political Economy at the University of Gastronomic Sciences in Bra.

Digital Transformation: Analysis of Economic Impact and Potential is the title of the eighth edition of the Award. The winning papers were presented at the Giorgio Rota Conference on 11 May 2020, which was held online due to the Covid pandemic, in collaboration with the ‘Cognetti de Martiis’ Department of Economics and Statistics. The authors were introduced at the conference and in the volume by a speech by Pietro Terna, former Professor of Economics at the University of Turin and Centro Einaudi advisor.

The ninth edition of the Award was on the theme *Main Economic Tendencies in the Contemporary World Economy*. The papers were presented on 26 May 2021 at the Giorgio Rota Conference online. The authors are introduced in the volume by a contribution by Jack Birner, University of Trento and Centro Einaudi Scientific Committee.

The tenth edition of the Prize was entitled *Labor, Value, Robots*. The winning papers, during the conference held on 18 May 2022 at the Einaudi Campus, were presented by Elisabetta Ottoz – Director of the Department of Economics and Statistics ‘Cognetti de Martiis’ at the University of Turin – who also introduced this volume.

Urban Economies as Complex Systems is the title of the eleventh edition of the Giorgio Rota Prize, whose winners – Luca Favero, Ilaria Malisan, Giacomo Rosso and Léa Bou Sleiman – were awarded at the XI Giorgio Rota Conference on 30 May 2023 at the Luigi Einaudi Campus. The volume collecting the winning essays is introduced by Francesca Silvia Rota of the University of Turin and IRCrES CNR.

The winning papers of the twelfth edition of the Prize – presented at the Giorgio Rota Conference held on 15 May 2024 at the Luigi Einaudi Campus – entitled *Climate Economics and (its) Knowledge* are by Lorenzo Sileci, Alessandra Testa, Konstantin Boss, Costanza Tomaselli, and are introduced by Silvana Dalmazzone, Department of Economics and Statistics ‘Cognetti de Martiis’ at the University of Turin.

The thirteenth edition of the Award – entitled *Economic Perspectives on Art, Culture, and Heritage* and presented by Karol J. Borowiecki of the University of Southern Denmark, President of the Association for Cultural Economics International – took place on November 10, 2025, at the Collegio Carlo Alberto. The two winning papers are written by Francesco Ferlenga and Caterina Adelaide Mauri.



CHI ERA GIORGIO ROTA



Giorgio Rota (1943-1984) è stato professore di Economia politica presso l'Università di Torino e consulente economico. Per il Centro Einaudi, è stato coordinatore agli studi e membro del comitato di direzione di «Biblioteca della libertà».

Le sue pubblicazioni scientifiche abbracciano diversi temi: l'economia dei beni di consumo durevoli, l'economia del risparmio, il mercato monetario e finanziario, l'inflazione e la variazione dei prezzi relativi, il debito pubblico. Ricordiamo tra esse: *Struttura ed evoluzione dei flussi finanziari in Italia: 1964-73* (Torino, Editoriale Valentino, 1975); *L'inflazione in Italia 1952/1974* (Torino, Editoriale Valentino, 1975); nei «Quaderni di Biblioteca della libertà», *Passato e futuro dell'inflazione in Italia*

(1976) e *Inflazione per chi?* (1978); *Che cosa si produce come e per chi. Manuale italiano di microeconomia*, con Onorato Castellino, Elsa Fornero, Mario Monti, Sergio Ricossa (Torino, Giappichelli, 1978; seconda edizione 1983); *Investimenti produttivi e risparmio delle famiglie* (Milano, «Il Sole 24 Ore», 1983); *Obiettivi keynesiani e spesa pubblica non keynesiana* (Torino, 1983).

Tra le sue ricerche va particolarmente citato il primo *Rapporto sul risparmio e sui risparmiatori in Italia* (1982), risultato di un'indagine sul campo condotta da BNL-Doxa-Centro Einaudi, le cui conclusioni riscossero notevole attenzione da parte degli organi di stampa. Da allora il *Rapporto sul risparmio*, ora *Indagine sul risparmio*, continua a essere pubblicato ogni anno.

GIORGIO ROTA'S PROFILE

Giorgio Rota (1943-1984) was a professor of Political Economy at the University of Turin and an economic consultant. For the Centro Einaudi, he was coordinator of the Study Committee and member of the editorial board of «Biblioteca della libertà».

His scientific publications cover various topics: the economics of consumer durables, the economics of savings, the money market and the financial market, inflation and public debt. Among his publications: *Struttura ed evoluzione dei flussi finanziari in Italia: 1964-73* (Turin, Editoriale Valentino, 1975); *L'inflazione in Italia 1952/1974* (Turin, Editoriale Valentino, 1975); in «Quaderni di Biblioteca della libertà»: *Passato e futuro dell'inflazione in Italia* (1976) and *Inflazione per chi?* (1978); *Che cosa si produce come e per chi. Italian Handbook of Microeconomics*, with Onorato Castellino, Elsa Fornero, Mario Monti, Sergio Ricossa (Turin, Giappichelli, 1978; second edition 1983); *Productive Investments and Household Savings* (Milan, «Il Sole 24 Ore», 1983); *Keynesian Objectives and Non-Keynesian Public Expenditure* (Turin, 1983). Particular mention must be made of the first *Report on Savings and Savers in Italy* (1982), the result of a field survey conducted by BNL-Doxa-Centro Einaudi, whose conclusions received considerable attention from the press. Since then, the *Savings Report*, now *Report on the Italians' Savings and Financial Choices*, has continued to be published every year.

KAROL J. BOROWIECKI

WHAT MAKES A GREAT COMPOSER? A DATA-DRIVEN EXPLORATION OF MUSIC HISTORY

I am really thankful to Centro Einaudi, Fondazione CRT, and the Departments of Economics of the University of Turin, Cognetti De Martiis and ESOMAS, for giving the opportunity to open this year's Giorgio Rota Conference dedicated to Art, Culture and Heritage.

My presentation is an account of the principal arguments and findings of my research, developed with Marc T. Law and forthcoming with Princeton University Press. It is an expansive, data-driven framework for understanding artistic greatness across nearly a millennium of Western classical music. Drawing on biographical dictionaries, archival correspondence, thematic catalogues, and large-scale historical datasets, the authors investigate the determinants of creative productivity, stylistic influence, emotional well-being, gender asymmetries, financial pressures, and the consequences of migration and war.

1. CONCEPTUALIZING AND MEASURING GREATNESS

To start with, *what constitutes artistic greatness?* Greatness arises from the interaction between **quality** – the enduring cultural significance of a composer's oeuvre – and **quantity** – the volume of creative output over a lifetime. Because the measurement of quality poses well-known challenges, the study triangulates across several imperfect yet collectively informative indicators: expert rankings, the length of dictionary entries, measures of stylistic influence derived from musical-theme similarity, and contemporary popularity on streaming platforms such as Spotify (Borowiecki, Law forthcoming).

This multifaceted measurement strategy departs from traditional musicological approaches, which typically focus on a narrow canon of celebrated composers. Such selectivity undermines generalizability and precludes causal inference. By contrast, we compile data on thousands of composers active between 1100 and the twentieth century, thereby capturing the variation necessary for econometric analysis (*ibidem*).



2. MIGRATION, CLUSTERING, AND THE GEOGRAPHY OF CREATIVITY

A major theme of the project concerns the geographical dynamics of creative activity. Classical composers historically exhibited high mobility, often relocating repeatedly in search of patronage, audiences, and intellectual community. By extracting detailed biographical information from the *Grove Music Dictionary*, we map these movements and document the emergence of musical ‘clusters’ such as Paris, Vienna, and London.

Two empirical findings are particularly noteworthy.

First, clustering exerts a substantial positive effect on productivity. Using an instrumental-variable strategy designed to address endogeneity – especially the concern that productive composers may self-select into cultural centres – the study exploits geographic distance from major clusters for composers born between 1750 and 1899, a period during which travel costs conferred an exogenous constraint. The results indicate that time spent in a top cluster increases output markedly, amounting to roughly one additional influential work for every three years in cities such as Paris or Vienna (Borowiecki 2013).

Second, the productivity effect arises not from generic urban scale but from the concentration of other artists. Placebo tests involving large but musically peripheral cities (e.g., Amsterdam), as well as historically significant but no longer active centres (e.g., Venice), reveal no comparable benefits. The findings thus align with longstanding theories of agglomeration – Marshallian knowledge spillovers, Jacobsian diversity externalities, and Porter’s competitive dynamics (Marshall 1890; Jacobs 1969; Porter 1990).

At the same time, clustering imposes costs. Qualitative evidence from correspondence and memoirs depicts the psychological pressures faced by composers in competitive environments; quantitative evidence shows that increased peer density reduces longevity (Borowiecki, Kavetsos 2015). The duality of clustering – productive yet psychologically taxing – embodies the complex relationship between creativity, competition, and well-being.

3. HUMAN CAPITAL FORMATION AND THE TRANSMISSION OF STYLE

A further contribution of the project lies in its analysis of compositional lineages and pedagogical influence. Across centuries, composers have developed within robust teacher-student networks, ranging from the extensive Bach family to pedagogical chains linking Salieri, Beethoven, Schubert, and Liszt. To quantify stylistic inheritance, we apply computational analysis to over 17,000 musical themes drawn from thematic dictionaries, constructing similarity measures based on N-grams, key signatures, and time signatures (Barlow, Morgenstern 1975; 1976).



The empirical results support long-held qualitative claims within musicology. Students' compositional styles resemble those of their teachers significantly more than they resemble plausible counterfactual mentors (Borowiecki 2022). Moreover, stylistic influence persists into subsequent generations, suggesting durable transmission of musical ideas. The analysis also indicates that teachers of high quality exert especially strong influence and that more intensive pedagogical relationships amplify stylistic similarity. These findings illuminate the mechanisms by which artistic traditions persist and evolve, underscoring the centrality of apprenticeship to cultural continuity.

4. EMOTIONAL WELL-BEING AND THE CREATIVE PROCESS

I turn now to the emotional foundations of creativity, engaging with the longstanding conjecture – dating back to Aristotle – those negative emotions, including melancholy or depression, may enhance artistic achievement. To move beyond speculative claims, we analyse approximately 1,400 letters written by Mozart, Beethoven and Liszt, employing linguistic software to detect positive and negative emotional expressions (Borowiecki 2017). This dataset provides exceptionally rare longitudinal evidence of historical well-being.

Several findings emerge. **First**, composers' emotional reactions to life events resemble those observed in the general population: illness or bereavement increase negative emotional expression sharply, whereas activities such as touring and completing major works increase positive effect (*ibidem*). **Second**, by exploiting the quasi-random timing of unexpected deaths of family members, the analysis identifies a causal effect of negative emotional shocks on creative productivity. **Third**, the study demonstrates that letters themselves offer a credible measure of contemporaneous emotional states, thereby opening new methodological possibilities for economic history and historical psychology. Our research has broader implications, having been featured in the *UN World Happiness Report* as a methodological innovation in studying well-being using historical textual sources.

5. GENDER INEQUALITY IN MUSIC COMPOSITION

My presentation addresses the marked historical underrepresentation of female composers, too. While women have long participated in musical life, they faced substantial structural barriers, including restrictions on education, patronage and public musical participation – a fact noted by contemporaries from John Stuart Mill to modern

scholars such as Richard Taruskin (Mill 1869; Taruskin 2010). Our quantitative evidence elucidates several mechanisms underlying this persistent disparity.

Parental musical background strongly influences the likelihood of becoming a prominent composer, with mothers exerting a particularly significant effect on their children's musical trajectories. However, they do not appear to favour daughters over sons (Borowiecki, Kristensen, Law 2025). Teachers, similarly, do not diminish gender inequality, although male and female instructors are equally effective. Perhaps most importantly, the rise of conservatories and other formal institutions of musical education significantly increased female representation, reducing reliance on informal networks that had historically disadvantaged women. Nonetheless, the gender gap remains pronounced in measures of canonical status and public recognition.

6. FINANCIAL CONSTRAINTS, WAR, AND EXTERNAL SHOCKS

FINANCIAL CONDITIONS

Our study also examines the role of financial stability in shaping creative output. Drawing on biographical information found in *Grove Music Online* for 172 composers or historical income series – most notably those reconstructed for Mozart – and linguistic indicators of financial anxiety extracted from composers' letters, we show that low income is associated with markedly lower quantity, quality, and originality of output, especially among composers lacking family wealth (Baumol, Baumol 1994; Borowiecki 2022). These findings challenge romanticized narratives of the impoverished genius, suggesting instead that financial stability supports, rather than inhibits, creative development. The results have contemporary policy implications, underscoring the importance of public or philanthropic support for the arts.

WAR AND MIGRATION

Wars exert heterogeneous but often deleterious effects on creative production. While certain conflicts stimulate artistic responses – Elgar's *Polonia* or Shostakovich's *Leningrad Symphony* – wars also disrupt careers, displace artists, and weaken cultural ecosystems. Our studies indicate that international wars increase the probability of a composer's emigration by approximately seven percent, typically with suboptimal consequences for career development (Borowiecki 2012; O'Hagan, Borowiecki 2010). This war-induced migration diminishes the long-run creative capacity of affected countries. Productivity patterns also differ between wartime and peacetime, reflecting both emotional strain and institutional disruption (Borowiecki 2014). These findings underscore the vulnerability of artistic communities to geopolitical shocks.



7. BROADER IMPLICATIONS

I intend to conclude here by reflecting on the broader relevance of our findings. Although the project centers on classical music, the identified mechanisms – agglomeration economies, pedagogical transmission, emotional determinants of productivity, structural inequality and the consequences of financial volatility – extend far beyond this domain. They resonate with research on scientific creativity, invention, entrepreneurship, and the knowledge economy more generally. Moreover, the findings invite reflection on the role of physical proximity in an increasingly digital world: while digital dissemination has transformed access to music, the evidence suggests that creative collaboration and tacit knowledge exchange remain fundamentally rooted in face-to-face interaction (Currid 2007; Christopherson, Scott 2009).

REFERENCES

- Barlow, H., Morgenstern, S. (1975), *A Dictionary of Musical Themes*, New York, Crown;
 – (1976), *A Dictionary of Opera and Song Themes*, New York, Crown.
- Baumol, W.J., Baumol, H. (1994), *On the Economics of Musical Composition in Mozart's Vienna*, «Journal of Cultural Economics», 18, pp. 171-198.
- Borowiecki, K.J. (2012), *Are Composers Different? Historical Evidence on Conflict-Induced Migration (1816-1997)*, «European Review of Economic History», 16, 3, pp. 270-291.
- (2013), *Geographic Clustering and Productivity: An Instrumental Variable Approach for Classical Composers*, «Journal of Urban Economics», 73, 1, pp. 94-110.
- (2014), *Artistic Creativity and Extreme Events: The Heterogeneous Impact of War on Composers' Production*, «Poetics», 47, pp. 83-105.
- (2017), *How Are You, My Dearest Mozart? Well-Being and Creativity of Three Famous Composers Based on Their Letters*, «Review of Economics and Statistics», 99, 4, pp. 591-605.
- (2022), *Good Reverberations? Teacher Influence in Music Composition since 1450*, «Journal of Political Economy», 130, 4, pp. 991-1090.
- Borowiecki, K.J., Kavetsos, G. (2015), *In Fatal Pursuit of Immortal Fame: Peer Competition and Early Mortality of Music Composers*, «Social Science & Medicine», pp. 30-42.
- Borowiecki, K.J., Kristensen, M.H., Law, M.T. (2025), *Where Are the Female Composers? Human Capital and Gender Inequality in Music History*, «European Economic Review», 117, pp. 104893.
- Borowiecki, K.J., Law, M.T. (forthcoming), *What Makes a Great Composer? A Data-Driven Exploration of Music History*, Princeton, Princeton University Press.
- Christopherson, S., Scott, A.J. (2009), *The Cultural Economy*, London, Sage.



- Currid, E. (2007), *The Warhol Economy: How Fashion, Art, and Music Drive New York City*, Princeton, Princeton University Press.
- Jacobs, J. (1969), *The Economy of Cities*, New York, Random House
- Marshall, A. (1890), *Principles of Economics*, London, Macmillan
- Mill, J.S. (1869), *The Subjection of Women*, London, Longman
- O'Hagan, J., Borowiecki, K.J. (2010), *Birth Location, Migration and Clustering of Important Composers: Historical Patterns*, «Historical Methods», 43, pp. 81-90.
- Porter, M. (1990), *The Competitive Advantage of Nations*, New York, Free Press.
- Taruskin, R. (2010), *The Oxford History of Western Music*, vol. 3, Oxford, Oxford University Press.

FRANCESCO FERLENGA¹

SYMBOLS OF OPPRESSION: THE ROLE OF CONFEDERATE MONUMENTS IN THE GREAT MIGRATION

Abstract. Dominant groups around the world have historically asserted their power by constructing in public spaces monuments that glorify their narrative, vis-à-vis their opponents'. How does the presence of divisive symbols affect the location choices of those who oppose them? I investigate this issue focusing on Confederate monuments in the US South, symbols that were erected by southern whites in the early 20th century and opposed by African Americans because of their connection to slavery. I isolate the role of these monuments from that of the underlying shifts in ideology and find that monuments directly impacted African Americans' migration patterns, both at the time of construction and today. Historically, I show that southern counties with monuments experienced a sharp decline in the African American share of the population following the construction. I then exploit the presence of a quasi-monopolist producer of Confederate monuments to construct an instrument for the stock of monuments based on transportation costs and the years in which the producer was active. The instrumental-variable analysis confirms that an exogenously higher stock of monuments caused a substantial reduction of the African American share of the population. In the contemporary context, I conduct an online experiment to assess whether monuments continue influencing migration choices. I randomize the presence of Confederate monuments in the visual description of hypothetical destination cities and I ask respondents to consider job offers located there. I find that respondents ask higher reservation wages and are substantially less likely to accept job offers if the city has a monument. The effect for African Americans is twice the size for whites in the South.

Keywords. Divisive monuments, racial segregation, US civil war

1. INTRODUCTION

Celebratory monuments shape public spaces worldwide. Some honour uncontroversial figures, while others reflect divisions within society and are typically imposed by dominant groups to assert power or glorify their narrative. For example, in the 20th century, thousands of Soviet and Fascist monuments were erected globally, and hundreds of statues of European colonizers stood across Africa prior to independence. These monuments continue to attract substantial political attention: memorials to past authoritarian leaders serve as rallying points for supporters of their legacies, while calls

¹ I want to thank Samuel Bazzi, Sascha Becker, Jesse Bruhn, Pedro Dal Bó, John Friedman, Vincenzo Galasso, Peter Hull, Brian Knight, Elisa Macchi, Fabio Mariani, Stelios Michalopoulos, Vincent Pons, Daniel Putman, Devesh Rustagi and participants in seminars at Brown University, Bilkent University, UAB, University of Warwick, ENS de Lyon, LEAP (Stellenbosch) and participants in the NEUDC 2023, EEA-ESEM 2024, and Political Economy of the Gilded Age and Progressive Era Conferences for their useful comments. PID2022-137707NB-I00 funded by MICIU/AEI/10.13039/501100011033 and FEDER, UE. Severo Ochoa Programme for Centres of Excellence in R&D (Barcelona School of Economics CEX2024-001476-S), funded by MCIN/AEI/10.13039/501100011033.



for their removal often spark conflict. For instance, Confederate monuments in the U.S. became targets of Black Lives Matter protests, while their removals sparked backlash from white supremacist groups.

Despite their pervasiveness, we know very little about the effects of divisive public monuments on the behavior of supporting and dissenting groups. An emerging empirical literature shows that (removals of) these monuments significantly affect voting behavior (Villamil *et al.* 2021, Rozenas *et al.* 2022, Taylor 2025) and racial resentment (Rahnema 2025). However, identifying their causal effect remains a key challenge. The construction and removal of ideological symbols inherently reflect concurrent local surges in the ideology they represent, which may themselves drive the outcomes under study. As a result, existing studies struggle to disentangle the direct effects of monuments from those ideological shifts. In addition, other key consequences of these monuments remain almost entirely unexplored – in particular, their potential influence on spatial sorting. By placing a divisive monument in public space, a group asserts ownership over that space, potentially prompting opposing groups to leave. While high non-monetary migration costs make individuals relatively “rooted” (Sjaastad 1962, Koşar *et al.* 2022), prominent theoretical predictions suggest that oppressed groups may relocate from areas perceived as increasingly hostile (Tiebout 1956, Hirschman 1970). Understanding whether groups sort geographically based on which symbols populate public space is crucial, given the profound economic consequences of (racial) segregation (Cutler *et al.* 1997, Ananat 2011).

This paper fills these gaps by providing quasi-experimental and experimental evidence on the effect of divisive monuments on the location choices of dissenting groups, focusing on Confederate monuments – erected by Southern whites in the early 20th-century U.S. and opposed by Black Americans. I address endogeneity concerns stemming from the correlation between monument presence and local ideology, and isolate their causal effect using two complementary approaches. In the first part of the paper, I use detailed historical data on monument unveilings and leverage exogenous variation in construction costs – which made some areas less likely to build monuments – to construct an instrument for the stock of monuments. This complements a standard difference-in-differences strategy and shows that Confederate monument construction induced Black Americans to migrate elsewhere. In the second part of the paper, I conduct an online experiment that randomizes exposure to monuments in hypothetical Southern cities. The results show that such monuments still disproportionately influence Black Americans’ migration patterns, suggesting they continue to shape segregation today.



Confederate monuments provide an ideal case to study the role of divisive symbols, for three main reasons. First, the Confederacy's defense of slavery during the Civil War made these monuments racially divisive, with white and Black southerners forming two clearly identifiable groups of supporters and opponents, respectively. In contrast, other divisive monuments – such as fascist or communist ones – reflect ideological rather than racial divides, which are endogenous and harder to observe. Second, early 20th-century Black southerners lacked viable political responses, as they were largely disenfranchised and faced severe risks in protesting, while migration was their most viable response to a more hostile environment. Third, the construction of Confederate monuments was a highly concentrated market, dominated by a quasi-monopolist firm. High transportation costs due to the monuments' size and weight made counties better connected to the firm more likely to erect one. This predetermined variation in monument placement, unrelated to local ideology, forms the basis of my identification strategy.

The historical part of the paper begins by presenting motivating evidence that the Black share of the population declined following Confederate monument construction. To do so, I exploit the geographic and temporal variation in monument construction using a difference-in-differences strategy. Specifically, I first focus on counties that constructed their first monument during the peak construction years after the 1910 census (1910-1915), and I use never-treated counties as the control group. This exercise shows a progressive decline in the Black share of the population in treated counties relative to control ones, which accounts for 1.5 percentage points, primarily driven by an immediate negative impact on Black population growth. An event study incorporating all construction years, rather than peak years alone, qualitatively confirms these results, indicating a 5 percentage point decline in the Black share of the population.

I then employ an IV strategy to address concerns about the endogenous timing and location of monuments. Indeed, other factors – such as concurrent spikes in local racism or economic activity – could both facilitate the construction of expensive monuments and influence migration decisions. I thus construct an instrument based on each county's connection to the McNeel Marble Company (MMC), a quasi-monopolistic producer of Confederate monuments located in Georgia. Specifically, I instrument the stock of statues using the inverse of each county's transportation cost from Marietta in 1890 (from Donaldson *et al.* 2016) interacted with the period during which the firm operated, and condition on a set of controls that include each county's connection to other key destinations, such as New York City – the main destination of



migrants – and Richmond, the Confederate capital.² This strategy exploits the fact that monuments were heavy, costly to transport, and difficult to move in the early 20th century, meaning that better connection to the producer reduced costs and increased the likelihood of construction. Under the assumption that the instrument – conditional on controls – affects migration only through monument construction, this provides an exogenous source of variation in the number of statues. I validate this by showing that connection to MMC is not correlated with other forms of Confederate commemoration (a proxy for ideological fervor) beyond monuments. As a result, I compare otherwise similar areas that differ only in their likelihood of having a monument due to their connection to MMC. The IV confirms the direction of the difference-in-differences analysis but indicates a larger effect: a 13-percentage-point decline in the Black share of the population. The discrepancy between the two strategies suggests that the diff-in-diff results may be biased downward due to measurement error and the tendency of economically booming counties to both afford monuments and attract migrants.

In the contemporary part of the paper, I examine whether the historical findings extend to the present, particularly as Confederate monuments have regained salience, and whether they continue to influence location choices today. To test this, I conduct an online experiment on Prolific, sequentially presenting each respondent with five fictitious cities in the US South, each depicted through a set of images. I randomize the inclusion of Confederate monument images within the set of pictures describing each city, ensuring that each city appears to a respondent either with or without a monument. After viewing each city, respondents are asked if they would consider relocating there for a job similar to their most recent one, for a new job offer (presented with details on sector, hours, and wage), and what their reservation wage for relocating is. To ensure incentive compatibility, respondents receive a list of real job offers in a southern city that aligns with their stated preferences. The results indicate that the presence of a Confederate monument reduces Black respondents' willingness to accept job offers and relocate (between 0.33 and 0.53 standard deviations), while increasing their reservation wage by 21%. A significant effect is also observed among southern whites, reflecting shifts in racial attitudes and stigmatizations of the Confederacy, but the magnitude is about half that of Black respondents. These findings provide strong evidence that Confederate monuments continue to shape migration patterns, disproportionately deterring Black Americans from certain locations.

² Results are robust to including a progressively more restrictive set of controls, including connection to Chicago, to each state's capital, and a measure of the county's market access.

This article advances the literature on divisive political symbols. While areas with Confederate street names correlate with larger Black-white labor-market gaps (Williams 2021) and the construction of Confederate monuments correlated with more segregationist vote during 1878-1912 (Taylor (2025)), removals of divisive monuments can help intergroup reconciliation (Rahnama 2025), but also trigger political backlash by increasing electoral support for parties that defend those legacies (Rozenas *et al.* 2022, Villamil *et al.* 2021). This study makes four key contributions. First, I introduce a new outcome – differential racial migration – and show that hostile symbols can lead to the relocation of the oppressed group, in line with Tiebout sorting and Hirschman (1970)’s exit-voice framework. Second, this is the first study to exploit exogenous variation in monument construction, by relying on an IV strategy. Third, I introduce the first experimental evidence that randomizes exposure to divisive symbols. Together, these methods address the key endogeneity concern inherent in this literature – namely, that ideological shifts may explain both monument constructions (or removals) and the observed behavioral responses, complicating efforts to establish causality.

2. CONCEPTUAL FRAMEWORK

Imagine two identical counties, A and B, where two groups are competing for power. In both counties, the dominant group seeks to assert its supremacy in the public arena by constructing a monument that glorifies their views. However, because of purely random factors (such as the exogenously higher cost of the same monument in county B), the dominant group succeeds only in constructing it in county A. I ask whether the exogenous presence of the monument in only one of these otherwise identical counties can influence the behavior of the competing groups. In particular, I investigate whether it leads the oppressed group in county A to exhibit higher rates of out-migration in the subsequent years compared to county B. Obviously, a certain level of rivalry between groups and the perception that the monument represents only one group are necessary conditions for this research question.³

How do monuments affect oppressed groups in practice? Their presence in public space may have a direct effect, by heightening the salience of the dominant group’s power (Rozenas *et al.* 2022). In the U.S. South – where the Union’s victory abolished slavery and northern troops protected Black Americans’ civil and political rights until

³ Indeed, a symbol may cease or begin to be divisive (respectively, statues of French kings destroyed during the Revolution, but hardly divisive today, and statues of Columbus in modern US).



1877 – Confederate monuments visually signaled that white Southern elites had regained power and that Reconstruction was over. In a context of pervasive discrimination, they may have functioned as coordination devices, warning Black Americans which spaces to avoid. This direct effect also aligns with the memory-reactivation mechanism (Ochsner *et al.* (2017), Fouka *et al.* (2013)): since most Black Southerners were enslaved before 1865, monuments celebrating the antebellum era could reactivate the collective memory of slavery, intensifying the salience of discrimination and prompting out-migration. Monuments may also affect oppressed groups indirectly, by reshaping their environment – serving as rallying points for Confederate parades or white supremacist gatherings, or by entrenching a community's dominant values over time.

In the real world, I cannot replicate the ideal experiment described above; thus, I use an IV approach to introduce an exogenous shock to the likelihood of a county successfully constructing a monument. This allows me to capture the causal effect of both the direct and indirect mechanisms described above. Moreover, I replicate the ideal experiment as closely as possible by conducting an online experiment. In this case, the results capture the impact of the direct channels only as it only varies information about the presence of the monuments.

3. SETTING

The construction of Confederate monuments in the early 20th-century South provides an ideal setting to study how divisive monuments influence the migration decisions of opposing groups for three reasons. First, these monuments were ethnically divisive. Second, the highly concentrated market for monuments and the high transportation costs made some areas more likely to erect monuments than others, irrespectively of local ideology. Third, the limited political options for Black Americans made relocation their only viable response.

Ethnically divisive monuments. Confederate monuments are a typical example of symbols that glorify the narrative of one group at the expense of another. Their divisiveness stems from the central role of slavery in the decision of Southern states to secede. Historians widely agree that the desire to maintain slavery was a primary motive for secession. In fact, all the states that issued declarations of causes justifying their secession cited the preservation of slavery as a primary reason, and these documents discuss the topic extensively (Pierce 2023). In light of this, many historians argue that these monuments were implicitly intended to intimidate Black citizens (Cox 2019).



Confederate monuments have been associated to slavery by Black Americans both today and at the time of construction. Modern surveys show that Black southerners are significantly more likely than whites to express dislike for Confederate monuments (PRRI-EPU 2022). More importantly, at the time of their construction, Confederate monuments were widely associated with slavery by Black Americans.⁴ For example, in 1890, the *Richmond Planet*, a prominent southern Black newspaper, published a series of articles criticizing the unveiling of the monument to Confederate General Robert E. Lee in Richmond.⁵ One article stated that “Lee ... gave his magnificent abilities to the infamous task of... perpetuating the system of slavery.”

In contrast, white newspapers extensively portrayed monument unveilings in favorable terms.⁶ Figure A2 plots the share of newspaper pages containing the words: (Confederat* and monument* and (honor* or respect*)). These plots demonstrate that unveilings were salient local events, in comparison both with previous years and with counties without a monument, and that they were described in a positive light.

Monument constructions and connection to McNeel Marble. Company The vast majority of Confederate monuments was purchased by white private groups, the most influential of which was the United Daughters of the Confederacy (UDC), which placed almost two-thirds of all Confederate monuments. The process typically began with fundraising campaigns in the UDC’s official magazine, *The Confederate Veteran*. Statues were then acquired and privately placed in public spaces, with the implicit approval of local authorities. The explicit purpose of the UDC was to glorify the Confederacy by promoting the narrative of the “Lost Cause”, erasing slavery as a key reason for the Confederacy’s decision to secede and instead portraying the Confederate cause as heroic and just. By 1950, Confederate monuments were present in nearly half of Southern counties (Figure 1), with a strong concentration around Richmond, Virginia, the former Confederate capital.

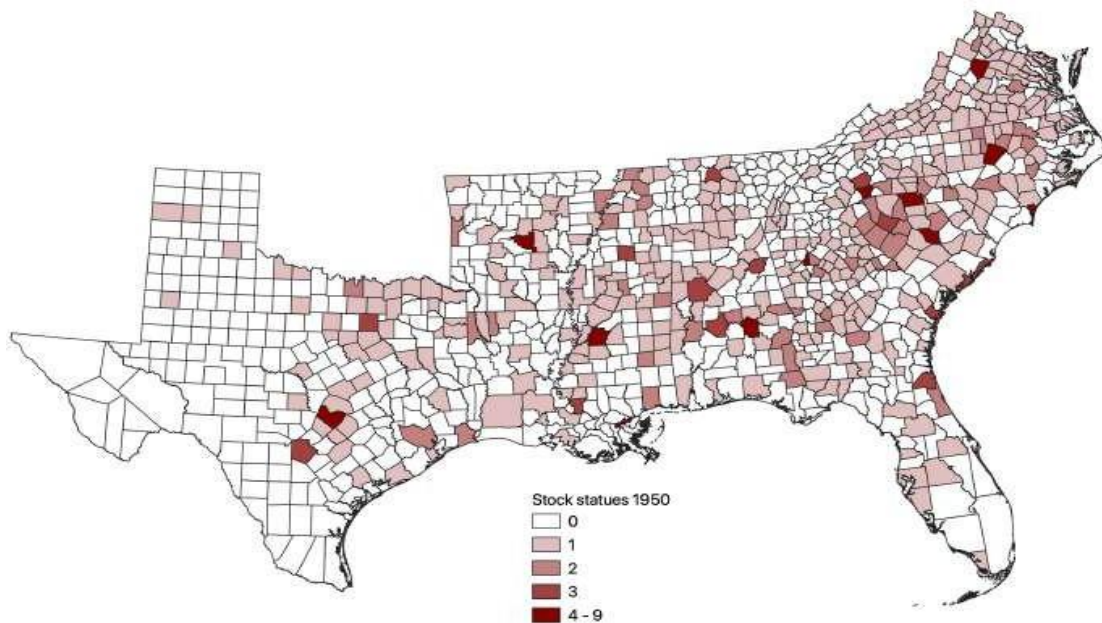
⁴ The [False Image of History project](#) collects historical Black newspaper articles across the US that criticized the celebration of the Confederacy (see an example in Figure A3).

⁵ The Library of Virginia reports a [collection](#) of the *Richmond Planet*’s articles opposing constructions.

⁶ Figure A1 shows an example of a celebratory article.



FIGURE 1 • DISTRIBUTION OF ALL EXISTING CONFEDERATE MONUMENTS
IN 1950 BY COUNTY (509 STATUES)

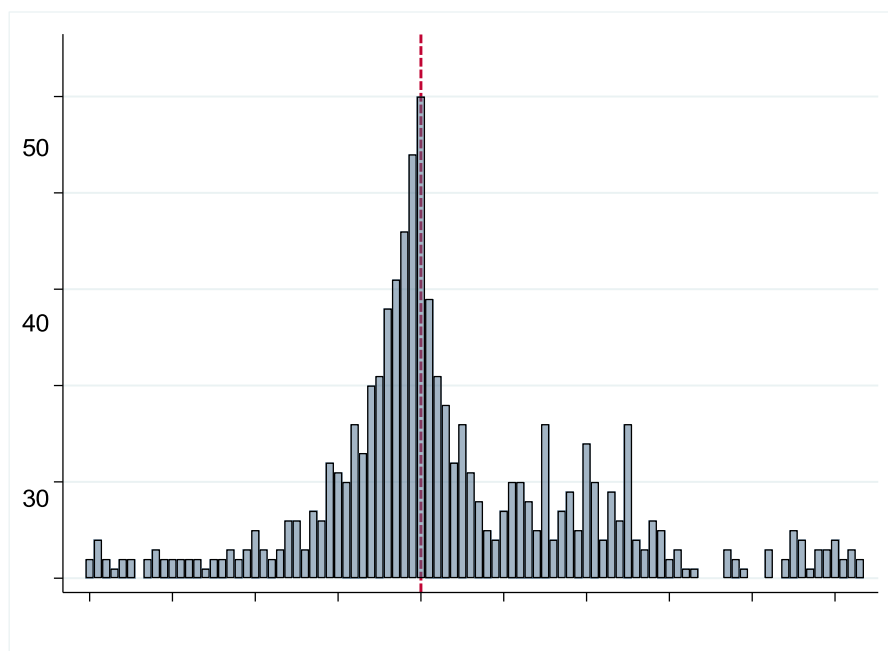


Most Confederate monuments in the South were manufactured and installed by a quasi-monopolistic firm, the McNeel Marble Company (MMC). Founded in 1892 in Georgia, near the quarries of Marietta, the company produced its first Confederate monument for the UDC in 1905. The firm claimed to have been entrusted with 95% of all Confederate monuments ordered in 1909 – the peak of the construction period.⁷ I argue that MMC emerged as a quasi-monopolist due to two key factors: its preexisting advantages, including its proximity to a granite quarry and specialized expertise in granite and marble carving, and a highly time-concentrated demand for monuments, which made market entry difficult for other firms. As shown in Figure 2, only few Confederate monuments were built before the 20th century and more than half of the monuments were erected between 1905 and 1915.

The transportation cost to a county from MMC was an important determinant of the success of construction. Monuments were extremely costly, ranging between 530% and 5,000% of the average southerner's yearly income, making the cost the only obstacle to construction.

FIGURE 2 • NUMBER OF CONFEDERATE MONUMENTS CONSTRUCTED BY YEAR

⁷ Statement published in 1910 in the *Confederate Veteran* (Figures A4 and A5). While MMC's statements are hard to verify, a catalog from 1924 lists at least 142 public Confederate monuments produced by MMC (The Atlanta Journal-Constitution, August 2017).



Indeed, some fundraising campaigns took years.⁸ The typical monument was made of marble or granite, weighed between 8 and 15 tons, and would be transported by railroad, if possible, or trucks owned by MMC, if not. While the exact transportation cost for the average monument is hard to obtain, it is possible to benchmark the cost using estimates for regular freight at the beginning of the last century. Glaeser *et al.* (2003) estimate an average cost of \$0.185 per ton-mile (in 2001 dollars) for transport via railway, implying around \$4 (in 2023 dollars) per mile for an average-size monument, to be added to a high interline transfer cost. Donaldson *et al.* (2016) use transportation costs by wagon in 1900 that are 37 times higher than the cost by train, which would imply a cost of transportation by wagon up to \$150 per mile for an average monument. Monuments were likely more expensive to move than regular freights, but the price was also concave in distance. All in all, these values suggest that even an additional 100 miles of distance would significantly increase the final price, especially in the absence of railways.

The combination of a highly concentrated monument market and high transportation costs suggests that proximity to MMC significantly increased a county's likelihood of erecting a Confederate monument. Consistent with this, Figure 7 reveals a significant surge in the stock of statues since 1906 – precisely when MMC commenced its production of Confederate monuments – in counties with stronger connection to MMC, as measured by the inverse of transportation cost in 1890.

⁸ Figure A6 shows some cases.

Available political reactions and Black migration. Another reason the 20th-century South is a useful setting to study reactions to divisive monuments is the set of actions available to each group. While whites could express discontent or support at the ballot box, Black citizens, with limited political rights, had migration as their only viable response. At the start of the 20th century, Black Southerners had no means to react to monument construction through voting, as they were largely disenfranchised. Further, the threat of violence made open protests rare and extremely risky for them. The combination of an inhospitable economic and political environment in the South and better labor opportunities and political rights in the North led many Black Southerners to migrate. By 1940, 35% of Black Southerners born between 1880 and 1940 had left the South, with peaks of 45% for those born between 1930 and 1940 (see Figure A7). Additionally, an even larger within-South migration was taking place.⁹

4. HISTORICAL DATA

My main dataset consists of decennial census data on the number of inhabitants per county and their ethnicity, as provided by IPUMS USA. I focus on the 11 formerly-Confederate states, between 1870 and 1950. I augment this dataset with Southern Poverty Law Center information on the exact location, year of construction, and type of all documented Confederate dedications. I focus on the 509 Confederate monuments constructed in the South before 1950, but I also rely on the naming of buildings and streets for secondary analyses. I use data from Clubb *et al.* (2006) to assess how voting patterns changed over time, and data on lynchings from Seguin *et al.* (2019) to proxy for the hostility of the local environment. Moreover, I use data from Donaldson *et al.* (2016), who compute county-to-county matrices of cost of grain transportation accounting for the expansion of the railway network, to proxy for the cost of transporting freight across the South. Tables B1 and B2 report summary statistics for the main variables of interest.¹⁰ Finally, I rely on data from Newspapers.com to assess how salient monument construction was among local newspapers.

⁹ Individual data from the Census Tree suggest that between 1880 and 1940, about 25% of Black southerners in each census had moved to a different southern county by the following census year.

¹⁰ Counties with monuments tend to be larger and have a higher proportion of Black residents.



5. THE HISTORICAL EFFECT OF MONUMENTS ON MIGRATION

To isolate the historical effect of monuments on migration, I rely on two groups of identification strategies. First, I rely on simple difference-in-differences and event-study specifications comparing demographic patterns after the construction of a monument. Second, I rely on an IV for the stock of monuments, which allows me to isolate their effect on migration, from confounding factors.

5.1 *Difference-in-Differences and event-study analyses*

5.1.1 *Identification strategy*

My first specification is a difference-in-differences in which never-treated counties are used as a control group for counties with their first monument erected between 1910–15. With this specification, we can observe pre-construction trends in the two groups and ensure they were not diverging before the construction of a monument. The preferred outcome of interest is the Black share of the population, as it symmetrically reflects the dynamics of both Black and white residents. My main specification is thus:

$$Y_{c,t} = \sum_{t=1880}^{1950} \gamma_t Treated_c * Decade_t + \beta X_{c,t} + \chi_c + \gamma_{s,t} + \epsilon_{c,t} \quad (1)$$

where, $Y_{c,t}$ is the Black share of the population in county c and decade t . $Treated_c$ is an indicator for counties whose first monument was constructed in 1910–15. χ_c and $\gamma_{s,t}$ are respectively county and state-by-year fixed effects, while $X_{c,t}$ controls for the lagged county population.¹¹ Standard errors are clustered at the county level. My identifying assumption is that the two groups of counties would have followed the same population pattern in the absence of treatment. Since people could migrate from treated to untreated areas in response to a monument, this effect has to be interpreted as the differential effect across areas. I corroborate the diff-in-diff estimates with a simple event study wherein my event is the first construction date in each county. This approach exploits the full time-range of constructions, not just the peak construction years.¹² As a robustness test, I even exclude counties whose first construction occurred in the peak years, focusing instead on the tails of the distribution of monument

¹¹ If anything, not controlling for lagged population (a potential “bad control”) makes results more significant.

¹² The event study is described by the following equation, where DC_j is decade relative to the unveiling of the county’s first monument, all never-treated counties are among the reference group at $j = -1$ and the other components are like in Equation 1. Table B3 reports the distribution of first unveilings per decade.

$$Y_{c,t} = \sum_{j=-5}^{+5} \gamma_j \mathbb{1}_{DC_t=j} + \beta X_{s,c,t} + \chi_c + \gamma_{s,t} + \epsilon_{c,t} \quad (2)$$

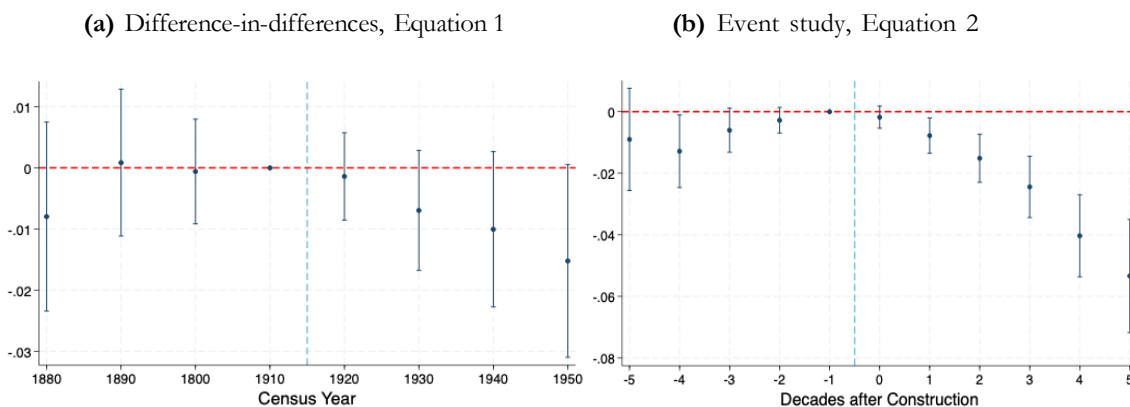
construction years. This approach helps rule out the possibility that the peak construction years were too specific or coincided with other economic or political shocks in the treated counties.

Both specifications include county and state-by-year fixed effects, ruling out the possibility that time- or county-fixed characteristics or state-specific yearly shocks explain my results. For instance, this rules out explanations such as treated counties being permanently more racist or wealthier than control ones, or that the state-level introduction of Jim Crow laws led to both more monument constructions and more out-migration.

5.1.2 Results

The results from the difference-in-differences analysis described in Equation 1 are plotted in Figure 3, panel (a). The figure shows parallel trends between the two groups in the pre-treatment period and a decline in the Black share of the population right after construction. Because the treated counties unveiled monuments between 1910-1915, the change in population (observed from 1920) follows in time the construction of monuments, ruling out reverse causality concerns.

FIGURE 3 • BLACK SHARE OF POPULATION



Controls: lag of population; county and state-by-year fixed effects; clustering at county level. 95% c.i.

The difference-in-differences specification relies only on treated counties where the first monument was constructed within a relatively narrow time window (1910-1915). As the Great Migration intensified from the 1880s onward, peaking after the 1940s, one concern is that counties constructing monuments during the peak construction years also experienced a disproportionate upsurge in migration flows around the 1910s

for reasons unrelated to the monuments themselves. To reduce this concern, I present results from the event-study strategy, which uses each county's first monument construction as the event date, whenever that occurred. The coefficients from Equation 2 are plotted in panel (b) of Figure 3 and show a 5 percentage point reduction in the Black share of the population, following unveilings.

5.2 *Instrumental-variable approach*

5.2.1 *Identification strategy*

The identification strategies described in the previous section show that Black Americans disproportionately left treated counties after monuments were constructed, suggesting that monuments actively influenced out-migration. However, this is not sufficient to establish that monuments had an independent effect on migration patterns. Indeed, other time- and place-varying concurrent factors may have induced both Confederate monument construction and Black out-migration. For instance, it is possible that during the first decade of the 20th century, racial hostility sharply escalated in only some Southern counties, which in turn may explain both the construction of monuments therein and Black Americans' decision to leave.

To address this potential endogeneity problem, I construct an instrument for the stock of monuments. The instrument is based on a county's connection – measured in terms of freight transportation costs – to the McNeel Marble Company (MMC) in Marietta, Georgia. MMC played a pivotal role in the proliferation of Confederate monuments in the South by extensively advertising them and ultimately constructing a significant share of those built between 1905 and 1960. Better connection to MMC reduced transportation costs, thereby increasing the likelihood of erecting a monument. Under the assumption that a county's connection to MMC affects migration only through the construction of monuments, conditional on controls, this provides a predetermined source of variation in monument construction. This approach allows for a comparison between otherwise similar areas, where monuments exist only in those with better connectivity to MMC.

As a measure of connection to MMC, I use the inverse of Donaldson *et al.* (2016)'s county-to-county minimum-cost path, which estimates the lowest grain transportation cost from a county centroid to any other county's centroid. This measure assigns a cost per ton-mile to different means of transportation, including water, rail, and wagon, plus a transfer cost when railroads are disconnected. Notably, the cost assigned to wagon transportation is approximately 37 times higher than rail transportation. To rule out



potential endogeneity from railway expansion in response to MMC's needs, I use transport cost values from 1890, before MMC began operating. Figure 4 illustrates the geographical variation in the connection to MMC across the South.

FIGURE 4 • CONNECTION TO MMC IN 1890

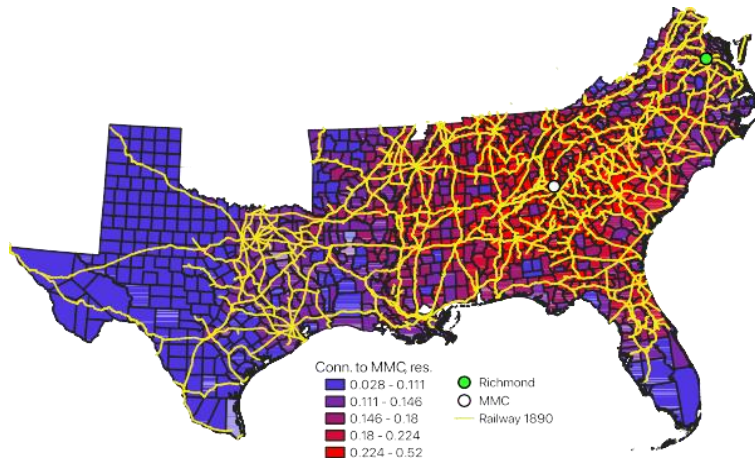
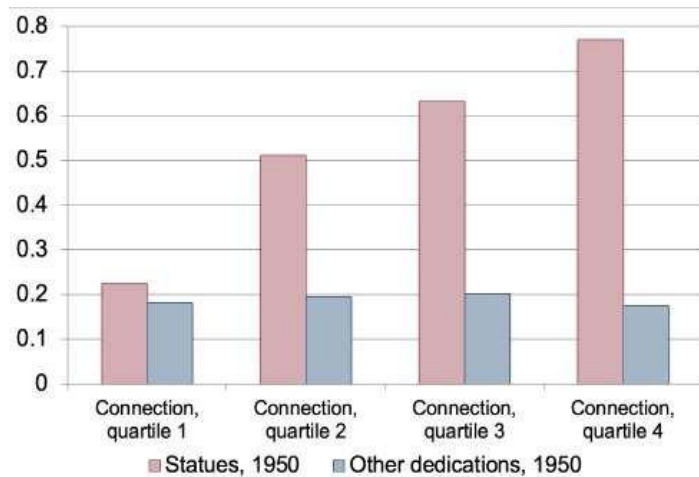


FIGURE 5 • EXCLUSION RESTRICTION: IDEOLOGY



Number of confederate monuments VS other confederate dedications (e.g. parks) in 1950 by county's connection (quartiles) to MMC.

Using connection to MMC as an instrument for monuments while studying Black migration may raise some concerns. First, places with strong connections to MMC may simply have been more pro-Confederacy. If this were true, it could explain both higher demand for monuments and greater hostility toward Black Americans, increasing the likelihood of out-migration. I rule this out by showing that connection to MMC is uncorrelated with ideological attachment to the Confederacy. Figure 5 shows that while

counties better connected to MMC had substantially more Confederate monuments by 1950 – consistent with monuments being logistically easier for them to obtain – we observe no correlation when examining other types of Confederate dedications, such as naming schools or parks after Confederate leaders. These alternative dedications do not involve logistical difficulties or transportation costs, as monuments do, but instead purely reflect local decisions to celebrate the Confederacy, without frictions. The fact that we observe a similar number of such other dedications in counties with high or low connection to MMC suggests that a county's ideology is orthogonal to its connection to MMC.

Another concern with the instrument is that a strong connection to MMC – if due to the railway – may indicate that a county was also well-connected to the broader railway system, potentially facilitating migration and thereby violating the exclusion restriction. Similarly, while 1890 transportation cost to MMC predates both the monuments and the migration waves I study, the historical expansion of the railroad network was non-random, as railways primarily connected major cities. For instance, Richmond played a central role in the railway network's development, being the South's second-largest city in the late 19th century and the former Confederate capital. I address this concerns in two ways.

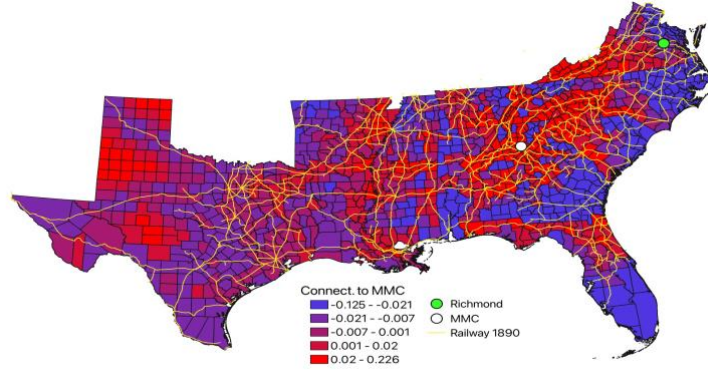
First, I include a set of controls – primarily connection to Richmond, connection to New York City (NYC), lagged county population, historical lynchings, and state fixed effects – and rely on the residuals of the connection to MMC regressed on these controls. By controlling for connection to Richmond and NYC, I hold constant a county's overall connection to the rail-way network and instead rely relatively more on its specific connection to MMC, through the ramification of the railway network. Figure 6 shows the geographical variation of the residualized measure. As depicted in the map, this approach places less weight on raw distance to MMC and pure railway access, while the relative connection to MMC via railway becomes more relevant. Figure A8 shows that connection to MMC in 1890 is generally uncorrelated to individual characteristics of Black Americans at the county level. I show 2SLS results for both specifications: with and without controls.

Second, and most importantly, the measure of connection to MMC should become relevant only after MMC began selling Confederate monuments – namely, after 1905. Figure 7, effectively a dynamic first-stage, confirms that connection to MMC predicts a county's stock of monuments more strongly after 1905. I exploit this temporal variation and instrument the existing stock of monuments using the interaction between connection to MMC (measured in 1890) and the post-1905 period. The temporal variation allows to include in my IV specification both county fixed effects –



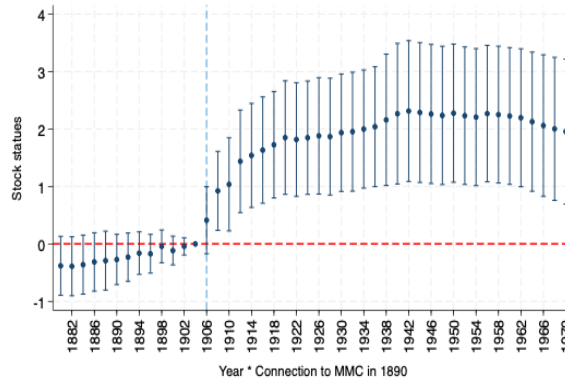
further controlling for time-invariant, cross-county differences that could violate the exclusion restriction (e.g., a county being permanently more racist or wealthier than others) – and state-by-year fixed effect.

FIGURE 6 • SPATIAL VARIATION IN THE INSTRUMENT



Residuals of *connection to MMC* regressed on connection to NYC and connection to Richmond in 1890, population in 1880, and state fixed effects.

FIGURE 7 • TIME VARIATION IN THE INSTRUMENT



Stock of monuments regressed on *year * connection to MMC in 1890*. Controls: interpolated lagged population, *1890 connection to Richmond * post 1905*, *connection to NYC*, *stock of lynchings*, and county and state-by-year.

The IV model is therefore described by the following first- and second-stage equations:

$$\text{First Stage : } StockMon_{c,t} = \delta Conn1890_c * Post1905_t + \beta X_{c,t} + \chi_c + \gamma_{s,t} + \epsilon_{c,t} \quad (3)$$

$$\text{Second Stage : } Y_{c,t} = \delta \widehat{StockMon}_{c,t} + \beta X_{c,t} + \chi_c + \gamma_{s,t} + \epsilon_{c,t} \quad (4)$$

where $Y_{c,t}$ is the Black population share in decade t , county c , state s ; $StockMon_{c,t}$ is the existing stock of monuments; $Conn1890_{c,t}$ is connection to MMC in 1890; $Post1905_t$ is an indicator for years after 1905. $X_{c,t}$ includes an interaction between the connection to Richmond and $Post1905_t$, controlling for possible post-1905 differential increases in attachment to the Confederacy (the closer a county is to Richmond); a time-varying measure of connection to NYC to control for the ease of out-migration; the lagged county population; and the stock of lynchings. County and state-by-year fixed effects are always included.

5.2.2 Results

Table 1 reports the first and second stages of the IV specification outlined in Equation 4. Column (1) shows that the stock of monuments at the county level is positively and significantly correlated with the instrument, conditional on county and state-by-year fixed effects. An increase in connection to MMC from 0 to 1 increases the number of monuments by 2.8. Since connection to MMC ranges from 0.03 to 0.52, with a standard deviation of 0.08, a one-standard deviation increase in connection raises the number of monuments by 0.2. Column (2) of Table 1 shows that the correlation remains positive and significant after including controls – namely, connection to Richmond in 1890 interacted with a post-1905 indicator, yearly connection to NYC, lagged population, and the stock of lynchings. In this case, a one-standard deviation increase in connection to MMC increases the number of monuments by 0.14. Importantly, the instrument does not correlate with possible predictors of underlying ideology, other than monuments themselves. In Table B4, I show that the instrument is not correlated with either the stock of lynchings or with Confederate dedications other than monuments (e.g., naming schools or parks after Confederate leaders), after conditioning on the set of controls. Since these alternative dedications do not involve cost or economic constraints, they are stronger proxies of local ideological attachment to Confederate ideals. This suggests that it is the cost of monuments – rather than ideology – that explains why better-connected areas had more monuments. The F-statistic exceeds Staiger and Stock’s rule of thumb for weak instruments in both the regressions without and with controls, being 27.7 and 12.9, respectively.

TABLE 1 • IV STRATEGY

	FS	FS	OLS	OLS	IV	IV
	(1)	(2)	(3)	(4)	(5)	(6)
	Stock	Stock	Black	Black	Black	Black
	statues	statues	share	share	share	share
Connection to Marietta 1890*post1905	2.789*** (0.530)	1.850*** (0.519)				
Stock statues			-0.013*** (0.003)	-0.010*** (0.003)	-0.132*** (0.030)	-0.133*** (0.044)
Connection to Richmond 1890*post1905		0.435 (0.865)		-0.384*** (0.084)		-0.127 (0.150)
Connection to NYC, yearly		-0.790 (0.820)		0.672*** (0.107)		0.454*** (0.151)
Numb. past lynchings		0.020*** (0.006)		-0.003*** (0.001)		-0.001 (0.001)
Lagged population		0.000*** (0.000)		0.000 (0.000)		0.000** (0.000)
Observations	7989	7989	7989	7989	7989	7989
R ²	0.680	0.713	0.970	0.972	-1.146	-1.041
County FE	Yes	Yes	Yes	Yes	Yes	Yes
State-by-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
County Cluster	Yes	Yes	Yes	Yes	Yes	Yes
Fstat	27.67 8	12.89 3				

Dependent variable: existing stock of statues at time t (columns (1), (2)); share of county population classified as Black in the census (columns (3)–(6)). First stage (FS) reported in columns (1)–(2). 2SLS results presented in columns (5)–(6). Connection to Marietta (Richmond) 1890*post1905: the inverse of county-to-county 1890 minimum transportation cost to MMC (Richmond) after 1905. Connection to NYC, yearly: yearly cost of the connection to New York City. Nb. past lynchings: the number of lynchings in the county up to time t . Lagged population: population in the previous census. Standard errors, clustered at the county level, in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Columns (5) and (6) of Table 1 show the second-stage results. The presence of monuments substantially reduced the Black share of the population, conditional on county and state-by-year fixed effects. The result is virtually unaffected by the inclusion of the usual set of controls. Both specifications show that the presence of a Confederate monument reduces the Black share of the population by 13 percentage points, compared to counties without monuments. Similarly, Table B8 shows the IV result using the decennial change in the Black population as the outcome, indicating an average effect for treated counties of 143 individuals per year.

Robustness. In the Appendix I run several robustness tests. For instance, I redefine the controls in my main specification by using alternative measure of connection costs to relevant American cities or adding other controls, such as measures of market access.¹³

¹³ See Tables B5, B6 and B7.

6. ONLINE EXPERIMENT: RANDOMIZING MONUMENTS

The historical analysis shows the *real-world* impact of Confederate monument construction on Black migration. This approach relies on certain assumptions, such as the exogeneity of constructions or the validity of the exclusion restriction in my IV strategy. While purely random variation in exposure to monuments is not possible in the historical setting, an online experiment allows for causal inference with fewer identifying assumptions, complementing the historical analysis. At the same time, the historical analysis leaves some key questions open: do Confederate monuments still influence location decisions today? Is it sufficient to provide information of their presence to impact location choices? To answer these questions, I conduct an experiment in which respondents are randomly assigned to alternative visual depictions of the same hypothetical city – one featuring a Confederate monument and one without. Participants are then presented with job opportunities in these cities and asked whether they would consider relocating. The experiment confirms that the presence of Confederate monuments in a city discourages respondents from relocating there. Notably, while the impact is statistically significant for both white and Black respondents, it is substantially larger for the latter.

The gap in racial attitudes is also evident in responses to open-ended questions about how participants perceive these monuments. As Figure 8 shows, Black respondents generally associate them with concepts such as racism and disgust, whereas whites tend to emphasize their connection to history.

FIGURE 8 • “HOW DO YOU FEEL WHEN YOU THINK ABOUT OR ENCOUNTER A CONFEDERATE MONUMENT?”

(a) Southern Blacks

(b) Southern whites



The Online Experiment. The experiment was conducted online through the Prolific platform and involved a 10- to 15-minute survey. Respondents were compensated with \$2.20 upon survey completion. The study was advertised as an investigation into the city characteristics that matter to individuals considering relocation, but no specific mention of monuments was made *ex ante*.¹⁴ In terms of incentives, participants were informed that the cities mentioned in the study were hypothetical, but they also knew that the study would match them to real cities (and jobs therein) based on their responses. It was emphasized that providing precise answers in the survey would result in a better match to an actual city and its list of jobs. The structure of the incentives thus follows the Incentivized Resume Rating (IRR) method in Kessler *et al.* 2019.¹⁵

The survey consists of three main parts. The first part collects standard demographic information and details about respondents' most recent job. The second part contains the experiment, in which five hypothetical cities, appearing either with or without monuments, were presented to respondents. After being presented with each city, respondents were asked city-specific questions, including their willingness to move there. The final part of the survey includes questions aimed at understanding respondents' views and knowledge regarding Confederate monuments. No question about the monuments was asked before the experiment.

Sample. My primary sample of interest consists of individuals between the ages of 18 and 50 who currently reside in the southern United States and are actively seeking employment. The sample, stratified by race due to Prolific's policies on prescreening, comprises 132 Black and 198 white respondents. The age and occupation criteria were applied to select for individuals with a relatively high likelihood of migration, who may be interested in the job offers and the list of jobs I provide, and to align participants with the socioeconomic status of migrants during the Great Migration. Prolific relies on a rigorously screened pool of participants, which enhances data quality but results in a reduced pool of respondents, particularly when applying demographic restrictions and focusing on minority groups. Table D1 shows that respondents are relatively similar across races; they are on average 34 years old, and their most recent income was around \$36,000. A majority of respondents are women, and the most frequent political identification is Democratic.

¹⁴ Respondents were debriefed *ex post* about the goals of the experiment.

¹⁵ The recruitment material is displayed in Figure D1. In practice, I use some responses (how much respondents dislike Confederate monuments, or value the presence of a waterfront) to match them with a real city. A link will direct respondents to the city's indeed.com list of job posts.



Hypothetical cities. I created five hypothetical cities by combining real photos and Google Street View images sourced from various locations throughout the South.¹⁶ Two versions of the same city exist: one with a Confederate monument (treatment group) and one without (control group). Each city was introduced to the respondents using a set of five sequential images, with each image requiring four seconds of viewing before proceeding to the next. More specifically, four of the five images, representing a residential street, a city hall, a public park, and a commercial street, were identical in both versions. The fifth image distinguished the versions, either showcasing the Confederate monument or providing an additional – and thus uninformative – image of the same residential street shown earlier. Figure 9 shows the two versions for one of the five cities.¹⁷ Each respondent only saw one of the two versions of each city.

Design. The treatment consists of randomizing the presence of a monument in the depicted city. Each respondent was exposed to five different cities, but they would only encounter each city either in the version featuring a monument or the one without (similar to Macchi 2023). My analysis is thus run at the city-respondent level, which gives me a large sample of 1650 observations. I can thus isolate the causal effect of Confederate monuments on migration decisions using a within-subject specification that controls for both city and individual fixed effects, thus accounting for potential sources of sample imbalance. This is particularly important because the randomization is performed on a relatively small sample size. The structure of the experiment is exemplified in Figure 10.

¹⁶ More precisely, the images are introduced as representing a “typical neighborhood” of a city.

¹⁷ See the example of a slideshow for another city and respondents’ precise view in Figures D2 and D3.



FIGURE 9 • THE TWO POSSIBLE VERSIONS OF CITY A

Column (a): control version of the city; Column (b): version with the monument.
Each of the five images is presented one by one to respondents, as displayed in figure D3.
See an example of another city in figure D2.

(a) Control Group

(b) Treatment Group

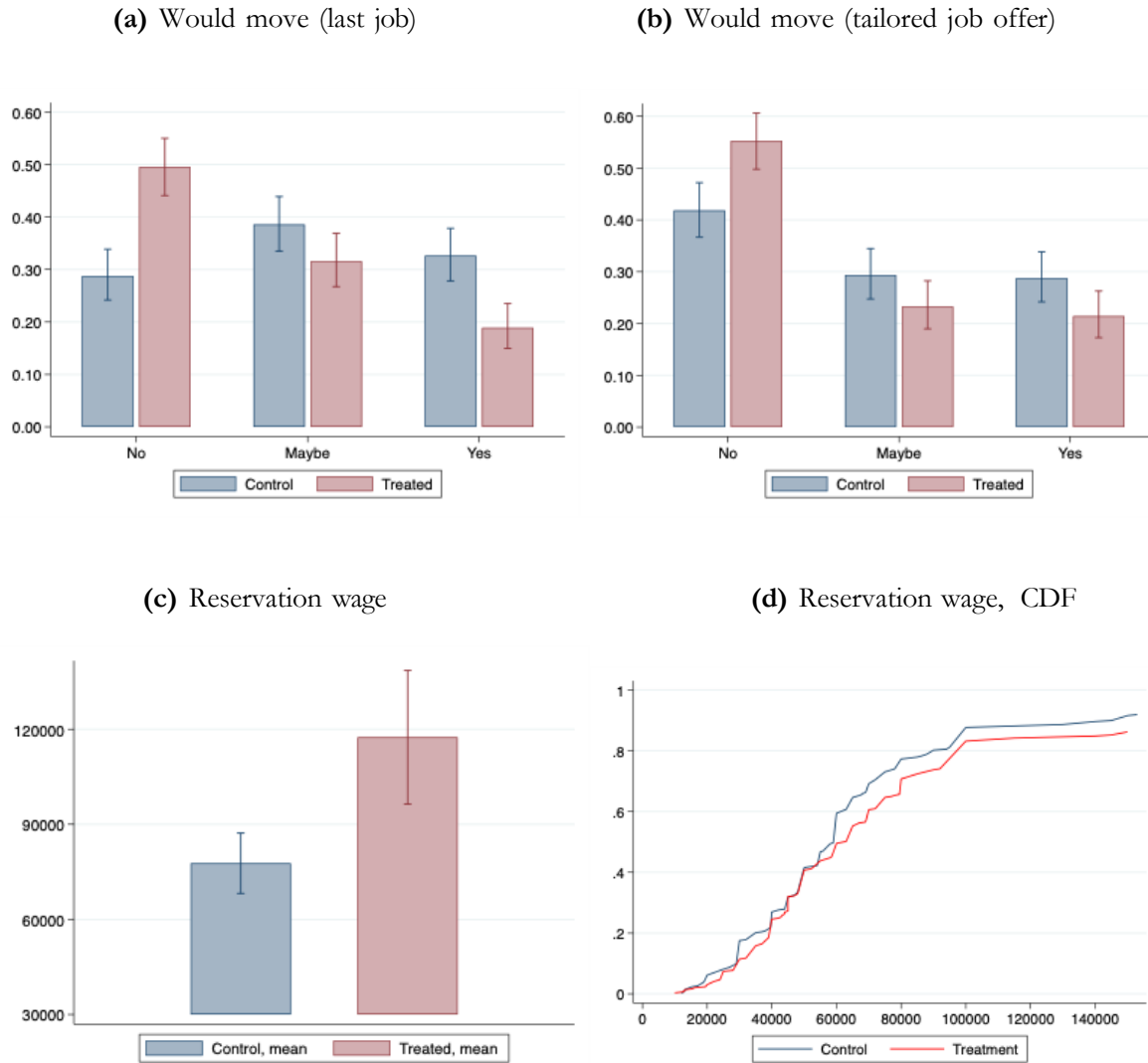


FIGURE 10 • EXPERIMENT DESIGN



Outcomes. For each city, following exposure to the images, respondents were presented with three questions, the answers to which serve as my primary outcome variables. The first question measures the extensive margin of willingness to move to the city: *If offered a job similar to your most recent one, would you be open to the possibility of relocating to the depicted city?* This question keeps the participant's job situation constant in an abstract sense and aims to capture their overall evaluation of the city. The second question presents a more concrete job offer, including details such as the job sector (using the respondent's actual sector), weekly working hours and wage, which was determined as a randomized percent increase over the respondent's most recent wage. The final question asks: What is the minimum annual income that would convince you to accept a job and relocate to the depicted city? This question aims to determine respondents' reservation wage, shedding light on the welfare cost that respondents suffer when they learn that the city has a Confederate monument. The treatment effect emerges clearly by simply comparing the distribution of the answers to each question by treatment status, as I do in Figure 11. The treatment dramatically increased the rejection rate for both types of job offers and shifted the distribution of reservation wages to the right.

FIGURE 11 • RAW DISTRIBUTION OF THE RESPONSES TO THE MAIN OUTCOMES, BY TREATMENT STATUS



Specification and Results. To estimate the impact of having a monument in the city when considering whether to relocate there, I estimate the following equation:

$$Y_{i,c} = \beta CM_{i,c} + \chi_i + \gamma_c + \epsilon_{i,c} \quad (5)$$

where, $Y_{i,c}$ indicates respondent i 's decision regarding jobs in city c , namely their willingness to relocate and their reservation wage, and $CM_{i,c}$ is an indicator for whether respondent i was exposed to the monument version of city c . χ_i and γ_c are respondent and city fixed effects.

Results for each of the three outcomes, using Equation 5, are reported in Table 2. The coefficient on *Monument* represents the treatment effect among whites. The coefficient

on *Monument*Black* represents the differential effect for Blacks compared to whites. Column (1) shows the causal effect of the presence of a Confederate monument on respondents' willingness to relocate to that city, following a job offer similar to their most recent job. Monuments reduce whites' willingness to move by 0.301 standard deviations. The effect is significantly larger for Blacks, with a reduction of 0.533 standard deviations. Column (2) shows that monuments also influence responses to more concrete and tailored job offers that include information on the wage, sector, and weekly hours. In this case, the monument decreases whites' willingness to move by 0.189 standard deviations, and it decreases Blacks' willingness to move by 0.333 standard deviations. Finally, column (3) shows that the treatment increases reservation wages by 8.3% for whites and by 20.7% for Blacks, equivalent to an average of more than \$15,000. To sum up, the treatment effect is strong and significant in both groups, but the effect for Blacks is about twice the size of the effect for whites.

To better understand results, I run several heterogeneity analyses. Tables D3 and D4 show that the effect is virtually offset among Republicans and entirely driven by individuals who, at the end of the survey, reveal they are bothered by Confederate monuments. Moreover, the effect does not substantially vary by age among Blacks, but it is stronger among young whites.

TABLE 2 • EFFECT OF SIGHT OF MONUMENT ON RELOCATION DECISION AND RESERVATION WAGE

	All Southerners		
	(1) Move (s.d.)	(2) Move, tailored (s.d.)	(3) Res. wage, log
Monument	-0.301*** (0.055)	-0.189*** (0.052)	0.083*** (0.019)
Monument*Black	-0.232** (0.096)	-0.144* (0.087)	0.124** (0.051)
High Offer		0.498*** (0.044)	
Observations	1650	1649	1650
R ²	0.577	0.622	0.868
Respondent FE	Yes	Yes	Yes
City FE	Yes	Yes	Yes

Unit of observation: city-per-respondent. Outcome: respondents want to move to a city for a job similar to their most recent one (column (1)) or for a tailored job offer (column (2)) (on a scale of 1-3, corresponding to *No*, *Maybe*, *Yes* and expressed in standard deviations, and logarithm of reservation wage (column (3), winsorizing the top 2% by race). *Monument*: indicator for the city in the version with monument. Standard errors clustered at the participant level in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

7. CONCLUSION

In this paper, I show that divisive monuments in public spaces can influence location decisions for groups with opposing views on such symbols. To illustrate this, I focus on Confederate monuments, which were constructed in the U.S. South during the early 20th century, supported by white Southerners endorsing the Confederate legacy, and opposed by Black Americans. Given their lack of political rights, Black Americans' primary response to these monuments was deciding whether to remain or relocate.

First, I show with a simple difference-in-differences specification that the time of construction of a monument marked a breaking point for Black out-migration patterns. Second, I shed light on the independent effect of monuments, in isolation from other time varying shocks, by using an instrumental variable for the stock of monuments in a county. The IV shows a large effect of the stock of monuments on the decline of the Black population. Finally, I conduct an online experiment whereby I randomize information on the presence of Confederate monuments in possible destination cities for my respondents. The results reveal that the sight of a monument significantly reduces Black respondents' propensity to relocate there and raises the reservation wage of the job offers they accept. This demonstrates that monuments continue to influence migration preferences to this day.

These findings have important political implications in contexts with significant multi-cultural migration flows. Minority groups are likely to consider divisive public monuments when deciding where to settle, making these symbols key drivers of ethnic segregation – in itself an important determinant of inequality. Local governments seeking to reduce segregation, attract migrants, or curb out-migration should carefully consider the symbols that shape their public spaces.



REFERENCES

- Ananat, E.O. (2011), *The Wrong Side(s) of the Tracks: The Causal Effects of Racial Segregation on Urban Poverty and Inequality*, «American Economic Journal: Applied Economics», 3, 2, pp. 34-66. Doi: 10.1257/app.3.2.34
- Clubb, J.M., Flanigan, W.H., Zingale, N.H. (2006), *Electoral Data for Counties in the United States: Presidential and Congressional Races, 1840-1972*
- Collins, W.J. (2021), *The Great Migration of Black Americans from the US South: A guide and interpretation*. «Explorations in Economic History», 80, pp. 101382. Doi: <https://doi.org/10.1016/j.eeh.2020.101382>
- Cox, K.L. (2019), *Dixie's Daughters, with a New Preface: The United Daughters of the Confederacy and the Preservation of Confederate Culture. New Perspectives on the History of the South*, University Press of Florida
- Cutler, D.M., Glaeser, E.L. (1997), *Are Ghettos Good or Bad?*, «Quarterly Journal of Economics», 112, pp. 827-872
- Donaldson, D., Hornbeck, R. (2016), *Railroads and American Economic Growth: A "Market Access" Approach*, «The Quarterly Journal of Economics», 131, 2, pp. 799-858
- Fouka, V., Voth, H.-J. (2013), *Reprisals Remembered: German-Greek Conflict and Car Sales During The Euro Crisis*
- Glaeser, E., Kohlhase, J. (2003), *Cities, Regions and the Decline of Transport Costs*
- Hirschman, A. (1970), *Exit, Voice, and Loyalty. Responses to Decline in Firms, Organizations, and States*, London, Harvard University Press
- Hornbeck, R., Rotemberg, M. (2021), *Growth Off the Rails: Aggregate Productivity Growth in Distorted Economies*, «Journal of Political Economy», 132, 11, pp. 3547-3602. Doi: 10.1086/730548
- Kessler, J.B., Low, C., Sullivan, C.D. (2019), *Incentivized Resume Rating: Eliciting Employer Preferences without Deception*, «American Economic Review», 109, 11, pp. 3713-44. Doi: 10.1257/aer.20181714
- Koşar, G., Ransom, T., van der Klaauw, W. (2022), *Understanding Migration Aversion Using Elicited Counterfactual Choice Probabilities*. «Journal of Econometrics», 231, 1, pp. 123-147. Doi: <https://doi.org/10.1016/j.jeconom.2020.07.056>
- Macchi, E. (2023), *Worth Your Weight: Experimental Evidence on the Benefits of Obesity in Low-Income Countries*, «American Economic Review», 113, 9, pp. 2287-2322. Doi: 10.1257/aer.20211879
- Ochsner, C., Roesel, F. (2017), *Activated History - The Case of the Turkish Sieges of Vienna*
- Ottinger, S., Winkler, M. (2022), *The Political Economy of Propaganda: Evidence from US Newspapers*
- Pierce, J. (2023), *The Reasons for Secession: A Documentary Study*, originally published December 9, 2013
- PRRI-EPU (2022), *Creating More Inclusive Public Spaces: Structural Racism, Confederate Memorials, and Building for the Future; Findings from the 2022 PRRI-EPU Religion and Inclusive Public Spaces Survey*, Public Religion Research Institute (PRRI)
- Rahnama, R. (2025), *Monumental Changes: Confederate Symbol Removals and Racial Attitudes in the United States*, «The Journal of Politics». Doi: 10.1086/730713
- Rozenas, A., Vlasenko, A. (2022), *The Real Consequences of Symbolic Politics: Breaking the Soviet Past in Ukraine*, «Journal of Politics», 84, 3, pp. 1263-1277. Doi: 10.1086/718210

- Seguin, C., Rigby, D. (2019), *National Crimes: A New National Data Set of Lynchings in the United States, 1883 to 1941*, «Socius», 5, pp. 2378023119841780, <https://osf.io/kr8yc/files/osfstorage>. Doi: 10.1177/2378023119841780
- Sjaastad, L.A. (1962), *The Costs and Returns of Human Migration*. «Journal of Political Economy», 70, 5, Part 2, pp. 80-93
- Taylor, A.N. (2025), *Monumental Effects: Confederate Monuments in the Post-Reconstruction South*, «Explorations in Economic History»
- Tiebout, C.M. (1956), *A Pure Theory of Local Expenditures*, «Journal of Political Economy»
- Villamil, F., Balcells, L. (2021), *Do TJ Policies Cause Backlash? Evidence From Street Name Changes in Spain*, «Research & Politics», 8. Doi: <https://doi.org/10.1177/20531680211058550>
- Williams, J.A. (2021), *Confederate Streets and Black-White Labor Market Differentials*, «AEA Papers and Proceedings», 111, pp. 27-31. Doi: 10.1257/pandp.20211067

**APPENDIX CAN BE VIEWED
SCANNING THIS QR CODE**



CATERINA ADELAIDE MAURI

RADIO KILLED THE DANCEHALL STAR

Abstract. This paper examines how the introduction of radio broadcasting in the 1920s affected the geographic distribution of musicians in the United States. Using full-count US census data from 1920 and 1930, I analyze county-level changes in the share of musicians following the adoption of the radio. To address endogeneity concerns, I construct an instrumental variable based on natural features affecting AM radio signal propagation. The results reveal a heterogeneous impact: Radio reduced the share of musicians in highly urbanized areas but had positive effects in moderately urban and rural counties. This pattern suggests that radio functioned as a substitute for live music in cities where musical entertainment was already abundant, while serving as a complement in areas with previously limited access to professional musicians. These findings provide insights into how information-based technological innovations may differentially impact creative labour markets across varying geographic contexts, with implications for understanding modern digital disruptions.

Keywords. Radio, musicians, labor market, technological change, geographic distribution

1. INTRODUCTION

How does the labour market for creatives respond to technological innovations that expand their potential audiences? The radio revolution of the 1920s provides a compelling case study. Radio dramatically expanded access to entertainment and news, making knowledge exchange considerably cheaper and profoundly transforming markets for live and recorded music. Once consumers purchased a radio set, listening to music was free – creating fears that musicians would be displaced by the new technology. Simultaneously, radio broadcasting created a new national market for music that made some musicians wealthy (Taylor 2002) and brought music to places that had previously experienced little of it.

Unlike many other technological revolutions, such as mass production or advances in transportation, radio primarily involved what we would now term information, making it particularly relevant for understanding modern digital disruptions. This paper investigates the effects of this new medium on the geography of the labour market for musicians in the United States.

I employ US census data from 1920 and 1930, which provides unusually detailed information both on radio ownership (as respondents in 1930 were asked whether they owned a radio) and on occupations, allowing for analysis of the musician population at the county level across the entire country. To address endogeneity concerns relating to



unobserved covariates potentially linked to radio adoption, I construct instrumental variables based entirely on natural features affecting the reach of AM radio signals. These instruments affect the geographical spread of the radio during the period of the radio revolution and are plausibly exogenous.

The results of this paper indicate that radio reduced the share of musicians in highly urbanized areas but had moderately positive effects in rural areas. This pattern likely reflects differences in how radio substituted for or complemented live music. While urban musicians were partially replaced by radio broadcasts, the same technology stimulated demand in rural areas, which had previously seen little demand for professional musical entertainment.

This research contributes to three main areas of scholarship: The clustering of creative workers, technological shocks and their effects on disrupted markets, and the impact of the radio on various political and societal outcomes. The findings have implications for understanding how digital technologies might differentially affect creative labour markets across geographic and economic contexts.

1.1 The radio revolution

At the beginning of the 1920s, radio technology was expensive and primarily used for military and maritime communication. Civilian broadcasting had been banned during World War I, and experimental stations like 2XG in New York City were pioneers in the field. Early development was dominated by the Marconi Company, General Electric (which formed the Radio Corporation of America), and Westinghouse Electric Corporation.

The first licensed commercial broadcasting station began operations in November 1920 in Pittsburgh, operated by Westinghouse to stimulate demand for radio sets. Starting from the early 1920s, the technology spread rapidly. By 1927, there were more than 700 licensed radio stations, leading Congress to pass the Radio Act to regulate the rapidly growing industry.

Figure 1 illustrates this expansion using data from FCC Bulletins. The number of radio stations rose quickly from 1921 to 1932, reaching over 500 stations across the continental United States. While the number of stations stabilized afterward, their reach continued to expand as stations became more powerful and opened in previously uncovered areas. By 1930, radio signals covered 33% of the US land area containing 88% of the population, compared to just 0.1% of the land area (containing 1% of population) in 1923.

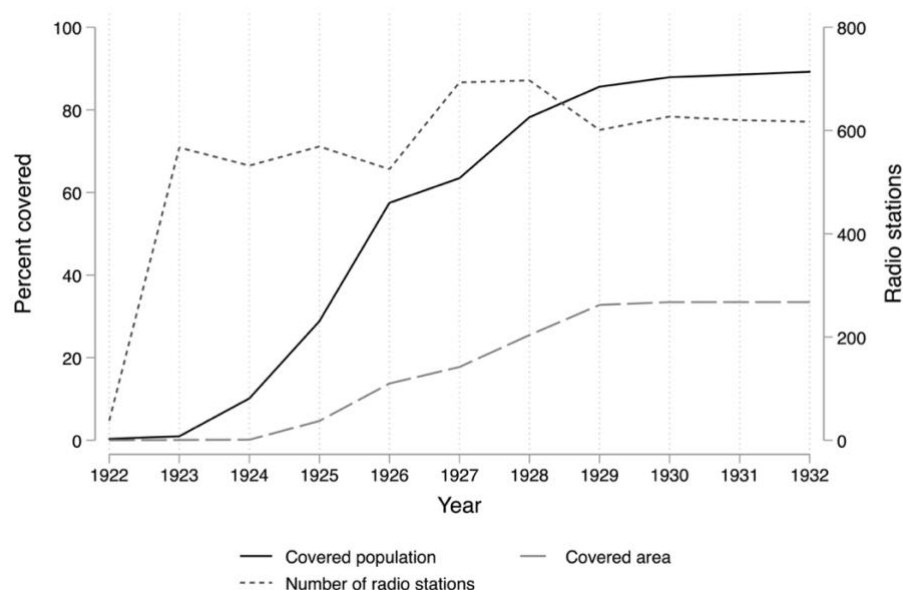


By the end of the decade, radio sets were widespread, though adoption rates varied considerably by region. The 1930 census data shows that in some areas, as much as half the population had access to a radio receiver in their household. Radio penetration was notably lower in the South compared to the North and West, and generally higher in urban than rural areas (with exceptions in parts of the Midwest) (Figure 2).

As the first real-time mass medium, radio had a remarkable impact on American society (Russo 2020), politics (Wang 2021) and the music business. It reconfigured notions of public and private life, helped usher in a new form of consumer economy, and played a large role in creating the star system in the entertainment industry. The technology came to cities first, where purchasing power was greatest and a large number of listeners could be reached cheaply.

However, its impact was especially significant in rural America, where it greatly reduced isolation and provided economic benefits, such as access to weather forecasts and agricultural market reports from the US Department of Agriculture (Craig 2001).

FIGURE 1 • NUMBER AND REACH OF LICENSED RADIO STATIONS 1923-1930



Notes: Covered area and covered population are based on author's own calculations as described in Section 2.

1.2 *Effects of the radio on musicians*

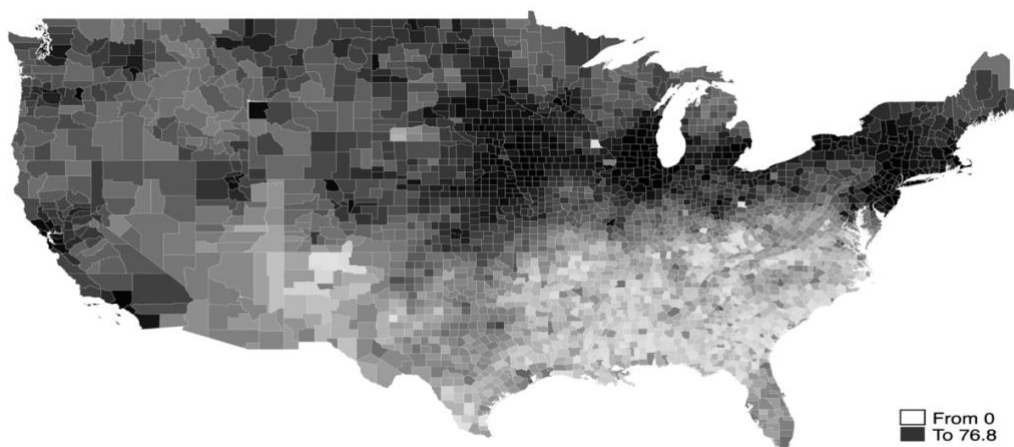
The radio was not the first technology to provide an alternative to live music. Recorded music had been available since the 1880s and steadily improved in quality. However,

record players remained expensive and not ubiquitous in the 1920s. Radio distinguished itself by being considerably cheaper for home use and offering greater variety without requiring an extensive record collection. Even after the radio revolution, the vast majority of musicians earned their living from live performances, with very few recording music or performing for radio or motion pictures. A key question is whether radio served as a substitute for or complement to live music. While no empirical evidence existed on this question at the time, Nielsen (2013) suggests it was likely a complement, as dance halls and similar establishments boomed during the 1920s. Complementarities have also been found between more recent technologies, such as music video streaming and record purchases in the early 2010s (Kretschmer and Peukert 2014).

As a first approximation, radio can be viewed as a labour-saving innovation in music provision. It required fewer musician-hours per person-hour of music listening compared to live performances, thus enhancing production efficiency. However, consumers were not indifferent between forms of music consumption.

Radio could be enjoyed at home, while live music typically required travel to a venue but offered social experiences and amenities unavailable to radio listeners. Both substitution and complementary effects likely occurred simultaneously. Substitution happened when consumers chose radio over live music, while complementary effects occurred when radio exposure induced new demand for live performances. In areas where prior exposure to professional music was low – primarily rural regions – the complementary effect may have been stronger.

FIGURE 2 • SHARE OF POPULATION BY COUNTY WITH A RADIO SET IN THEIR HOUSEHOLD IN 19



Notes: Author's own calculations based on IPUMS data Ruggles *et al.* (2020).

2. EMPIRICAL STRATEGY

2.1 *Data sources*

The primary data source is the US census, specifically the Integrated Public Use Microdata Series (IPUMS) (Ruggles *et al.* 2020). I use full-count census data for 1880, 1900, 1910, 1920, 1930, and 1940, though the analysis focuses primarily on 1920 and 1930.

The 1930 census uniquely asked respondents if they had a radio set at home, providing a detailed picture of radio penetration across the country. From the census data, I can identify musicians working as “Musicians and music teachers” while excluding those in educational services based on industry information.

To construct the geographical suitability instrument and compute population densities, I use geographical data from the National Historical Geographic Information System (Manson *et al.* 2018), a ground conductivity map from the Federal Communications Commission, a map of bodies of water from the North American Atlas (Natural Resources Canada 2010), and a map of landform classes from the U.S. Geological Survey (Hammond 1964).

For the analysis of radio station coverage, I digitized historical data from US Department of Commerce publications titled “Commercial and Government Radio Stations of the United States” (1923-1930), the “Radio Service Bulletin,” and Federal Radio Commission Annual Reports (1931-1932).

2.2 *Geographical suitability instrument*

To address endogeneity concerns, I construct an instrument based only on natural environmental features that influence radio reception. This “geographical suitability” instrument exploits the fact that AM radio transmission, unlike FM broadcasting (which was only authorised in 1941), was significantly affected by ground conductivity and terrain characteristics.

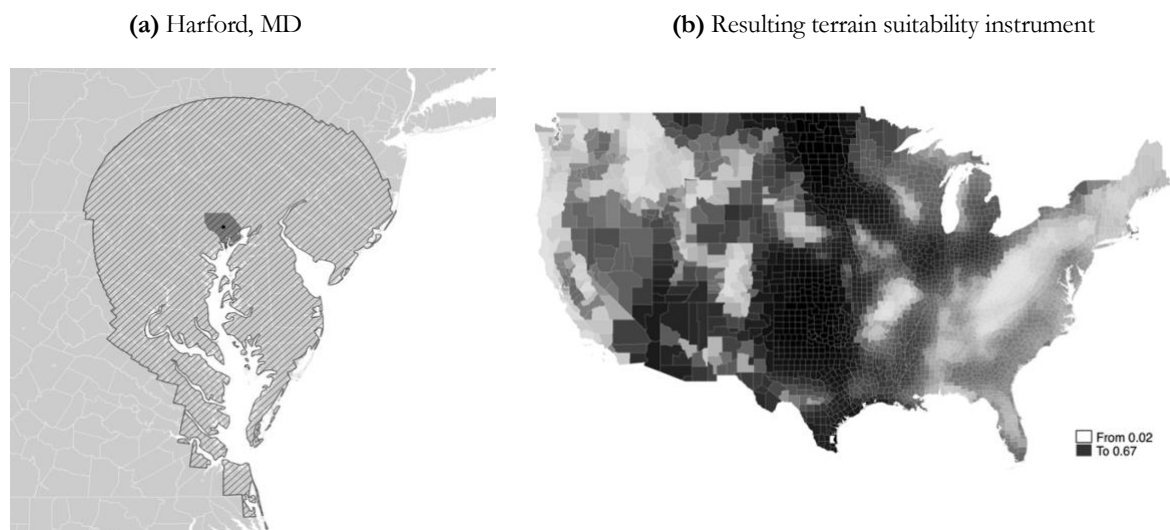
The instrument represents the land area around a point from which a standardized transmitter could broadcast a receivable signal to that point. To construct this reverse coverage area I proceed as follows.

First, I obtain a ground conductivity map of the continental US and parts of Canada and Mexico adjacent to the border based on soil conditions assembled by the Federal

Communications Commission.¹ This information is supplemented with a map of bodies of fresh water and oceans from the North American Atlas (Natural Resources Canada 2010) as well as a map of land form classes by the U.S. Geological Survey (Hammond 1964). Conductivity levels for fresh water and ocean water are obtained from ITU (2014) and I set low conductivity levels for hilly and mountainous terrain. This effort results in a map of the continental US and a buffer region around it, where each point is assigned a conductivity level.

Second, for the centroid of each county that was part of the continental United States in 1930,² I construct 100 straight paths originating at the centroid and obtain the conductivity profile for each path. Each conductivity path is then used to compute how far the signal of a standard transmitter would have carried from the centroid, the *signal reach*.³ The algorithm used to do this is symmetric, such that this is equal to the distance at which such a standard transmitter could at most be located along the path, so as to be receivable at the county centroid.

FIGURE 2 • ESTIMATED REVERSE COVERAGE AREAS



Notes: The county level terrain suitability measure is based on the author's own calculations following the methodology described in Section 2.

¹ The ground conductivity measure relies on information from a 1954 map by the Federal Communications Commission (FCC) reporting estimated effective ground conductivity in millimhos per meter for the contiguous continental United States. The map is freely accessible on the FCC website. The map was originally included in the Federal Communications Commission Report as an amendment to the Standards of Good Engineering Practice Concerning Standard Broadcast Stations.

² Data source for all counties shapefiles: Steven Manson, Jonathan Schroeder, David Van Riper, Tracy Kugler, and Steven Ruggles. IPUMS National Historical Geographic Information System: Version 15.0 [dataset]. Minneapolis, MN: IPUMS. 2020. <http://doi.org/10.18128/D050.V15.0>.

³ This standard transmitter is defined to operate at a frequency of 1 MHz, at a power of 10 kW and with an antenna height of 30m; The corresponding receiver is assumed to be at a height of 3m above ground; A signal is considered receivable if it has a strength of at least 74 dBu (based on Trainotti 1990).

In order to compute each distance, I employ the program GRWAVE (ITU 2018). To make the method workable for paths consisting of segments of different conductivity levels, I employ an iterative algorithm based on the procedure developed by Millington (Millington 1949).

Third, the reverse coverage area is obtained by capping each path at its signal reach and then constructing an area for each one by rotating it around the centroid by 1% of a full rotation. Each such area has the shape of a very thin slice of pizza. These slices are then combined into one coverage area and only the part of the combined area that is land is retained. Figure 3a shows the resulting reverse coverage area for the centroid of Harford county in Maryland.

Finally, I compute the sizes of these reverse coverage areas for each county that was part of the continental United States in 1930. The resulting terrain suitability instrument is shown in Figure 3b. This instrument is highly predictive of radio adoption rates while being plausibly exogenous to factors influencing musician employment, as it depends solely on natural geographical features.

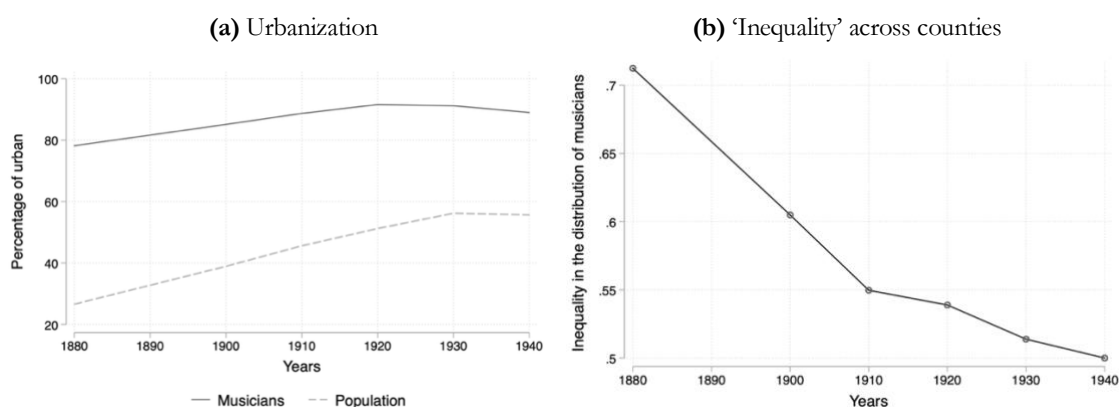
2.3 The geography of musicians

Musicians were considerably more urbanized than the general population throughout the sample period from 1880 to 1940. The distribution of musicians per capita in 1930 showed significant spatial inequality across the United States, with consistently higher concentrations in large cities and northern states compared to the South.

Over time, however, the urbanization gap between musicians and the general population narrowed (Figure 4a). In 1880, 78% of musicians lived in urban areas compared to 27% of the overall population. Both rates grew in subsequent decades, with musicians' urban share reaching 89% by 1930 while the general population's urban share rose to 56%. This convergence suggests that access to professional live music became more widespread during this period.

To further investigate this pattern, I calculated Gini coefficients for the distribution of musicians across counties (Figure 4b). The Gini coefficient for counties decreased steadily from 1880 to 1940, confirming that musicians became more evenly distributed across counties over time.

FIGURE 4 • URBANISATION AND INEQUALITY OF DISTRIBUTION
OF MUSICIANS ACROSS COUNTIES



Notes: Panel (a) shows the percentage of urban musicians and the percentage of urban population over time. Panel (b) show the Gini coefficients of the distribution of musicians over time among counties. Results are based on the author's own calculations.

2.4 *The impact of radio on musicians*

To examine how the introduction of radio affected musician shares at the county level, I regress the percentage of musicians in each county's population in 1930 (musicians per 100 people) on the share of the population with home radio access. Overall, the share of musicians increased from 0.94% in 1920 to 1.1% in 1930, though there was substantial heterogeneity across counties.

All specifications include a set of demographic and economic factors as well as the 1920 musician percentage as controls. The inclusion of the latter is meant to absorb unobserved but constant determinants of the dependent variable. All regressions include regional fixed effects and are weighted by county population to account for the fact that information from larger counties represents averages over a larger number of individuals.

As Table 1 shows, OLS results show a significant negative association between radio ownership and musician share. However, when using the terrain suitability instrument in two-stage least squares (2SLS) regressions, this overall effect disappears with the radio coefficient becoming positive but insignificant. This suggests that the OLS effect may have had a downward bias, for instance because inhabitants of counties that experienced reductions in the share of musicians for unrelated reasons reacted by becoming early adopters of the radio.

An interaction between the radio share and urbanization levels is not significant in Column (3) of Table 1, but this may be misleading if the interaction is not linear. To account for this, and to test whether the effect does depend on the urbanisation share as hypothesised

in Section 1, I estimate a more flexible model in which the radio share is interacted with a spline basis for the urban share (see Table 3 in the Appendix).

The estimated marginal effects at different urbanization levels, shown in Figure 5, reveal that the relationship is indeed non-linear. In rural counties, radio either had no significant effect or a slightly positive effect on musician shares. In counties with moderate urbanization (30-40%), the effect was positive and significant. However, in highly urbanized counties (>80%), radio had a strong negative effect on the share of musicians.

TABLE 1 • EFFECT OF THE SHARE OF INDIVIDUALS WITH A RADIO AT HOME ON THE SHARE OF MUSICIANS IN 1930

	Dependent variable: Percentage of musicians					
	(1) OLS		(2) 2SLS (A)		(3) 2SLS (B)	
Musicians 1920	0.7953***	(0.0169)	0.8285***	(0.0214)	0.8289***	(0.0241)
Radio share	-0.0226***	(0.0047)	0.0341	(0.0222)	0.0336	(0.0220)
Radio share × Urban share					0.0019	(0.0459)
Urban share	0.0008	(0.0029)	-0.0041	(0.0035)	-0.0049	(0.0190)
Pop. density	0.0055***	(0.0004)	0.0045***	(0.0005)	0.0045***	(0.0012)
Unemployed share	-0.0258*	(0.0143)	0.0294	(0.0256)	0.0300	(0.0318)
Self employed share	0.0172***	(0.0054)	0.0318***	(0.0079)	0.0316***	(0.0087)
Regional FE	yes		yes		yes	
Anderson underid chi2			146.00		52.43	
Cragg-Donald F			152.51		26.52	
Anderson-Rubin F			2.45		1.32	
N	3063		3063		3063	
R-Squared	0.82		0.82		0.82	

Standard errors in parentheses

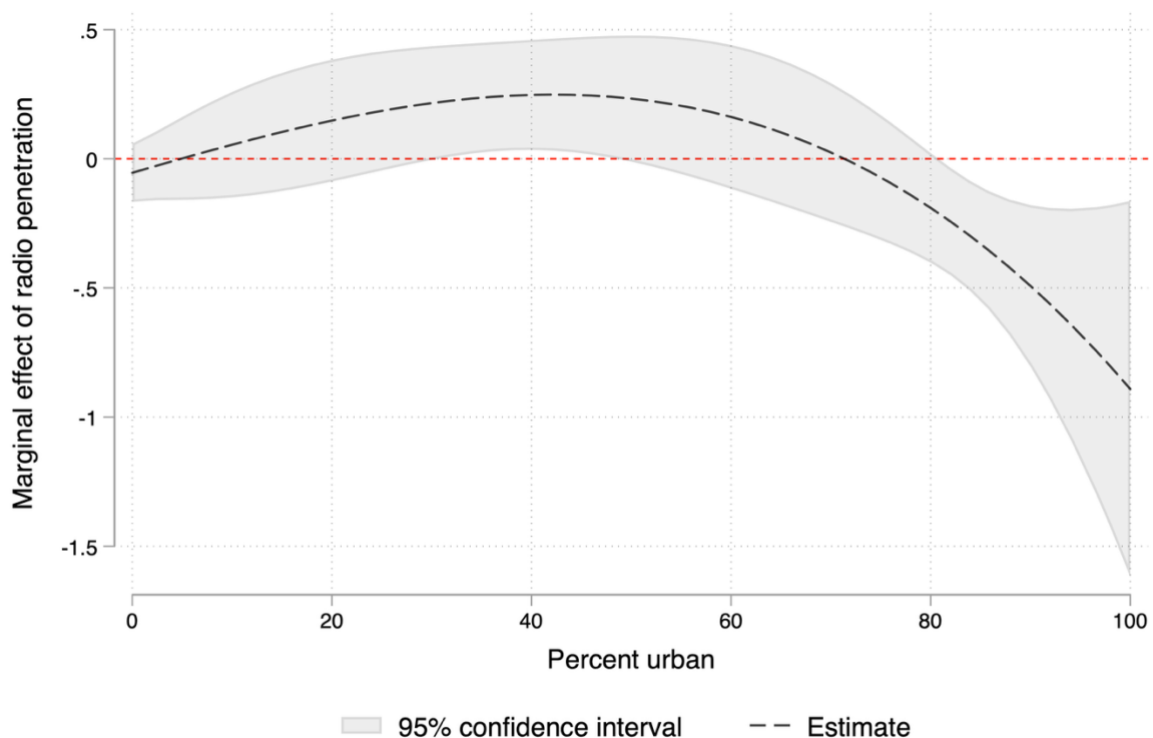
* p<.1, ** p<.05, *** p<.01

Notes: Regressions are at county level and weighted by population. The dependent variable is the number of musicians per 100 people in 1930, while the variable of interest is the share of individuals with a radio at home. Controls include: Share of literate, seniors and black, share of the population that speaks English and those whose state of birth differs from the current state of residence. Moreover I include a state level control: Average income. First stage results in Table 2.

The estimated effect sizes are large, but plausible. For counties with a 50% urban share, the estimated effect size shown in Figure 5 is around .25. Since the musician share is measured as a percentage, this translates to an increase of 0.0025 percentage points in the share of musicians for increase in the radio share of one percentage point. For counties with a 90% urban share, the estimated effect is a decrease of 0.005 percentage points in the musician share for each increase of one percentage point in the radio share.

These results are consistent with the hypothesis that radio served as a substitute for live music in urban areas, where live music was already abundant, but complemented it in rural areas where professional music had previously been scarce. The complementary effect was strongest in moderately urban counties, perhaps because they combined sufficient population density to support musician employment with relatively low pre-radio exposure to professional music.

FIGURE 5 • MARGINAL EFFECT OF THE RADIO PENETRATION BY LEVELS OF URBANIZATION



Notes: The graph shows the estimated marginal effect of the percentage of individuals owning a radio at home on the percentage of musicians in each county by the level of county urbanization. Urbanization is measured as the percentage of individuals in a county living in urban areas. Results are based on the results shown in Table 3.

3. CONCLUSION

This paper investigates the effects of the radio revolution on the labour market for musicians in the United States during the 1920s. Radio technology was rapidly adopted by the population and could both complement and substitute for live music while employing relatively few musicians directly.

The results indicate that complementarities between radio and live music outweighed displacement effects in relatively rural places, but musicians were substituted by radio in highly urban areas. This pattern is consistent with a process whereby radio brought a taste for professional music to rural places that had previously experienced little of it, while acting mainly as a cheaper substitute in cities where access to live music was already ubiquitous.

This pattern of unequal impact across geographic and economic contexts parallels more recent experiences with digital information technologies. The findings suggest that when new media technologies expand the reach of creative content, we should expect heterogeneous effects based on pre-existing access to such content, with potential substitution in already-served markets and complementary effects in previously underserved areas.

While this analysis focuses on employment numbers rather than earnings, it hints at the possibility that radio contributed to wage inequality among musicians, particularly in urban areas where many musicians may have been displaced while others gained access to national audiences through broadcasting. This dimension of technological impact warrants further investigation in both historical and contemporary contexts.

REFERENCES

- Craig, S. (2001), *The Farmer's Friend: Radio Comes to Rural America, 1920-1927*, «Journal of Radio Studies», 8, 2: 330-346
- Hammond, E. (1964), *Classes of Land-surface Form in the United States*, Data retrieved from U.S. Geological Survey
- Hirsch, M. (2017), *Python for ITU P.368: Ground-Wave Propagation Curves For Frequencies Between 10 kHz and 30 MHz*
- ITU (2014), *Handbook on Ground Wave Propagation - International Telecommunication Union. Radiocommunication Bureau.*
- (2018), *Ground-Wave Propagation (GRWAVE). Version 9.2. - International Telecommunication Union*
- Kretschmer, T., Peukert, C. (2014), *Video Killed The Radio Star? Online Music Videos and Digital Music Sales*, CEP Discussion Papers 1265

- Manson, S., Schroeder, J., Van Riper, D., Ruggles, S. (2018), *IPUMS National Historical Geographic Information System: Version 13.0 [Database]*, Minneapolis, University of Minnesota
- Millington, G. (1949), *Ground-Wave Propagation Over an Inhomogeneous Smooth Earth*, Proceedings of the IEE-Part III: Radio and Communication Engineering, 96, 39: 53-64
- Natural Resources Canada (2010), *North American Atlas – Hydrography*, Data retrieved from U.S. Geological Survey
- Nielsen, E. (2013), *The Impact of the Digital Age on Professional Musicians*
- Ruggles, S., Flood, S., Goeken, R., Grover, J., Meyer, E., Pacas, J., Sobek, M. (2020), *IPUMS USA: Version 10.0 [dataset]*, Minneapolis
- Russo, G. (2020), *Mass Media and Cultural Homogenization: Broadcasting the American Dream on the Radio*, unpublished manuscript
- Taylor, T.D. (2002), *Music and the Rise of Radio in 1920s America: Technological Imperialism, Socialization, and the Transformation of Intimacy*, «Historical Journal of Film, Radio and Television», 22, 4: 425-443
- Trainotti, V. (1990), *Simplified Calculation of Coverage Area for MF AM Broadcast Stations*, «IEEE Antennas and Propagation Magazine», 32, 3: 41-44
- Wang, T. (2021), *Media, pulpit, and populist persuasion: Evidence from Father Coughlin*, «American Economic Review», 111, 9: 3064-3092

APPENDIX

A. Additional Tables

This section contains additional tables such as full first stage regression results for table in the main text and a preliminary analysis looking at the long term effect of the radio on the share of musicians in 1940. Table 2 reports first stage results for the regression reported in Table 1, Columns (2) and (3).

TABLE 2 • EFFECT OF THE SHARE OF INDIVIDUALS WITH A RADIO AT HOME ON THE SHARE OF MUSICIANS IN 1930 - FIRST STAGE

	Share of individuals with a radio at home					
	(1) 2SLS (A)		(2) 2SLS (B)		(3) 2SLS (B)	
Suitability	0.0315***	(0.0025)	0.0414***	(0.0036)	-0.0053*	(0.0031)
Suitability × Urban share			-0.0236***	(0.0062)	0.0327***	(0.0053)
Urban share	0.0513***	(0.0110)	-0.0064	(0.0188)	0.4879***	(0.0158)
Regional FE						
N	3063		3063		3063	

Standard errors in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

Notes: The table reports first stage estimates for the regressions in Table 1, Columns (2) and (3). The dependent variable is the share of radios in the county. See Section 2 for details on data sources.

Table 3 reports the spline regression and the relative first stage regressions. The marginal effects estimated are plotted in Figure 5.

TABLE 3 • EFFECT OF THE SHARE OF INDIVIDUALS WITH A RADIO AT HOME ON THE SHARE OF MUSICIANS IN 1930 - SPLINE REGRESSION

	Dependent variable: Percentage of musicians				
	(1) 2SLS	(2) First stage	(3) First stage	(4) First stage	(5) First stage
Musicians 1920	0.5305***	-0.0200***	-0.2052***	-0.3364***	-0.0619***
	(0.1166)	(0.0074)	(0.0331)	(0.0350)	(0.0068)
Radio share × B-spline 1	-1.3557				
	(3.6657)				
Radio share × B-spline 2	0.0311				
	(1.3463)				
Radio share × B-spline 3	0.9053				
	(1.6370)				
Radio share × B-spline 4	-9.0006				
	(7.1610)				
Pop. density	0.0041**	0.0001	0.0100***	0.0124***	0.0010***
	(0.0019)	(0.0002)	(0.0010)	(0.0011)	(0.0002)
Unemployed share	-0.1122*	-0.0362***	-0.3853***	-0.4544***	-0.0549***
	(0.0636)	(0.0060)	(0.0267)	(0.0283)	(0.0055)
Self-employed share	0.0909***	-0.0421***	-0.2281***	-0.0706***	0.0061**
	(0.0291)	(0.0027)	(0.0120)	(0.0127)	(0.0025)
B-spline 1	-6.6208	0.6055***	1.5159***	-1.6963***	-1.0890***
	(5.2530)	(0.0746)	(0.3319)	(0.3508)	(0.0680)
B-spline 2	-5.4368*	0.1297***	0.9728***	-1.2121***	-0.8030***
	(3.1026)	(0.0339)	(0.1507)	(0.1593)	(0.0309)
B-spline 3	-6.6013	0.1613***	0.9189***	-1.1820***	-0.9596***
	(4.4450)	(0.0540)	(0.2402)	(0.2539)	(0.0492)
B-spline 4	0.0000	0.0000	0.0000	0.0000	0.0000
	(.)	(.)	(.)	(.)	(.)

	Dependent variable: Percentage of musicians				
	(1) 2SLS	(2) First stage	(3) First stage	(4) First stage	(5) First stage
Suitability × B-spline 1		0.1437***	0.2852***	-0.4117***	-0.0721***
		(0.0142)	(0.0634)	(0.0670)	(0.0130)
Suitability × B-spline 2		-0.0264***	-0.0226	0.1416***	0.0222***
		(0.0043)	(0.0193)	(0.0204)	(0.0040)
Suitability × B-spline 3		0.0245***	0.0308	-0.1317***	-0.0228***
		(0.0045)	(0.0202)	(0.0213)	(0.0041)
Suitability × B-spline 4		-0.0933***	-0.0346	0.6274***	0.1037***
		(0.0174)	(0.0775)	(0.0819)	(0.0159)
N	3063	3063	3063	3063	3063

Standard errors in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

Notes: The table reports results from a spline regression where the dependent variable is the number of musicians per 100 people in 1930 and the radio share is interacted with cubic splines for the urbanization rate. See Section 2 for details on data sources.

Economic Perspective on Art, Culture, and Heritage è il titolo della tredicesima edizione del Premio Giorgio Rota, i cui vincitori – Francesco Ferlenga e Caterina Adelaide Mauri – sono stati premiati in occasione della XIII Giorgio Rota Conference il 10 novembre 2025 presso il Collegio Carlo Alberto a Torino. Il volume che raccoglie i saggi vincitori è introdotto da Karol J. Borowiecki della University of Southern Denmark, Presidente della Association for Cultural Economics International.

Il Centro Einaudi nasce nel 1963 e si propone come punto di riferimento nel panorama culturale italiano: opera a due livelli, teoretico e di analisi empirica, tentando di cogliere e «anticipare» i tempi e i temi dell'analisi e del dibattito politico-economico nazionale e locale. Il Centro Einaudi conduce ricerca indipendente, organizza seminari, cura la formazione di giovani studiosi, pubblica libri e periodici su carta e online. L'approccio è orientato alle politiche, multidisciplinare, il riferimento è la tradizione liberale.

Economic Perspective on Art, Culture, and Heritage is the title of the thirteenth edition of the Giorgio Rota Award, whose winners – Francesco Ferlenga and Caterina Adelaide Mauri – were honored at the XIII Giorgio Rota Conference on November 10, 2025, at the Collegio Carlo Alberto in Turin. The volume containing the winning essays is introduced by Karol J. Borowiecki of the University of Southern Denmark, President of the Association for Cultural Economics International.

Centro Einaudi was founded in 1963. It aims to be a reference in the Italian cultural panorama both on the theoretic and on the empirical level, by analysing and 'anticipating' the timing and subjects of political and economic public discussion, both nationwide and locally. The mission is to conduct independent research and to provide innovative recommendations for local and national policy makers. The approach is policy-oriented, multi-disciplinary, the reference is the liberal tradition.

ISBN 978-88-94960-40-2