JEL Proposal:

"Consumer Credit Reporting Data"

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Abstract

Consumer credit reporting data were created to reduce informational asymmetries between borrowers and lenders. They have found a secondary and growing use among researchers since the 2000s to study a broad range of topics across fields including finance, macroeconomics, health, labor, public, environmental, and urban economics. We propose reviewing the relevant literature and providing a practical user's guide to credit report data for researchers. We provide institutional details on the components of credit reporting data and how credit data and credit scores are constructed. We also provide practical guidance to researchers on how to access existing credit report panels, create new panels, and merge other datasets to credit bureau data. We then explain how to construct from credit reporting data economically-relevant measures such as credit access, financial distress, consumption, and mobility. In so doing, we review seminal examples in the literature and discuss key measurement issues to be aware of. Finally, we discuss open issues providing exciting opportunities for researchers to use these data for future research.

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1 Motivation

The use of consumer credit reporting data (also known as credit files, credit records, or credit bureau data) has been rapidly increasing since the 2000s. These data now inform research across a breadth of economic topics, extending well beyond their initial use in macroeconomics and household finance research. Consequently, we believe a review paper on credit reporting data is of general interest and well-suited to the JEL. We propose a paper reviewing the literature with an emphasis on providing practical guidance to standardize best practices, reduce barriers to entry for new researchers, support the work of journal editors and reviewers, and generally promote greater understanding among researchers about the challenges and opportunities of using these data.

Care is needed in accurately using credit report data. There exists little guidance on how to best measure quantities of economic interest for researchers trying to interpret the thousands of available credit reporting data variables or seeking to understand some seemingly puzzling patterns in the data. Analyses that seem natural or intuitive may lead to inaccurate conclusions without a deeper understanding of what the data can and cannot show.

To better understand how to use credit reporting data, it is helpful to understand why these data exist and how they are generated. Credit reporting agencies were originally created as centralized mechanisms to improve lenders' ability to predict the risk of a consumer not repaying their debt and reduce information asymmetries between borrowers and lenders (e.g., Jaffee and Russell, 1976; Stiglitz and Weiss, 1981; Pagano and Jappelli, 1993; Jappelli and Pagano, 2002). These data are provided by tens of thousands of entities to credit reporting agencies each month, which results in broad, timely coverage of nearly nine-in-ten adults in the U.S. (Brevoort et al., 2015). But laws and regulations, industry standards, interruptions in data reporting, and legal settlements with credit reporting agencies have shaped how reporting occurs and what gets reported, and there is no comprehensive source documenting these complexities and describing the implications for academic research.[1] Un-

[1] Prior work describing the academic use of consumer credit reporting data only covers the early emergence

derstanding these is made even more important as these data are used by researchers to study topics orthogonal to the reasons these data were collected by firms. We propose focusing on U.S. credit reporting data as the most widely used among researchers, though we would also briefly review examples from other countries.

Our proposed article would both provide a comprehensive view of how credit reporting data inform a broad range of research areas, and also provide a "user's guide" to facilitate use of these data by researchers. User's guides have previously been published on other data and methods in the ***Journal of Economic Literature*** (e.g., Abadie, 2021; Haaland et al., 2021; Verhoogen, 2022; List et al., 2023) and other venues (e.g., Avery et al., 2007; Baker and Kueng, 2022; Conlon and Gortmaker, 2020; Andersen and Chen, 2023; Stantcheva, 2022).

Our authorship team consists of experienced users of credit reporting data from all three main U.S. credit reporting agencies: Equifax, Experian, and TransUnion. The authors have a breadth of experience working with credit reporting data across universities, central banks, and regulators. This experience includes constructing and maintaining nationally representative panels of credit reporting data, designing samples for specialized research projects, and conducting Fair Credit Reporting Act (FCRA)-compliant merges of credit bureau data with other datasets. This team organized panels on this topic at AEA 2023 and the NBER Household Finance Fall Meeting in 2021.[2] Our AEA panel slides are public and contain more details on our proposal.[3]

This proposal is a response to user demand. Users of these data and readers of papers often have questions about these data. But credit reporting data are proprietary, and many researchers do not have the data access necessary to check the reliability and robustness of

of these data (Avery et al., 2003; Miller, 2003), with much having changed since. Other early work focused exclusively on a specific example of these data (the New York Fed credit panel, Lee and Van der Klaauw (2010) by two co-authors of our paper). None of these surveys the literature or provides best practices incorporating insights from decades of research. There have also been reviews of the field of household finance research (e.g., Guiso and Sodini, 2013; Beshears et al., 2018; Gomes et al., 2021), however, we see our paper as complementary to these as we instead focus on credit reporting data, how they can inform a range of issues beyond the household finance domain, and how researchers can effectively use these data.

[2]NBER Household Finance, November 2021: https://conference.nber.org/altsched/IDHFf21; AEA, January 2023: https://www.aeaweb.org/conference/2023/program/1474

[3]https://bguttmankenney.github.io/Public/AEA23Guide.pdf

results. Our paper can help clarity and standardize the use and interpretation of analyses and results based on credit reporting data.

We propose a JEL paper that contains the following topic sections. Each section would use seminal examples from the literature to discuss these topics:[4]

1. Credit Reporting Agencies / Credit Bureaus
2. Credit Reporting Processes
3. Credit Reporting Data / Credit Files
   - Subsections for data types: Tradelines, Collections, Public Records, Inquiries, Customs, New Data Types
4. Credit Products
   - Subsections for product types: Auto Loans, Credit Cards and Retail Cards, Mortgages and HELOCs, Student Loans, Other
5. Credit Scores
6. Constructing Datasets
   - Subsections for accessing existing panels, creating new panels, and merging data
7. Constructing Economically-Relevant Measures
   - Subsections for sample frames, credit access, financial distress, consumption, and mobility
8. Concluding Discussion of Open Issues

The remaining sections of this proposal summarize the literature and proposed paper chapters.

[4]For more details, also see our AEA 2023 slides: https://bguttmankenney.github.io/Public/AEA23Guide.pdf

2 Literature Review

In this section we provide a brief summary of the literature using credit reporting data before detailing the chapters of our proposed paper. Appendix A provides a longer list of papers by JEL code. We propose our paper would include aspects of this literature review in the paper's introduction with seminal papers introduced throughout the paper's topic sections and additional details in an Appendix.

Many academics first encounter research using credit reporting data from studies of the 2007-2008 US financial crisis, most prominently the works by Mian, Sufi, and their coauthors. Since the crisis, additional work in ***macroeconomics (JEL E)*** has also shown the value of credit reporting data in areas including monetary economics, fiscal policy, consumption behavior, and the study of business cycles.

Research on the financial crisis has expanded from Mian and Sufi's early work using aggregated credit report data to explore the lessons from individual-level data (e.g., Mian and Sufi, 2011; Adelino et al., 2020) and has shed light on the role of labor markets in the crisis (Mian and Sufi, 2014). Researchers have also used credit reporting data to study the drivers and dynamics of the business cycle (e.g., Gross et al., 2020; Patterson, 2022).

Credit reporting data have also proved useful in the study of monetary policy. This is particularly true with respect to the role of home mortgage borrowing, which leads to time dependence in the effectiveness of monetary policy (e.g., Berger et al., 2018) and regional heterogeneity in monetary policy's implications for inequality (e.g., Beraja et al., 2019). This work also highlights the importance of mortgage refinancing (e.g., Di Maggio et al., 2020).

Complementing this work on monetary policy, macro studies of fiscal policy have also benefited from credit reporting data and have focused on loan products beyond just mortgages (e.g., Mian and Sufi, 2012). Closely related to these analyses of fiscal policy, macroeconomists have also studied consumption and overall borrowing behavior using credit reporting data (e.g., Mian et al., 2013; Benmelech et al., 2017; Chatterjee et al., 2020).

A large body of **financial research (JEL G)** also uses these data. The ability to

observe the portfolio of debt held by consumers over time enables an understanding of household finances and measurement of how policy changes can affect credit access and financial distress. Research using these data has studied lending and borrowing via auto loans (e.g., Chakrabarti and Pattison, 2019), credit cards (e.g., Keys and Wang, 2019), mortgages (e.g., Bhutta et al., 2022), student loans (e.g., Di Maggio et al., 2023), payday loans (e.g., Gathergood et al., 2019a), and FinTech (e.g., Fuster et al., 2019). As examples of the effects of specific policy interventions, Butcher and Munoz (2017) and Conway et al. (2023) evaluate the impact of the Community Reinvestment Act on consumer credit access and outcomes.

Credit reporting data informs research across a broad range of economic fields beyond household finance. We consider our paper especially useful for researchers in these other fields, who may be unaware of the existence of these data or how they can be used for applications outside of household finance research.

Using credit reporting data in ***health economics (JEL I)*** to better understand the effects of health policies and events is a relatively new use of these data that saw significant growth starting in the 2010s. Several studies have used geographic or birth year information to show reductions in financial distress following expansions of health insurance coverage (Mazumder and Miller, 2016; Hu et al., 2018; Brevoort et al., 2020; Batty et al., 2022). Others have used credit data linked to other data sources to document the financial consequences of health events such as hospital admissions (Dobkin et al., 2018), abortions (Miller et al., 2023) and Alzheimer's diagnosis (Nicholas et al., 2021). The growing use of medical credit cards and finance plans remains unexplored.

Credit reporting data has also been used to inform ***labor economics (JEL J)***. For example, studies linking credit and census data have advanced understanding of labor search and entrepreneurship (e.g., Herkenhoff et al., 2016, 2021), as have studies using a credit agency's wage data from payroll records (e.g., Di Maggio et al., 2022). For example, Dobbie et al. (2020) and Braxton et al. (2020) study the interaction between credit histories and

labor market outcomes. Several analyses have relied on credit data to study the impact of minimum wage increases (e.g., Aaronson et al., 2012; Cooper et al., 2020; Gopalan et al., 2021). Similarly, several studies have analyzed the gig economy using credit data (e.g., Buchak, 2022; Fos et al., 2021). Relatively little work has explored intra-household and inter-generational behavior, but there is great potential in this avenue (e.g., Dokko et al., 2015; Benetton et al., 2022b).

Additionally, the coverage of these data—including nearly all U.S. adults and following their movements over a long periods of time—makes them well-suited to studying issues in **environmental economics (JEL Q)** and **urban economics (JEL R)**. For example, several studies have investigated the effects of natural disasters on credit (e.g., Gallagher and Hartley, 2017; Billings et al., 2022) and non-credit outcomes such as migration (e.g., Bleemer and van der Klaauw, 2019; DeWaard et al., 2020). Gallego and Meisenzahl (2022) study internal migration patterns following the Financial Crisis. Differences in credit profiles between renters and home owners were analyzed by Li and Goodman (2016), while the impact of tuition and student debt on home ownership was studied using credit data by Mezza et al. (2020) and Bleemer et al. (2021). These data can also be used to document regional disparities (e.g., George et al., 2019) and help inform whether these are place-based or person-based effects (e.g., Keys et al., 2023).

There are many other fields where credit reporting data have only made small inroads so far, but where there is still a wealth of potential for researchers. For example, there is work studying ***public economics (JEL H)*** through fiscal stimulus, as with the cash for clunkers program (Mian et al., 2010), and public policies, such as the moving-to-opportunity program (Miller and Soo, 2021), housing vouchers (Davis et al., 2021), and traffic fines (Mello, 2021). At the same time, there is little work studying the relationship between different retirement saving systems; an exception is Beshears et al. (2022)'s analysis of the effects of pensions auto-enrollment on debt, tax changes, and borrowing decisions. Likewise, there is only a small amount of existing ***political economy (JEL P48)*** literature using these data (e.g.,

Mian et al., 2010; Brown et al., 2019). However, the wide geographical coverage that can be shared down to a fine granularity (e.g., zipcode, census tract, census block group) makes these data well suited to studying this topic by exploiting geographical variation.

These data have also been used in a ***behavioral economics (JEL D9, E7, G4)*** framework to, for example, better understand credit card borrowing (e.g., Meier and Sprenger, 2010; Ponce et al., 2017; Gathergood et al., 2019b). ***Industrial organization (JEL L)*** and ***marketing (JEL M)*** research has used versions of these data merged with marketing offers to study consumer demand (e.g., Agarwal et al., 2010; Stango and Zinman, 2016; Han et al., 2018) or optimal regulation under imperfect competition (e.g., Galenianos and Gavazza, 2022; Nelson, 2022), but there is considerable untapped potential to extend industrial organization and marketing research using these data. Finally, these data can be useful in informing topics of ***economic measurement (JEL C8)***, especially for researchers looking for "big data" to take their machine learning and AI methods to (e.g., Albanesi and Vamossy, 2019; Blattner and Nelson, 2022; Blattner et al., 2021).

3 Credit Reporting Agencies / Credit Bureaus

We plan to explain the informational economics and business of credit reporting agencies. These firms collect and provide the data, so understanding their business objectives and institutional framework is helpful for interpreting the data available to researchers. We accompany this with a brief history of U.S. credit reporting. This section would also provide a brief international comparison between the data available in the U.S. credit reporting data and other countries.

4 Credit Reporting Processes

Having explained *why* these data are collected, we would next turn to the practicalities of *how* credit reporting data are constructed. Credit reporting data are subject to a myriad

of laws, regulations, and industry standards.[5] These affect what data can be collected, in what form, and how they can be used. We would also highlight how credit reporting practices are dynamic and therefore researchers need to be cognizant of recent changes that can provide both challenges (e.g., important data elements that are reported differently or no longer reported) and opportunities (e.g., new policies to evaluate or new sources of exogenous variation to exploit).

We also explain the practicalities of how credit reporting data are "furnished," or transferred from consumer-facing firms to credit reporting agencies that aggregate and standardize the data before they are shared with researchers. Understanding this data generation process enables researchers to better anticipate and mitigate challenges for their research designs (e.g.,, confusion between stocks and flows, and a lack of stock-flow coherence, can both easily result from misunderstanding the furnishing process).

5 Credit Reporting Data / Credit Files

This section would explain the structure of consumer credit reporting data itself and explain potential sources of measurement error, such as incomplete coverage of debts and people, fragmented records, reporting lags, fraud, and stale information. We differentiate between traditional types of credit reporting data (tradeline, collections, public records, inquiries, attributes) as well as newer types that have emerged in the last ten years (e.g., alternative data, trended data, non-credit data). This overview will help researchers understand what types of data are most relevant for particular topics of study.

Researchers may also use credit reporting data to understand lender, rather than consumer, behavior or use lender variation as a source of identification, which requires an understanding of how lenders are observed in these data. We would explain the types of firms observed in these data: "furnishers" providing credit reporting data, "servicers" handling

[5]These include older laws and standards that are periodically updated, such as the Fair Credit Reporting Act, Equal Credit Opportunity Act, and METRO2 guidance, as well as more recent changes, such as the CARES Act and the National Consumer Assistance Plan.

day-to-day consumer loan payments, and "lenders" who originally provided credit to consumers, and hence how to interpret the firm identifiers that are available in some versions of these data.

6 Credit Products

Credit reporting data covers a broad set of credit products with heterogeneous structures and idiosyncrasies in reporting. This section therefore contains a subsection on each of the main product types: auto loans, credit cards, mortgages, HELOCs, consumer installment loans, student loans, and other forms of credit. For each product type we highlight key data, interpretation issues, and best practices using seminal papers from the literature.

7 Credit Scores

Credit scores such as FICO and VantageScore are often used by researchers as a way to summarize information contained within credit reporting data, but these scores are developed for very specific purposes that do not necessarily align with a researcher's aims. This section explains what credit scores are, how to interpret their values, how they are calculated, what types of events cause them to change, and how persistent these scores are over time. We also explain which types of credit scores are close substitutes both in terms of economic interpretation and potential cost savings when procuring data. This includes how to avoid endogeneity problems with using scores and discussion of when researchers may want to construct their own credit scores.

8 Constructing Datasets

Researchers can encounter and construct credit reporting data in a variety of forms. We explain how to construct a nationally-representative panel from scratch including considera-

tions such as how to ensure that the panel stays representative over time and what underlying population it is representative of. Some researchers may be using panels already constructed and maintained by organizations such as the Consumer Financial Protection Bureau, Federal Reserve system, and California Policy Lab, or by universities (e.g., Chicago Booth, University of Illinois-Gies, Ohio State University) so we plan to introduce the most commonly used panels in the literature.

Researchers may also gather their own ad hoc samples of credit reporting data. We explain how to do so, highlight aspects to consider (e.g., format of data to request), and provide examples from the literature. Some researchers may also want to merge credit reporting data with other data, so we also explain what data and processes are required. We also highlight examples of commonly-linked datasets such as public mortgage data (e.g., HMDA), surveys sampled from credit reporting data (e.g., CFPB's Making Ends Meet Survey), and commercial datasets such as CRISM (linking Equifax consumer credit reports with LPS mortgage origination data).

9 Constructing Economically-Relevant Measures

Credit reporting data can be used for a broad and continually expanding range of purposes. This section explains how researchers can construct a variety of economically-relevant measures from these data. We plan to highlight seminal examples from the literature in order to catalogue key caveats to be aware of and to explain best practices for constructing the most readily interpretable measures.

First, we plan to explain how to define various **populations** or sample frames of interest. For example, we explain how answering a seemingly-straightforward question like 'how many consumers have a credit file?' would vary depending on how a 'consumer' is defined in these data; different approaches generate answers that differ by tens of millions of consumers (Brevoort et al., 2015). Second, we emphasize that similarly straightforward statistical

exercises, like answering how many credit products and how much debt a consumer holds, can vary by several multiples depending on which types of variables in the data are used. Different measurement approaches across papers that are not well-documented can make it challenging for readers to compare research findings and evaluate their robustness. Third, we explain how to construct a variety of measures of **credit access**, including how to infer borrowing costs, and **financial distress**, accounting for how reporting practices evolve due to law changes such as the CARES Act. Finally, we also explain how researchers can construct measures of **consumption**—from auto loan originations and credit card spending—and geographic **mobility**. We want to emphasise how even researchers who are not interested in consumer debt per se can use these data to study a wide variety of topics.

10 Concluding Discussion of Open Issues

The last section discusses open issues. This includes new data types that allow researchers to answer questions that could not be previously addressed due to data limitations. For example, most existing credit reporting data contain little or no information on income, expenditures, assets, household and inter-generational structures, and broader socio-economic circumstances such as employment, race, and life events. Such issues are starting to be measured in new data products produced by credit reporting agencies (e.g., alternative credit data, wage data) or by researchers merging in other administrative or survey datasets. We plan to discuss these new frontiers. For example, we briefly discuss business credit reporting data. Such data have only recently debuted for use in economic research (e.g., Bellon et al., 2021; Benetton et al., 2022a; Fonseca and Wang, 2022; Haughwout et al., 2021) but offer exciting potential to measure and understand firm dynamics.

APPENDIX

A Examples of Papers Across Economics Fields Using Consumer Credit Reporting Data By JEL Code

This list is not intended to be comprehensive. We assign papers to a single JEL code but many could be regarded as being relevant to multiple JEL codes.

- **C. Mathematical and Quantitative Methods:**

  Machine Learning - Albanesi and Vamossy (2019); Blattner and Nelson (2022); Blattner et al. (2021); Bono et al. (2021); Bartlett et al. (2022); FinRegLab et al. (2022).

- **D: Microeconomics:**

  Behavioral Economics - Meier and Sprenger (2010); Ponce et al. (2017); Gathergood et al. (2019b); Agarwal et al. (2020); Gopalan et al. (2023).

  Information, Knowledge, and Uncertainty - Kovrijnykh et al. (2022)

- **E: Macroeconomics and Monetary Economics:**

  Consumption - Fulford and Schuh (2017); Di Maggio et al. (2017); Demyanyk et al. (2017); Berger et al. (2018); Gross et al. (2020); Ganong and Noel (2020); Agarwal et al. (2022).

  Great Recession - Mian and Sufi (2009, 2011, 2012); Mian et al. (2013); Mian and Sufi (2014); Avery and Brevoort (2015); Bhutta and Keys (2016); Benmelech et al. (2017); Mian and Sufi (2017); Foote et al. (2021); Piskorski and Seru (2021); Albanesi et al. (2022); Mian and Sufi (2022)

  Monetary Policy Beraja et al. (2019); Di Maggio et al. (2020); Berger et al. (2021)

- **G: Financial Economics:**

Auto Loans - Chakrabarti and Pattison (2019); Yannelis and Zhang (2021); Butler et al. (2023).

Buy Now Pay Later - Shupe et al. (2023)

Credit Cards - Fulford (2015); Keys and Wang (2019); Fulford and Schuh (2020); Nelson (2022); Adams et al. (2022); Guttman-Kenney et al. (2023); De Giorgi et al. (2023).

Mortgages - Bond et al. (2017); Fuster et al. (2018); Abel and Fuster (2021); Laufer and Paciorek (2022)

Student Loans - Di Maggio et al. (2023); Black et al. (2020); Yannelis and Zhang (2021); Herbst (2022); Chakrabarti et al. (2023); Hampole (2022); Sauers (2022); Dinerstein et al. (2023).

Payday Loans - Bhutta (2014); Bhutta et al. (2015); Carter and Skimmyhorn (2017); Gathergood et al. (2019a); Miller and Soo (2020); Fulford and Shupe (2021b).

Debt Collection - Brevoort et al. (2020); Fedaseyeu (2020); Kluender et al. (2021); Guttman-Kenney et al. (2022); Romeo and Sandler (2021); Cheng et al. (2021); Fonseca (2023).

FinTech - Fuster et al. (2019); Berg et al. (2020); Di Maggio and Yao (2021); Ben-David et al. (2022); Mishra et al. (2022).

Credit File Forbearance - Cherry et al. (2021); Allen et al. (2022); Kim et al. (2022); Guttman-Kenney (2023).

Credit Reporting - Brown et al. (2015); Haughwout and van der Klaauw (2015); Garmaise and Natividad (2017); Fulford and Nagypál (2020); Jansen et al. (2022); Blattner et al. (2022); Guttman-Kenney and Shahidinejad (2023); Burke et al. (2022).

Credit Unions - Shahidinejad (2022)

- **H: Public Economics:** Mian et al. (2010); Demyanyk et al. (2019); Davis et al.

(2021); Dupor et al. (2021); Mello (2021); Fulford and Shupe (2021a); Miller and Soo (2021); Beshears et al. (2022); Bornstein and Indarte (2022); Zhong et al. (2023).

- **I: Health, Education, and Welfare:** Health - Finkelstein et al. (2012); Mazumder and Miller (2016); Brown et al. (2016); Hu et al. (2018); Dobkin et al. (2018); Nicholas et al. (2021); Argys et al. (2020); Goldsmith-Pinkham et al. (2021); Batty et al. (2022); Blascak and Mikhed (2022); Miller et al. (2023).

- **J: Labor and Demographic Economics:** Aaronson et al. (2012); Herkenhoff et al. (2016); Bos et al. (2018); Dobbie et al. (2020); Ballance et al. (2020); Braxton et al. (2020); Cooper et al. (2020); Mezza et al. (2020); Bellon et al. (2021); Herkenhoff et al. (2021); Fos et al. (2021); Gopalan et al. (2021); Benetton et al. (2022b); Buchak (2022); Cortés et al. (2022); Di Maggio et al. (2022).

- **K: Law and Economics:** Bankruptcy - Dobbie et al. (2017); Albanesi and Nosal (2018); Gross et al. (2021).

- **L: Industrial Organization. & M: Business Administration and Business Economics; Marketing; Accounting; Personnel Economics:** Agarwal et al. (2010); Stango and Zinman (2016); Han et al. (2018); Galenianos and Gavazza (2022); Granja and Nagel (2023).

- **O. Economic Development, Innovation, Technological Change, and Growth:** Seira et al. (2017); Castellanos et al. (2022); Fiorin et al. (2022); Ghosh and Vats (2023)

- **P. Political Economy and Comparative Economic Systems** - Brown et al. (2019); Mian et al. (2010).

- **Q. Agricultural and Natural Resource Economics; Environmental and Ecological Economics** - Gallagher and Hartley (2017); Roth Tran and Sheldon (2017); Bleemer and van der Klaauw (2019); DeWaard et al. (2020); Billings et al. (2022); Benjamin et al. (2022); Cookson et al. (2022); Gallagher et al. (2023).

- **R: Urban, Rural, Regional, Real Estate, and Transportation Economics:** Brevoort (2011); Haughwout et al. (2011); Whitaker (2018); DeWaard et al. (2019); Bleemer et al. (2021); Howard and Shao (2022); Keys et al. (2023); Mabille (2023).

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