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WHO IS SCREENED OUT OF SOCIAL INSURANCE PROGRAMS BY ENTRY BARRIERS? EVIDENCE FROM CONSUMER BANKRUPTCIES

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Who Is Screened Out of Social Insurance Programs by Entry Barriers? Evidence from Consumer Bankruptcies

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Abstract

Entry barriers into social insurance programs will be effective screening devices if they cause only those individuals receiving higher benefits from a program to participate in that program. We find evidence for this by using plausibly exogenous variations in travel-related entry costs into the Canadian consumer bankruptcy system. Using detailed balance sheet and travel data, we find that higher travel-related entry costs reduce bankruptcies from individuals with lower financial benefits of bankruptcy (unsecured debt discharged, minus secured assets forgone). When compared across filers, each extra kilometer traveled to access the bankruptcy system requires approximately $11 more in financial benefits from bankruptcy.

Keywords: social insurance, consumer bankruptcy, filing costs, entry barriers

JEL Codes: G23, G33, D14, K35

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1. Introduction

Many social insurance programs employ screening mechanisms (e.g., program complexity, entrance fees) as entry barriers into the program. Nichols and Zeckhauser (1982) provide the standard theoretical argument for such entry barriers. They argue that in a context in which it is not possible to observe who will benefit the most from the social insurance program, entrance costs (including administrative "ordeals") will cause only those individuals receiving higher benefits from the program to participate in that program, thus increasing total welfare. The key assumption behind this theoretical argument, however, is that costs of entry into the social insurance program will indeed be empirically related to the benefits the individual receives from the social insurance program. If, however, increased costs of entering into the program are not related to the benefits received from the program, then high entrance costs could have the unintended consequences of reducing program take-up from households that otherwise would have received high benefits from the program (Moffitt, 2003; Kleven and Kopczuk, 2011; Currie, 2006; Gross, Notowidigdo, and Wang, 2014).

The aim of this paper is to provide new evidence on the theoretical prediction that increased costs of entering into a social insurance program serve to screen out only those individuals who would expect to receive lower benefits from the program. The social insurance program we examine is consumer bankruptcy, which is described by Dobbie and Song (2015) as "one of the largest social insurance programs in the United States" (p. 1272). This paper builds on the work of Gross, Notowidigdo, and Wang (2014), who examine the impact of entry barriers into the U.S. consumer bankruptcy system from filing fees (in which exogenous variation in liquidity arises from income tax rebates).[1]

The main contribution of this study, using Canadian consumer bankruptcy data, is that it is the first in the literature to observe both plausibly exogenous variations in entry *costs* into bankruptcy across individuals as well extremely accurate data on the individual *benefits* from bankruptcy, both of which vary substantially across individuals. We can thus provide direct

[1] This paper is also related to a large body of literature on personal bankruptcy decisions (e.g., Fay, Hurst, and White, 2002; Gross and Souleles, 2002; White, 2007, 2011; Li, White, and Zhu, 2011; Mahoney, 2015; Dobbie and Song, 2015; and many others). An important explanation for the personal bankruptcy decision is based on the various costs of filing (Livshits, MacGee, and Tertilt, 2010). These costs of bankruptcy filing include filing fees (Gross, Notowidigdo, and Wang, 2014) and social stigma (Gross and Souleles, 2002; Fay, Hurst, and White, 2002; and Scholnick and Mikhed, 2014). This paper is the first to examine filing costs from travel and distance.

evidence on the theoretical prediction that a plausibly exogenous increase in costs of entry into a social insurance program will cause those individuals who would gain higher benefits from the program to participate in that program and will screen out individuals who would receive lower benefits from the program.

The source of our exogenous variation in entry costs is Canadian bankruptcy regulations that mandate that each bankruptcy filer must physically travel to a licensed bankruptcy trustee and have three separate face-to-face meetings to undertake the bankruptcy filing. Even though the actual intent of these regulations is the belief that these face-to-face meetings are advantageous to filers, these meetings can impose entry costs in the form of administrative "ordeals" for filers who are more distant from trustees. Because we can observe the specific locations of all filers and all trustees, we can measure the total distance that each filer must travel during the bankruptcy process. Thus, there is variation in the costs of a bankruptcy filing across filers, based on distance-related costs of traveling to a bankruptcy trustee. Furthermore, other entry costs in the Canadian context, such as trustee fees, are highly regulated and fixed across filers. We use variation in distances traveled to undertake the bankruptcy filing as a plausibly exogenous variation in the costs of entering the bankruptcy social insurance program.

The full balance sheet data are also central to this study because it is only by accessing the full balance sheet of a bankruptcy filer that we can accurately calculate the net financial benefits of bankruptcy for that filer, based on bankruptcy law. Our individual bankruptcy filer data include dollar values of all secured liabilities, all unsecured liabilities, and all assets (which can be defined as being exempt or nonexempt under bankruptcy law). Because we observe the full balance sheets of every filer, we can accurately measure the overall financial benefits from bankruptcy (broadly, unsecured debt discharged under bankruptcy law minus liquidated secured assets), and we can test the hypothesis that higher travel-related entry costs screen out bankruptcy filings from low benefit filers.

Based on our measure of net financial benefits of bankruptcy (in dollars) and distance traveled by the bankruptcy filer (in kilometers), we can calculate the dollar value of financial benefits required for each additional kilometer traveled. Our main finding is that across all bankruptcy filers in Canada, a 1-kilometer increase in travel distance results in an approximately $11 increase in the financial benefits of bankruptcy received by the filer. Our results are thus consistent with the theoretical prediction that increased costs of entry into a social insurance

program will cause individuals who would receive higher benefits from the program to participate in that program.

In addition to measuring the physical distance (in kilometers) between bankruptcy filers and trustees, our detailed balance sheet and income statement data also allow us to measure other travel-related costs. First, we are able to observe whether each individual in our bankruptcy filer database owns a car because a car is an asset that needs to be reported in the bankruptcy balance sheet. We can test the hypothesis that travel-related entry costs for car owners are lower than for those without cars (who will require public or other means of transportation to undertake the bankruptcy filing transactions). We find that individuals without cars require greater financial benefits from bankruptcy, indicating the importance of car ownership as a determinant of travel-related entry costs.

Second, we are able to observe whether each individual in our database is employed or unemployed at the time of the filing because employment income needs to be reported in the bankruptcy income statement. We can test the hypothesis that the higher the opportunity costs of travel from forgone wage income, the larger the financial benefits from traveling that are required to make the travel worthwhile. We find that employed individuals require larger financial benefits from bankruptcy, indicating the higher opportunity cost from forgone wages.

In terms of the policy implications from our study, it is important to note that the actual policy intent of Canadian bankruptcy regulators when these travel-related entry costs are imposed is more related to the belief that face-to-face interactions are valuable for filer-trustee interactions, rather than a deliberate attempt to impose greater entry costs to screen out more individuals who are farther away. In other words, this policy that requires face-to-face interactions can be considered as an unintended experiment on the impact of administrative "ordeals." Nevertheless, our finding that mandated face-to-face meetings with bankruptcy professionals imposes significant entry costs on more distant clients could have important implications in many other contexts in which face-to-face interactions are mandated (e.g., medical professionals, legal professionals).

Our results could also have important policy implications in relation to the 2005 Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA) in the U.S. This act increased bankruptcy system entrance costs through means testing, higher filing costs, and complexity (Gross, Notowidigdo, and Wang, 2014). These changes have triggered a public

policy debate in the U.S. on whether higher entrance costs deterred high- or low-benefit filers from using the bankruptcy system (Gross, Notowidigdo, and Wang, 2014; Mann and Porter, 2010; and Zywicki, 2005). Our Canadian findings suggest that low benefit filers are less likely to use the bankruptcy system when entrance costs increase.

2. Institutional Background: Personal Bankruptcy in Canada

Consumer bankruptcy in Canada is very highly regulated by the Office of the Superintendent of Bankruptcy Canada (hereafter OSB). This section describes various characteristics of consumer bankruptcy and the market for bankruptcy trustees, many of which are used in our identification strategy that follows.

2.1. Licensing and Regulation of Bankruptcy Trustees

Under the Canadian Bankruptcy and Insolvency Act (BIA), only a bankruptcy trustee licensed by the OSB can file an insolvency case with the OSB. Licensed bankruptcy trustees in Canada are typically accountants (Ramsay, 2003) who can become bankruptcy trustees after an extended training period. The OSB maintains very tight regulations over the fees that can be charged to filers, especially in the case of the simplified summary administration-type of bankruptcy filings that form the data used in this paper (see Section 2.3). Ramsay (1999, p. 68) describes how summary administration files are subject to a "fixed tariff of fees" that are set by the OSB regulator.

As for the legal status of the trustee, the key is that trustees are considered "officers of the court" and, accordingly, are unable to show any explicit or implicit bias between debtors and creditors. Because trustees are legally bound to represent the interests of *both* debtors and creditors, they operate within a set of rules that specify how to classify various elements of the filers' balance sheets and how to calculate the net financial benefits of bankruptcy (FBB) received by filers. Also, since trustees are legally officers of the court, they cannot advertise that they have an explicit prodebtor bias (e.g., by promising that they will deliver higher FBB compared with other trustees).[2]

[2] OSB documents describe, for example, how "asset realization, contributions to the estate by the debtor as well as trustee's fees and expenses are governed by the [BIA] Act, [OSB] Rules, individual circumstances [i.e., filer's balance sheet characteristics] and orders of the Court" (Office of the Superintendent of Bankruptcy, 2010).

Because of these regulatory constraints, trustees are precluded from competing with each other on two key dimensions: (1) the ability to set fees and (2) the ability to provide alternative calculations of the net financial benefits of bankruptcy.

2.2. Mandated Face-to-Face Interactions Between Filer and Trustee

Various elements of Canadian personal bankruptcy law require the debtor to attend a minimum of three separate face-to-face interactions with the bankruptcy trustee in the trustee's office, thus imposing travel-related transaction costs on filers. According to a directive from the OSB (Ramsay, 2002), before the actual filing the debtor is required to meet the trustee in person to discuss the bankruptcy process. According to Ramsay (2002, p. 528), "This OSB directive was introduced in response to concerns that individuals were being processed through bankruptcy by clerical personnel in trustee firms without … an opportunity to meet a trustee."

Furthermore, two additional face-to-face interactions are required because of mandatory credit counseling (Ramsay, 2002; Industry Canada, 2013). Under Canadian bankruptcy procedures, *every* bankruptcy filer must participate in two separate sessions of credit counseling, each lasting approximately one hour (Industry Canada, 2013). Ramsay (2002, p. 530) argued that typically "counseling is undertaken by trustees or individual's (estate managers) within their offices." The first session must occur between 10 and 60 days after filers start their bankruptcy proceedings, while the second session must occur at least 30 days after the first session. An important institutional detail for our study is that these mandatory credit counseling sessions cannot be conducted using electronic communication (e.g., videoconferencing); they need to be conducted in person, thus imposing travel-related entry costs on filers (Industry Canada, 2013).[3]

2.3. Summary Administration

More than 98% of consumer bankruptcy filings are filed under summary administration, which is a considerably simplified filing process designed for consumer bankruptcies with low levels of complexity. For example, filings under summary administration do not require meetings with creditors, which are mandated for more complex ordinary administrations. The process of

[3] While a Canadian government policy document (Industry Canada, 2013) considered the possibility of allowing these sessions to be conducted by videoconferencing at some stage in the future, videoconferencing was not allowed during our sample period.

summary administrations is described by Ramsay as "streamlined" (1999, p. 68) and "routinized" (2003, p. 388). Our sample is restricted only to summary administration filings.

2.4. Competition Between Trustees — Name Recognition and Location

In spite of the various regulatory constraints to trustee competition described previously (i.e., the inability to compete on fees and on the determinants of net financial benefits of bankruptcy), individual trustees compete heavily with each other based on issues such as advertising for name recognition and location. Marketing is pervasive in this industry because a bankruptcy filing is a rare event for any potential filer, who typically does not have much information on alternate trustees before the decision to file for bankruptcy. Individual trustees typically spend significant resources in publicizing their names and their geographic locations through newspaper listings, yellow pages listings, and the web.[4] The importance of spatial location in trustee competition is indicated by the extensive rules implemented by the Canadian Association of Insolvency and Restructuring Professionals (CAIRP) on how trustees can advertise their physical location(s). For example, unless each physical office was staffed with a full-time trustee, the trustee firm "should not convey to the public the impression that there is a resident individual trustee in that office" (CAIRP, 2000).

3. Data and Main Variables

3.1. OSB Bankruptcy Databases

The OSB provided our main individual filer-level database. This database includes every individual filing made electronically (but not those using paper) to the OSB from 2005 to 2010. This unique individual filer database contains approximately 376,000 individual bankruptcy files, including full balance sheets and income statements as well as a variety of other observable

[4] The importance of advertising in listings services such as the yellow pages and the Internet is indicated by the extent to which the trustees professional association restricts how and where trustees can advertise in such services. The importance of yellow pages-type listings is also indicated by the lobbying efforts from the trustee's professional association to restrict listings in the yellow pages under headings such as "Bankruptcy" to only licensed bankruptcy trustees (CAIRP, 2000).

variables described here.[5] We use these data to test our main intensive margin hypothesis (i.e., in which individual-level FBB, derived from the filer's balance sheet, is the dependent variable).

The OSB first instituted the e-filing system in 2002; by the end of 2006, essentially all filings were done electronically. As a robustness check here, we restrict the data to the 2007–2010 period when essentially all filings were done electronically to test whether there is any bias introduced from the use of electronic filings. We show in what follows that our 2007–2010 results are very robust relative to the full sample (2005–2010) results, indicating that restricting our data to electronic filings does not bias our results.

We also use a second OSB database, which includes counts of every bankruptcy filing in Canada by Dissemination Area (DA), regardless of whether the filing was processed using paper or electronically. These bankruptcy count data do not include detailed balance sheet and income statement data. The DA is the smallest area for which census data are made available. DAs are very small areas that contain an average of 200 households, with an average geographic size of 0.2 square kilometers. We use DA-level count data to test our extensive margin hypothesis (i.e., bankruptcy counts per DA as the dependent variable).

3.2. The Financial Benefits of Bankruptcy (FBB)

The dependent variable in our intensive margin models is the FBB, which is derived from the individual-level bankruptcy balance sheet data. We define individual debtor's net FBB in the same way as Fay, Hurst, and White (2002):

$$FBB_{it} = \max[D_{it} - \max[W_{it} - E_{it}, 0], 0], \tag{1}$$

where D_{it} is unsecured liabilities of filers eliminated in bankruptcy (which is a benefit from bankruptcy), W_{it} is total wealth of bankruptcy filers minus all secured debts, and E_{it} represents

[5] While some studies in the bankruptcy literature have attempted to use the balance sheets of bankruptcies, such studies have been severely limited by data constraints. Fay, Hurst, and White (2002) measure FBB using data from the Panel Study of Income Dynamics (PSID), but their data consist of only 254 bankruptcy balance sheets. Hankins, Hoekstra, and Skiba (2011) hand-collect about 250 bankruptcy balance sheets. Similarly, Gross, Notowidigdo, and Wang (2014) hand-collect data on the balance sheets of 6,500 filers.

bankruptcy exemptions available to filers in a particular year and province. Under the bankruptcy process, wealth net of exemptions is liquidated by the bankruptcy trustee and used to pay off outstanding creditors. Thus, equation (1) captures the central idea of bankruptcy, which discharges unsecured liabilities of filers in exchange for filer's nonexempt assets. If assets minus secured debts and exemptions are less than or equal to zero, then there is nothing to distribute among creditors and all unsecured debts of the bankrupt are discharged. The central advantage of our data is that we can use our detailed balance sheet information from each bankruptcy filing to calculate a dollar value of FBB for each bankruptcy filer.

Our measure of unsecured liabilities (D) is the direct measure of total unsecured debt on the bankruptcy filer's balance sheet (including that from credit cards and all other forms of unsecured debt). Our measure of wealth (W) is also taken directly from the filer's OSB balance sheet and is calculated as total assets minus total secured debt. This is the amount of positive equity that will be liquidated in bankruptcy. We calculate (E) using the various province-specific exemptions allowed to bankruptcy filers across Canada. An important advantage of our data is that we can observe all of the different categories of assets in the filer's balance sheet and can thus calculate the exemptions for each individual. As we report in our Summary Statistics (Table 1), the median value of the net financial benefits of filing for bankruptcy across all bankruptcy filers in our sample is approximately $32,000, with a standard deviation of approximately $60,000.

3.3. Geographic Distances

We are able to link OSB e-filing data (in particular, the postal code of the filer) with postal code data of individual trustees. This matching allows us to measure the geographic distance between the postal code of the filer and the postal code of both the closest as well as the selected trustee. Canadian six-digit postal codes represent extremely small geographic units that contain an average of approximately 13 households. We use the center point of the postal code as our basis for the geographic location of individual addresses in the postal code. The distance between the filer and the trustee is calculated using the Haversine formula.[6]

[6] We use the geographic information system (GIS) software ArcGIS and Stata command *vincenty* to estimate these distances. For more details on the formula, see http://mathworld.wolfram.com/SphericalTrigonometry.html.

3.4. Car Ownership

We can observe from our bankruptcy filing data whether bankruptcy filers in the database own a car because, under bankruptcy law, a car is considered to be an asset that has to be declared in bankruptcy. Following several other authors (e.g., Seim and Waldfogel, 2013; Gautier and Zenou, 2010; and Baum, 2009), we argue that car ownership affects costs of travel and that filers with cars will have lower costs of accessing trustees compared with filers without cars. We use our data to test the hypothesis that car owners' lower costs of accessing trustees will be reflected in lower benefits of bankruptcy received by these filers. Of the 376,000 filers in our database, 236,000 (63%) reported a car as one of their assets, while 140,000 (37%) did not.

3.5. Employment as an Opportunity Cost of Time

The OSB requires filers to submit both a balance sheet and income statement at the time of a bankruptcy filing. One element of the income statement is employment income. We use this variable to distinguish between employed and unemployed individuals. Following a large body of literature on the effect of the opportunity cost of time on various economic outcomes (e.g., Charles and Stephens, 2013; and Dehejia and Lleras-Muney, 2004), we use these data on employment status to identify filers with higher opportunity costs of time. We hypothesize and test the proposition that individuals with lower opportunity costs of time necessary for travel will require lower benefits from their bankruptcy compared with individuals with higher opportunity costs of time. Of the 376,000 filers in our database, 220,000 (58%) reported wage income in their income statements, while 156,000 (42%) did not. The percentages of all filers by both car and employment status are 23.4% unemployed with a car, 39.3% employed with a car, 18.1% unemployed without a car, and 19.2% employed without a car.

4. Intensive Margin Tests: Effect of Trustee Proximity on Individual Financial Benefits of Bankruptcy

4.1. Intensive Margin Hypothesis

Our intensive margin hypothesis states that an increase in the distance-related costs of an individual bankruptcy filing will cause an increase in the financial benefits from the bankruptcy that needs to accrue to that filer to make the bankruptcy worthwhile. For example, consider two bankruptcy filers, one of whom has greater distance costs of filing than the other (e.g., Filer A

lives 10 kilometers away from his trustee, while Filer B lives 50 kilometers away from hers). Our argument is that Filer B will require larger benefits from the bankruptcy than Filer A to compensate for the larger distance costs. Thus, we argue that, across a sample of filers, a longer distance to the trustee should be associated with more financial benefits.

A simple OLS model of this relationship would thus be

$$(2) \qquad FBB_i = \alpha + \beta_1 Selected\_Distance_i + \beta_2 Controls_i + \varepsilon_i,$$

where FBB is the financial benefits of bankruptcy and Selected_Distance is the distance in kilometers between the filers and their selected trustees. The coefficient on the Selected_Distance term in (2) is predicted to be positive because the larger the distance costs that are required to undertake a filing, the larger the FBB that are required to compensate for those travel costs (i.e., Filer B, who lives 50 kilometers away from a trustee will require more benefits from bankruptcy than will Filer A, who lives 10 kilometers away).

4.2. Endogenous Selection of Trustees by Filers

A central econometric problem that we need to overcome before we can test this hypothesis is that bankruptcy filers in Canada are able to endogenously select the trustee of their choice, thus the variable Selected_Distance is endogenous in equation (2). If filers select trustees based only on minimizing the distance that the filers had to travel to the trustees, then we would expect individual filers to select the *closest* trustees. In our data, however, 94.5% of filers do not select their closest trustees; they file with more distant trustees. It is possible, therefore, that there is some unobservable variable that causes an individual filer to travel a longer distance to a trustee who is farther away from his or her closest trustee. We label this unobservable variable trustee "Reputation," in which a trustee's reputation is defined to include any unobservable factor that persuades a bankruptcy filer to travel a greater distance when selecting his or her trustee.

It is also possible that increased trustee reputation can also impact the *timing* of the filing, which could in turn impact our dependent variable FBB. Our argument is that a higher reputation trustee could persuade the filer to file earlier than a lower reputation trustee. The typical bankruptcy filer has growing unsecured (e.g., credit card) debt over time, leading up to the filing.

Thus, if a high-reputation trustee persuades the individual to file earlier than a low reputation trustee, this will imply lower credit card debt outstanding and thus lower FBB.

Our equation (2) has an omitted variable "Reputation," which could be correlated with both the independent variable Selected_Distance (higher reputation causes filers to *travel farther*) as well as with the dependent variable FBB, (higher reputation causes filers to file *earlier*).

Thus, a more appropriate version of (2) should look like:

(3) $FBB_i = \alpha + \beta_1 Selected\_Distance_i + \beta_2 Controls_i + \beta_3 Reputation_i + \mu_i,$

where the unobservable "Reputation" variable can be considered as an omitted variable. For this reason, we need to estimate (3) using instrumental variables (IV).

If Reputation was indeed positively correlated with Selected_Distance (filers travel farther) and negatively correlated with FBB (filers file sooner), then the direction of the bias from the omitted variable Reputation is negative. In other words, we can predict that the OLS coefficient on Selected_Distance in (2) should be lower in magnitude than IV estimates of the coefficient on Selected_Distance. We show in the following sections that this is supported by all of our results.

4.3. Justification for Closest_Distance as an Instrument

Our instrument for Selected_Distance in equation (3) (i.e., the distance from the filer to his or her *selected* trustee) is the distance between the location of the filer and the location of the geographically *closest* trustee (which we label Closest_Distance). As described previously, we are able to observe Closest_Distance because our data allow us to observe the locations of the universe of all trustees. Our reduced form specification is thus:

(4) $$FBB_i = \alpha + \beta_1 Closest\_Distance_i + \beta_2 Controls_i + \varepsilon_i.$$

Our justification for using Closest_Distance as an instrument for Selected_Distance in (2) is as follows. We argue that Closest_Distance will be correlated with Selected_Distance because of spatial agglomeration in the location of trustees. Some evidence for the spatial agglomeration

of trustees is provided in Figures 1 and 2, which provide maps of the locations of trustees across Canada and specifically across Ontario, the largest province in Canada (maps of other areas are available upon request). These maps clearly show that trustees tend to agglomerate within the larger urban areas across the country. This argument is empirically supported in our first stage results, reported in Table 4, where we show that Closest_Distance is indeed highly correlated with Selected_Distance, thus indicating that we do not have a weak instrument problem based on the usual criteria reported.

In terms of our instrument, Closest_Distance, satisfying the exclusion restrictions of this specification, we need to demonstrate that our instrument (Closest_Distance) does not directly affect our dependent variable (the individual filer's FBB as determined by the selected trustee). Our central argument exploits the specific legal status of trustees as "officers of the court," previously described in Section 2.1. Recall that as officers of the court, trustees are not able to display any actual or implied prodebtor or procreditor bias, thus they are not able to act in any way that claims to provide a higher FBB, or indeed does provide a higher FBB, compared with any other trustees. Particularly in the case of the simplified summary administration filings examined in this paper, trustees determine FBB in accordance with a large set of rules imposed by the OSB and the courts.

Our exclusion restriction argument is that, because both selected as well as closest trustees will determine the value of FBB based on a fixed set of rules, there should not be significant differences in the value of FBB calculated by the selected trustee or by the closest trustee. Rather, FBB will be endogenously determined by the filer based on the specific characteristics of the filer's balance sheet (as described in Section 3.2) at the specific date that the filer chooses to file, based on these fixed rules and irrespective of the trustee chosen. We can argue that the distance between the filer and his or her closest trustee (our instrument) should not directly impact the level of our endogenous dependent variable FBB, thus satisfying our required exclusion restriction. By using this instrument, we can test the hypothesis that the filer's exogenous travel-related costs significantly impact the level of FBB, which is determined by the filer's balance sheet characteristics on the date endogenously selected by the filer to file.

It is important to emphasize that the possibility of "trustee shopping" by potential filers should not impact our main exclusion restriction argument that FBB is determined based on administrative rules applied to each filer's balance sheet at the date of the filing. First, as

described previously, trustees are not allowed to make any explicit or implicit claim (in advertising, for example) that they will provide a more advantageous FBB compared with any other trustee. Second, our discussions with regulators have indicated that it is very unusual for any trustee to provide a "rough estimate" of FBB during a first brief trustee shopping interaction between a potential filer and potential trustee. Rather, it is typical that only after the filer has signed on with the trustee that the trustee will calculate the actual value of FBB that the filer will receive. Taken together, these institutional details indicate that trustees do not specifically compete based on promised or actual FBB, which is the main element of the exclusion restriction argument we use.

Another possible objection to our instrument is that an individual simply passing by the office location of his or her closest trustee may be enough to induce the individual to begin considering a bankruptcy filing, which could, in turn, impact the dependent variable (FBB) in our specification. Our counterargument to this objection, however, is that learning about bankruptcy and the availability of trustees is much more likely to occur through the widespread advertising for trustees (in yellow pages, Internet listings, etc.), rather than simply passing by the office location of the single closest trustee. Indeed, the fact that 94.5% of the filers in our database do not select their closest trustee, despite that the services offered by trustees are essentially generic, supports our argument that simple exposure to the office location of the closest trustee is unlikely to impact the choice of trustee.

Yet another possible objection to our instrument is that the closest trustee may move into a location based on the characteristics of that area. In this case, Closest_Distance could be correlated with FBB through the endogenous location of the trustee, which could potentially influence our instrument. However, as we show in Table 2, Closest_Distance is uncorrelated with all area observable control variables in the previous specifications.

4.4. Endogenous Trustee Selection into Areas

In Sections 4.2 and 4.3, we describe how we use an IV to address endogenous selection by filers of their trustees. A very different possible selection issue that we also need to address, however, is the endogenous choice by trustees to move into certain geographic areas to have access to more potential filers from that area. This selection could impact our specification in equation (4), if trustees can accurately predict which areas could generate many future filings. If

filers in these areas also have lower FBB thresholds required to file, then this unobserved trustee location choice would drive down both trustee-debtor distances and FBB.

We use two separate techniques to control for possible trustee selection into areas. First, to address trustees moving into areas *during* the course of our six-year sample period (which we can observe), we limit the sample to trustees who do not move during the course of our sample period. Second, to address the movement of trustees into areas *before* the start of our sample period, which we cannot observe, we use filer geography fixed effects to capture area specific unobservable characteristics. We discuss each in turn.

4.4.1. Observable Trustee Moving During Our Sample Period

The first possible element of endogenous trustee selection into geographic areas is that some trustees may relocate to be close to potential filers during our 2005–2010 sample period. We are able to address this issue directly because we are able to observe whether every trustee moves or remains in the same location over the course of our sample period. We can observe the exact location (six-digit postal code) of each trustee's office(s) as well as the dates that the trustee sent bankruptcy filings to the OSB from that postal code. We are thus able to observe whether a trustee maintained the same office over the period of our sample by examining whether filings were undertaken from the same trustee postal code over the period of our sample. Approximately 78% of filers in our sample used a trustee, who maintained the same address over the full course of our sample period.

Institutionally, a vast majority of filers used a trustee who never moved the location of their offices over the course of our sample period, which is consistent with the nature of competition in this industry. As we describe previously, because of both regulatory constraints as well as the generic and automated nature of the summary administration-type bankruptcies that are the focus of this study, trustees will tend to compete on name recognition and location rather than on the services provided to filers. Trustees thus advertise extensively to attract potential future filers to their office locations. Changing an office location could therefore be very costly to trustees in terms of providing information about their new location to potential future filers.

It can be argued that the locations of those trustees who *never* moved during the period of our sample can be considered predetermined or plausibly exogenous with respect to the specific individual filers who filed during the course of our sample. We can thus address this possible

selection issue empirically by restricting our sample to *only* those trustees in our sample who never moved offices during the course of our sample period. Our results are very robust between the full sample and the sample restricted to the 78% of filers whose trustees never moved during the course of our sample. Furthermore, our results are very robust when comparing trustees who never moved with trustees who did move during our sample period. We can thus conclude that area selection by trustees who moved during our sample period is not driving our main results.

4.4.2. Filer Area Fixed Effects

To address the possible endogenous selection by trustees into specific areas in the period before our sample period, which we cannot observe, we include filer area fixed effects in equation (4). These filer area fixed effects can control for those unobservable characteristics of an area, which could have impacted a trustee's endogenous decision to locate into that specific area at some point in the past. It is important to emphasize that trustees will make their location decisions based on the characteristics of the distribution of *all* individuals in the larger area as potential future clients rather than any specific individual.

To control for the unobservable characteristics of potential filers in an area, we include filer level fixed effects for a larger area known as the census subdivision (CSD) within which each DA falls. In 2006, there were 5,418 CSDs in Canada, with a population of approximately 6,000 on average. We use CSD fixed effects because it seems likely that when trustees are deciding to locate, they will place more importance on the unobservable characteristics of the larger CSDs (average population of 6,000) rather than the much smaller DAs (average population of 500).

4.5. Unobservable Trustee Characteristics

In a separate specification issue, unobservable trustee characteristics could impact the dependent variable FBB in equation (3). An example of unobservable trustee characteristics is a systematic but unobservable procreditor or prodebtor bias on the part of individual trustees that may affect their client's FBB, in spite of such actions being contrary to the legal obligations of the trustee as an officer of the court. To address this issue, we include fixed effects for each individual trustee in equation (4). Our ability to include trustee fixed effects reflects our ability to observe the universe of all trustees. Each trustee will have a large number of filers, thus trustee

fixed effects capture any systematic impact of a specific trustee on the FBB across all of that trustee's filers. In summary, therefore, we include both trustee-specific fixed effects as well as filer-area fixed effects (as described in Section 4.4.2) in all our specifications.[7]

4.6. Additional Robustness Tests

4.6.1. Size of Trustees — Number of Offices

Another possible specification issue concerns the impact of the trustee firms' size on our dependent variable FBB. As described previously, larger accounting firms typically undertake more complex commercial bankruptcies, while smaller accounting firms typically undertake the less complex summary administration-type bankruptcy filings that are the focus of this paper. It is thus theoretically possible that larger firms could have higher levels of trustee skills, which could impact FBB. Our data allow us to observe the number of office locations each trustee firm has to distinguish between larger and smaller trustee firms. We cannot, however, include this number of office locations variable directly into our regressions because this would be perfectly correlated with the trustee fixed effects described in Section 4.5. To separately test for the effect of trustee firm size, therefore, we restrict our sample to only those filers in our sample whose trustee had only a single office (the median number of offices of the trustees used by the filers in our sample is 1). As we report in the following section, these results are very similar to the full sample, indicating that larger trustee firms with multiple offices are not driving the full sample results.

4.6.2. Filers Traveling Large Distances

While most Canadians live in densely populated urban areas, others live in isolated rural areas that are very far from urban centers (Figures 1 and 2). It is possible for some filers to be hundreds of kilometers away from a trustee. It is also possible that these very isolated filers could have travel characteristics that vary from those of less isolated filers, so we provide evidence on individuals who are less than 200 kilometers from a trustee (approximately two

[7] In terms of comparing across the various fixed effects that we use, note that while many filers select each trustee, each filer selects only a single trustee. It is thus appropriate to include trustee fixed effects for each individual trustee because each trustee has multiple filers, while it is not appropriate to include individual filer fixed effects because each filer only files once with a single trustee. We can also include filer CSD fixed effects because many filers live in each CSD.

hours away in travel time). Approximately 89% of the full sample is within 200 kilometers of their trustee.

4.7. Intensive Margin Results

Based on our previous discussion, our complete reduced form IV specification is as follows:

$$(5)\ Ln(FBB)_i = \beta_0 + \beta_1 Ln(Closest\_Distance)_i + \beta_2 Indiv\_Filer\_Controls_i + \beta_3 Filer\_DA\_Controls_d + \beta_4 Trustee\_FE_j + \beta_5 Filer\_CSD\_FE_c + \beta_6 Year\_FE_t + \varepsilon_i,$$

with Closest_Distance used as an instrument for Selected_Distance, for each bankruptcy filer *i*. Subscript *d* denotes DAs, *j* – individual trustees, *c* – CSDs, and *t* – years.

Our intensive margin results are presented in Tables 3 to 6. Table 3 reports OLS and IV specifications for the full sample, Table 4 reports both first- and second-stage coefficients and diagnostic tests for the full sample IVs, while Tables 5 and 6 report IV results for various subsamples used as robustness tests.

For ease of comparison, Tables 3, 5, and 6 report only the key coefficient of interest from the OLS equation (2) and the IV equation (5), which is the coefficient on distance to the selected trustee (measured in log distance in kilometers) in the regression on financial benefits of bankruptcy (measured in log dollars). Our theoretical prediction is that the coefficient on distance is positive (greater travel-related entry costs require greater financial benefits as compensation). These specifications are all log-log specifications. Thus, for example, the 0.135 coefficient in the IV estimate for the full sample in Table 3 indicates that a 1% increase in the distance traveled results in a 0.135% increase in the financial benefits of bankruptcy for filers.

In terms of the economic magnitudes of these coefficients, the coefficient of 0.135 for the full sample IV evaluated at the mean values of the dependent and independent implies that every 1-kilometer increase in the distance between the filer and the selected trustee results in an increase of approximately $68 in FBB. Recall that the filer is mandated to make *three* separate trips to the trustee. If we further assume that each trip requires the filer to travel in both directions (to the trustee and home again), this implies that the total distance traveled by the filer is the geographic distance between the filer and the trustee multiplied by six. In other words,

these results imply that each 1 kilometer traveled by the filer results in an increase in FBB of approximately $11.

For each column in Tables 3, 5, and 6, we run nine separate specifications (rows) based on the travel-related characteristics of each individual filer (i.e., car/no car, wage/no wage, and various combinations). Recall that our prediction was that car ownership should reduce travel costs, implying lower FBB, while receiving wages from employment should raise the opportunity cost of traveling to a trustee, thus implying higher FBB. In these tables, in addition to the full sample in row 1, we report separate specifications for car/no car/wage/ no wage (rows 2 to 5) as well as various interactions between cars and wages (rows 6 to 9).

For every column in Tables 3, 5, and 6, we find that the effects for the car subsample (row 2) < those for the no car subsample (row 3) and that the effects for the no wage subsample (row 4) < those for the wage subsample (row 5). These results are consistent with the travel costs explanation of the effect of distance. Furthermore, in terms of the coefficients on the wage/car interactions, we find across all our specifications in Tables 3, 5, and 6 that the coefficients in the no wage and car sample (row 6) are smaller than the coefficients in the wage and car sample (row 7), which are smaller than the effects for the no wage and no car group (row 8), with the coefficients in the wage and no car sample being the largest (row 9). These results show that not only does distance matter in the bankruptcy context but also travel-related characteristics of individuals (cars and wages) strongly impact the extent to which distance matters. In addition, the magnitudes of these coefficients imply that the difference between a car and no car is much more important than the difference between wage and no wage.

As we described previously, we can also restrict the sample of our IV specification in a variety of ways to control for various empirical issues. Thus, while the last column of Table 3 reports the IV results for the full sample, Table 5 reports the results for the sample with distances restricted to less than 200 kilometers (to control for outliers caused by very long distances) and dates restricted to the 2007–2010 period (to control for possible selection bias from paper versus electronic filing). Similarly, Table 6 restricts the sample to filers whose trustees never moved from their locations during the sample period (to control for possible trustee location selection issues) and restricts the sample to the trustees with only a single office location (to control for unobservable characteristics related to trustee size). The main conclusion from comparing across the columns in Tables 3, 5, and 6 is the very similar magnitudes of the coefficients. In other

words, these various possible specification concerns addressed here do not appear to be relevant in the data.

While our main focus is on our IV estimates, we also report OLS estimates in Table 3 to compare the magnitudes of the OLS and IV coefficients. Recall that our previous discussion of the direction of omitted variable bias predicted that the IV coefficients should be larger in magnitude compared with the OLS coefficients. The OLS and IV results in Table 3 clearly show that this is indeed the case.

5. Extensive Margin Tests: The Effect of Trustee Proximity on Aggregate Bankruptcy Counts

Our extensive margin hypothesis tests the effect that distance from a trustee has on the aggregate number of bankruptcies per 1,000 persons in a DA (i.e., whether distance impacts the choice between filing and not filing). This hypothesis states that there will be more bankruptcies in DAs where the closest bankruptcy trustee is near; compared with DAs where the closest trustee is far away. Table 7 provides summary statistics for the data used to test this hypothesis. We estimate the following regression:

(6) $$Bankruptcies\_per\_1000\_DA_d = \beta_0 + \beta_1 Ln(Closest\_Distance)_d + \beta_3 DA\_Area\_Controls_d + \beta_4 Trustee\_FE_j + \beta_5 CSD\_FE_c + \beta_6 Year\_FE_t + \varepsilon_i,$$

where the unit of analysis is DA *d* (recall that on average, each DA contains approximately 200 households and covers less than 0.2 square kilometers) and the other subscripts are similar to equation (5). Our dependent variable is the number of bankruptcies per 1,000 persons in a DA. To test our hypothesis, we need to measure our main independent variable as the distance between filers and trustees. However, because the unit of analysis in these extensive margin models is the *aggregate* number of filers in a geographic area (DA) rather than the individual filer, we cannot observe individual filers or their selected trustees. Indeed, many DAs have no filing at all so there is no "selected trustee" for these areas. Because of this, we use as the main independent variable in these extensive margin models, the distance between the centroid of the DA and the geographically *closest* trustee to that DA.

Because this specification examines the aggregate count of bankruptcies in a DA and because our measure of distance is the distance from the centroid of the DA to the *closest* trustee

to that centroid point, by definition, we do not face issues of individual filers endogenously selecting their trustees (this was the case in our previous individual-level intensive margin tests). For this reason, these extensive margin tests use OLS rather than an IV specification.

For the same reasons as in our previous intensive margin tests, we also include in this specification either or both individual trustee fixed effects and CSD fixed effects. Because the unit of analysis in this specification is the DA rather than the individual filer and because there is no selected trustee in this specification, the Trustee_FE is for the trustee that is the *closest* to the DA. Multiple different DAs can have the same trustee as their closest trustee, thus these closest trustee fixed effects will capture unobservable characteristics of each closest trustee. Similarly, the CSD fixed effect is the CSD within which each DA falls. We also include a large number of DA level observables, taken from census data and described in Table 7.

Our extensive margin hypothesis results are reported in Table 8, which shows our results when we include either or both trustee and CSD fixed effects. The results in Table 8 show that, as predicted, an increase in the distance from the DA to the closest bankruptcy trustee significantly reduces the expected number of bankruptcies in that DA. Because our independent variable (distance) is in logs, while our dependent variable is a count (bankruptcies per 1,000 population), the estimated coefficient implies that a 10% increase in the distance between the closest trustee to the DA to the centroid of the DA will significantly reduce the number of bankruptcies per 1,000 in the DA by 0.008. These results show that distance to the closest trustee does indeed significantly reduce the number of bankruptcies in a geographic area, which provides support for the extensive margin hypothesis that distance to the closest trustee affects the choice between filing for bankruptcy and not filing.

6. Conclusion

This paper provides new evidence on the theoretical prediction that increased entry costs into a social insurance program from administrative ordeals will screen out individuals receiving low benefits from the program and cause only individuals who receive high benefits from the program to participate in that program. We test this hypothesis using data from personal bankruptcy filings in Canada. The main advantage of our research context is that it allows us to observe exogenous variation in the administrative ordeal required to enter the program and allows us to accurately measure individual benefits from the program.

For exogenous variation in entry costs, we exploit Canadian bankruptcy regulations that mandate all bankruptcy filers to have three face-to-face meetings with a bankruptcy trustee in order to file. This allows us to use the distance traveled by the filer to the trustee (in kilometers) as exogenous variation in costs of entry. In addition, our bankruptcy filing data on the full balance sheet of every bankruptcy filer allow us to accurately calculate the net financial benefits of bankruptcy (in dollars) based on bankruptcy law.

Our main finding is that travel-related entry costs have a significant effect on both the number of filers (extensive margin) and the financial benefits of bankruptcy received by those who file (intensive margin). We also show that various other determinants of travel costs, such as transportation costs (ownership of a car) and opportunity costs (employment status), also influence the financial benefits of bankruptcy across filers. Our results show that, as predicted by theory, administrative ordeals required to enter into social insurance programs do indeed screen out individuals who would receive low benefits from the program and cause individuals who would gain high benefits to participate in that program.

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Table 1.
Summary Statistics: Intensive Margin Tests All Bankruptcy Filers

Variable	Obs.	Median	SD
Actual trustee-debtor distance	375965	18.2735	301.4
Closest trustee-debtor distance	375965	2.57	54.6
Individual employment status	375965	1	0.493
Financial benefits of bankruptcy	375632	32215.5	59335.2
Age	375965	42	13.29
Car	375965	1	0.484
Self-employment	375965	0	0.234
Numerical literacy	375965	264.7	12.83
Population density	375965	2500.72	10621.5
Past neighborhood bankruptcies	375965	1	0.481
Household size	375965	2	1.326
Average income	375965	29930	11422.3
Change in income	375965	4.56	2.894
Divorce	375965	0	0.337
Prior defaults	375965	0	0.385
Marital breakdown	375965	0	0.375
Unemployment	375965	0	0.446
Insufficient income	375965	0	0.475
Business failure	375965	0	0.298
Health concerns	375965	0	0.399
Accidents/emergencies	375965	0	0.153
Overuse of credit	375965	1	0.493
Student loans	375965	0	0.086
Gambling	375965	0	0.149
Tax liabilities	375965	0	0.210
Loans to friends	375965	0	0.115
Bad/poor investments	375965	0	0.129
Garnishee	375965	0	0.119
Legal action	375965	0	0.120
Moving/relocation	375965	0	0.133
Substance abuse	375965	0	0.135
Supporting relatives	375965	0	0.221

Note: Data descriptions and sources are in Table A1.

Table 2. Correlations Between Closest_Distance and Observable Controls

Independent Variables	Correlation with Closest_Distance
Age	-0.0087
Self-employment	-0.0263
Numerical literacy	-0.0748
Population density	-0.0993
Past neighborhood bankruptcies	0.0554
Household size	0.0502
Average income	-0.0271
Change in income	0.0843
Divorce	-0.0268
Prior defaults	-0.0324
Marital breakdown	0.0036
Unemployment	0.0084
Insufficient income	-0.0516
Business failure	-0.0016
Health concerns	-0.0041
Accidents/emergencies	-0.0081
Overuse of credit	0.0192
Student loans	0.0087
Gambling	-0.0184
Tax liabilities	-0.0153
Loans to friends	-0.0017
Bad/poor investments	-0.0132
Garnishee	-0.0115
Legal action	-0.0064
Moving/relocation	0.0063
Substance abuse	-0.0015
Supporting relatives	-0.0055

Notes: This table shows that our instrument, Closest_Distance, is not correlated with observable neighborhood characteristics that we use as controls in our regressions. This supports our argument that Closest_Distance is not affected by trustee and filer's neighborhood selection, and it is exogenous with respect to a bankruptcy filing decision.

Table 3.

Intensive Margins:

Effect of Bankruptcy Trustees' Proximity on Financial Benefits of Bankruptcy

	OLS		Closest_Distance as IV	
Whole sample	0.02167***	(0.00281)	0.13511***	(0.01833)
Car	0.01607***	(0.00253)	0.08732***	(0.01623)
No car	0.02422***	(0.00348)	0.13445***	(0.02424)
No wage	0.02453***	(0.00389)	0.12733***	(0.01722)
Wage	0.01874***	(0.00265)	0.14049***	(0.02113)
No wage, car	0.01669***	(0.00418)	0.07238***	(0.01784)
Wage and car	0.01535***	(0.00274)	0.09656***	(0.01920)
No wage, no car	0.02980***	(0.00429)	0.12315***	(0.02339)
Wage, no car	0.01913***	(0.00402)	0.14608***	(0.02867)

Notes: These tests examine the hypothesis that, for those individuals who do file, an increase in distance costs causes an increase in the financial benefits of bankruptcy required. Each cell reports results from a separate regression. We report the coefficient of the log of 1+ filer-selected trustee distance (km) on the log of financial benefits of bankruptcy ($). We use specifications with trustee and area (CSD) fixed effects to account for unobserved heterogeneity among the trustees and trustee location choice. Control variables as described in the text are included but not reported. Standard errors are clustered at the CSD level and reported in parentheses. *** denotes significance at 1%, ** denotes significance at 5%, and * denotes significance at 10%. OLS = ordinary least squares, IV = instrumental variables, and CSD = census subdivision.

Table 4. First-Stage Coefficients and IV Diagnostics for the Whole Sample IV Specification

	IV = Closest Distance Whole Sample		IV = Closest Distance Car		IV = Closest Distance No Car		IV = Closest distance No Wage	
Independent Variables	**First Stage**	**Second Stage**	**First Stage**	**Second Stage**	**First Stage**	**Second Stage**	**First Stage**	**Second Stage**
Log of distance to closest trustee	0.37849***		0.36737***		0.39093***		0.36559***	
	(0.03232)		(0.03311)		(0.03139)		(0.03304)	
Log of distance to trustee		0.13511***		0.08732***		0.13445***		0.12733***
		(0.01833)		(0.01623)		(0.02424)		(0.01722)
Observations	372,463	372,463	233,197	233,197	138,969	138,969	154,646	154,646
R-squared	0.41520	0.14882	0.42088	0.14743	0.41495	0.16644	0.39752	0.16451
Cragg-Donald Wald F statistic		15028		8892		5844		5809
Kleibergen-Paap Wald rk F statistic		137.2		123.1		155.1		122.4
Anderson-Rubin Wald test F		119.1		46.11		47.32		77.87
p-value		0		0		0		0
Stock-Wright LM S statistic		33.41		28.85		25.07		29.06
p-value		0		0		0		0
Control variables	Y	Y	Y	Y	Y	Y	Y	Y
Trustee FE	Y	Y	Y	Y	Y	Y	Y	Y
Area (CSD) FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Robust SE	Y	Y	Y	Y	Y	Y	Y	Y

Note: Robust standard errors are in parentheses; *** p<0.01, ** p<0.05, * p<0.1.
OLS = ordinary least squares, IV = instrumental variables, FE = fixed effects, and CSD = census subdivision.

Table 4. First-Stage Coefficients and IV Diagnostics for the Whole Sample IV Specification (*continued*)

	IV = Closest Distance Wage		IV = Closest Distance No Wage, Car		IV = Closest Distance Wage and Car		IV = Closest Distance No Wage, No Car	
Independent Variables	**First Stage**	**Second Stage**	**First Stage**	**Second Stage**	**First Stage**	**Second Stage**	**First Stage**	**Second Stage**
Log of distance to closest trustee	0.38728***		0.35163***		0.37684***		0.37924***	
	(0.03222)		(0.03324)		(0.03329)		(0.03340)	
Log of distance to trustee		0.14049***		0.07238***		0.09656***		0.12315***
		(0.02113)		(0.01784)		(0.01920)		(0.02339)
Observations	217,597	217,597	87,075	87,075	145,851	145,851	67,112	67,112
R-squared	0.43117	0.14749	0.40329	0.15881	0.43570	0.14678	0.40121	0.18123
Cragg-Donald Wald F statistic		9182		2998		5863		2686
Kleibergen-Paap Wald rk F statistic		144.5		111.9		128.2		128.9
Anderson-Rubin Wald test F		91.75		17.70		41.21		36.36
p-value		0		0		0		0
Stock-Wright LM S statistic		29.96		15.32		24.91		22.25
p-value		0		0		0		0
Control variables	Y	Y	Y	Y	Y	Y	Y	Y
Trustee FE	Y	Y	Y	Y	Y	Y	Y	Y
Area (CSD) FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Robust SE	Y	Y	Y	Y	Y	Y	Y	Y

Note: Robust standard errors are in parentheses; *** p<0.01, ** p<0.05, * p<0.1.
OLS = ordinary least squares, IV = instrumental variables, FE = fixed effects, and CSD = census subdivision.

Table 4. First-Stage Coefficients and IV Diagnostics for the Whole Sample IV Specification (*continued*)

	IV = Closest Distance Wage, No Car	
Independent Variables	**First Stage**	**Second Stage**
Log of distance to closest trustee	0.40169***	
	(0.03077)	
Log of actual distance		0.14608***
		(0.02867)
Observations	71,265	71,265
R-squared	0.43595	0.16478
Cragg-Donald Wald F statistic		3109
Kleibergen-Paap Wald rk F statistic		170.4
Anderson-Rubin Wald test F		37.94
p-value		0
Stock-Wright LM S statistic		21.06
p-value		0
Control variables	Y	Y
Trustee FE	Y	Y
Area (CSD) FE	Y	Y
Monthly and Year FE	Y	Y
Robust SE	Y	Y

Note: Robust standard errors are in parentheses; *** p<0.01, ** p<0.05, * p<0.1.
OLS = ordinary least squares, IV = instrumental variables, FE = fixed effects, and CSD = census subdivision.

Table 5.

Intensive Margins: (Closest_Distance as an Instrument for Selected_Distance)
Effect of Bankruptcy Trustees' Proximity on Financial Benefits of Bankruptcy

	Distance Less Than 200 km		2007–2010 Sample	
Whole sample	0.12773***	(0.01718)	0.13408***	(0.01800)
Car	0.08517***	(0.01486)	0.09105***	(0.01646)
No car	0.12565***	(0.02406)	0.12839***	(0.02446)
No wage	0.12347***	(0.01671)	0.13030***	(0.01903)
Wage	0.13108***	(0.01953)	0.13625***	(0.02024)
No wage, car	0.08169***	(0.01703)	0.08237***	(0.02084)
Wage and car	0.08687***	(0.01691)	0.09595***	(0.01866)
No wage, no car	0.11032***	(0.02374)	0.11954***	(0.02459)
Wage, no car	0.14293***	(0.02846)	0.13704***	(0.02927)

Notes: These tests examine the hypothesis that, for those individuals who do file, an increase in distance costs causes an increase in the financial benefits of bankruptcy required. Each cell report results from a separate regression. We report the coefficient of the log of 1 + filer-selected trustee distance (km) on the log of financial benefits of bankruptcy ($). We use instruments to account for the endogeneity of distance between filer and trustee. The instrument we use is the distance to the nearest trustee (Closest_Distance). Control variables as described in the text are included but not reported. Full results for these regressions are presented in the Appendix. Standard errors are clustered at the CSD level and reported in parentheses; *** denotes significance at 1%, ** denotes significance at 5%, and * denotes significance at 10%. CSD = census subdivision.

Table 6.

Intensive Margins: (Closest_Distance as an Instrument for Selected_Distance)

Effect of Bankruptcy Trustees' Proximity on Financial Benefits of Bankruptcy

	Nonmoving Trustees		**One-Office Trustees**	
Whole sample	0.13458***	(0.01914)	0.13438***	(0.02396)
Car	0.08764***	(0.01631)	0.08023***	(0.02135)
No car	0.13074***	(0.02610)	0.13292***	(0.03011)
No wage	0.12680***	(0.01884)	0.12406***	(0.02301)
Wage	0.14070***	(0.02149)	0.14019***	(0.02823)
No wage, car	0.07026***	(0.01861)	0.06770***	(0.02307)
Wage and car	0.10025***	(0.01966)	0.08721***	(0.02630)
No wage, no car	0.12318***	(0.02753)	0.12002***	(0.03064)
Wage, no car	0.14020***	(0.03013)	0.14727***	(0.03767)

Notes: These tests examine the hypothesis that, for those individuals who do file, an increase in distance costs causes an increase in the financial benefits of bankruptcy required. Each cell report results from a separate regression. We report the coefficient of the log of 1 + filer-selected trustee distance (km) on the log of financial benefits of bankruptcy ($). We use instruments to account for the endogeneity of the distance between filer and trustee. The instrument we use is the distance to the nearest trustee (Closest_Distance). Control variables as described in the text are included but not reported. Full results for these regressions are presented in the Appendix. Standard errors are clustered at the CSD level and reported in parentheses; *** denotes significance at 1%, ** denotes significance at 5%, and * denotes significance at 10%. CSD = census subdivision.

Table 7.
Summary Statistics: Extensive Margin Tests for Bankruptcy Counts per DA (2005–2010)

Variable	Obs.	Median	SD
Consumer bankruptcy (DA) per 1,000 population	230933	2.04	3.871
Log of 1 + closest trustee-debtor distance (km)	230933	1.277	1.23
Numerical literacy (DA) (score between 100 and 500)	230933	268.4	13.8
Average personal income (DA) ($)	230933	32510	18413
Males (DA) (proportion)	230933	0.491	0.032
Past neighborhood bankruptcies (DA) (count)	230933	1	5.04
Age 40–64 (DA) (proportion)	230933	0.363	0.062
Age over 65 (DA) (proportion)	230933	0.12	0.092
Homeowners (DA) (proportion)	230933	0.811	0.268
Divorced (DA) (proportion)	230933	0.075	0.036
High school (DA) (proportion)	230933	0.233	0.079
Apprenticeship (DA) (proportion)	230933	0.107	0.067
College (DA) (proportion)	230933	0.182	0.073
University (DA) (proportion)	230933	0.16	0.107
Graduate (DA) (proportion)	230933	0.055	0.079
Population density (DA) (persons per sq km)	230933	3896.9	6482.5

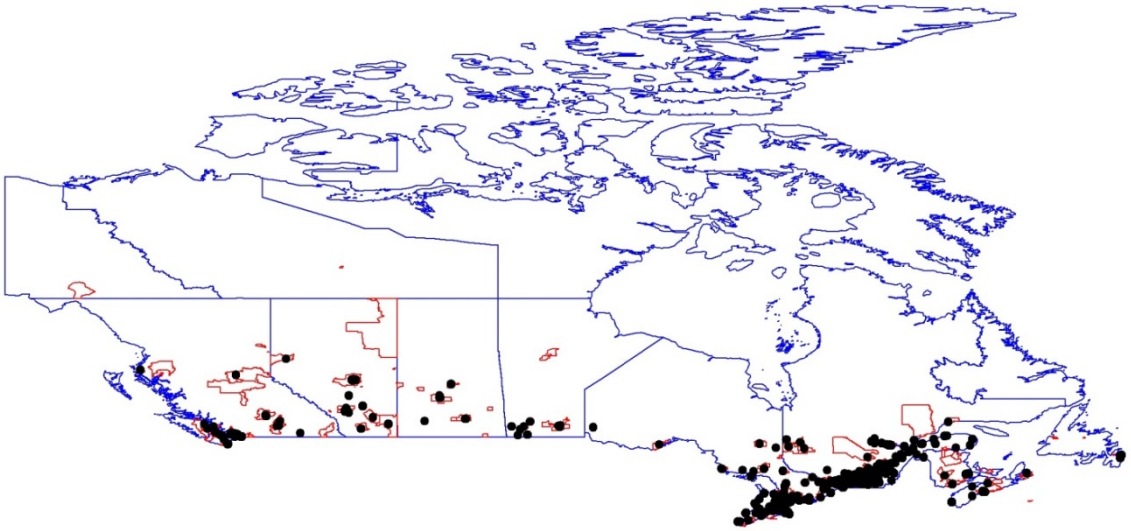
Note: Data descriptions and sources are available in Table A1. DA = dissemination area.

Table 8.
Extensive Margins: The Effect of Distance on the Counts of Bankruptcies per DA

	(1)	(2)	(3)
Dependent variable	Bankruptcies per 1,000	Bankruptcies per 1,000	Bankruptcies per 1,000
Effect of ln(distance)	-0.09677***	-0.05301*	-0.07943**
	(0.01745)	(0.02886)	(0.03347)
Trustee fixed effects	Y	N	Y
Area (CSD) fixed effects	N	Y	Y

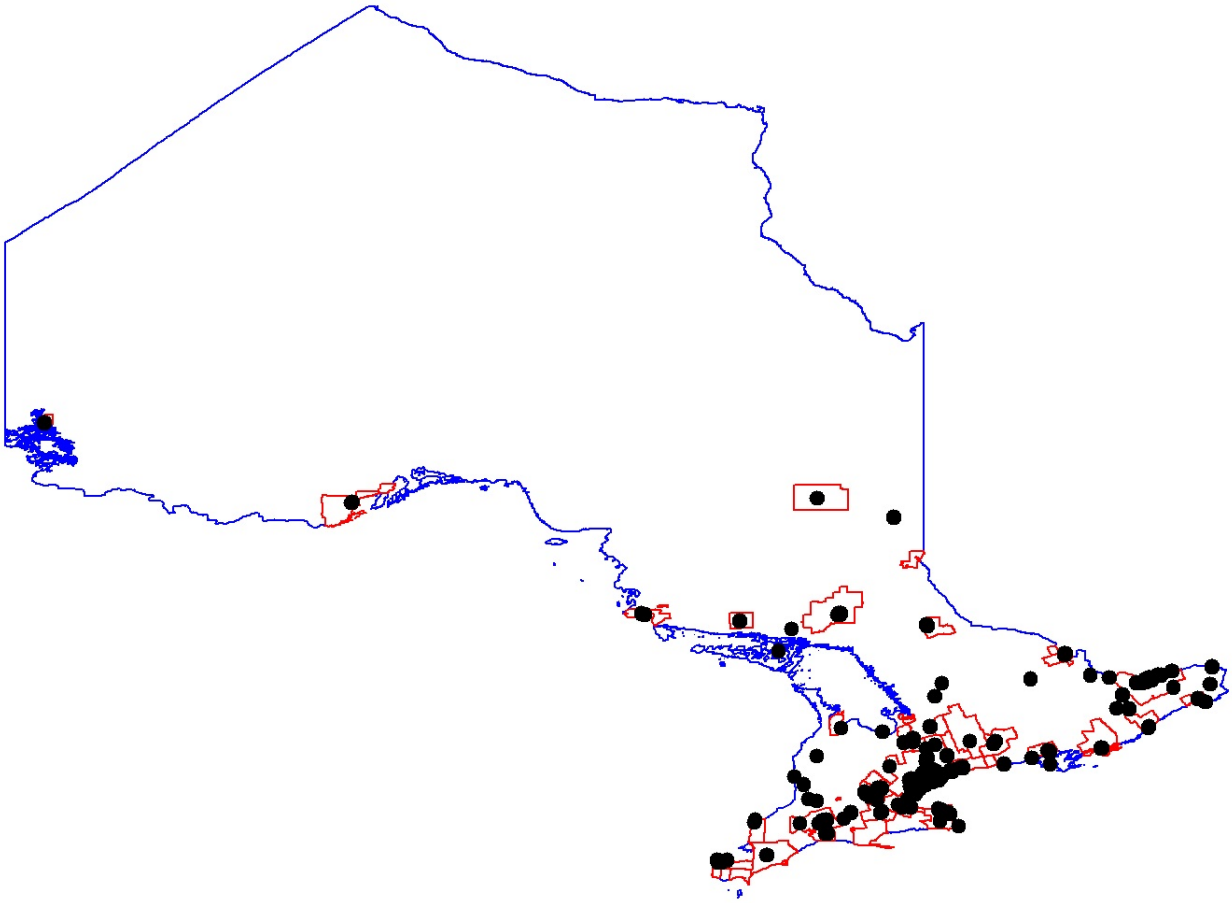
Notes: These tests examine the hypothesis that filer-trustee distance decreases the number of bankruptcy filings. Each cell represents one OLS regression model with only the coefficient on the log of 1+ closest trustee distance (km) reported. Control variables as described in the text are included but not reported. Standard errors are clustered at the DA level and reported in parentheses; *** denotes significance at 1%, ** denotes significance at 5%, and * denotes significance at 10%. OLS = ordinary least squares, CSD = census subdivision, and DA = dissemination area.

Figure 1. The Distribution of Bankruptcy Trustees in Canada



Notes: Black dots denote trustees' locations, blue lines represent provincial boundaries, and red lines show census metropolitan areas and census agglomerations as defined by Statistics Canada in the 2006 census; maps are from Statistics Canada.

Figure 2. The Distribution of Bankruptcy Trustees in Ontario



Notes: Black dots denote trustees' locations, blue lines represent provincial boundaries, and red lines show census metropolitan areas and census agglomerations as defined by Statistics Canada in the 2006 census; maps are from Statistics Canada.

Data Appendix

While our main variables are described in the text, this Appendix describes our various control variables. Table A1 describes the various variables we use, including units and data sources.

Most of our individual-level demographic controls (age, household size, marital status) are taken from data provided by filers to the Office of the Superintendent of Bankruptcy (OSB). A unique element of our OSB data on individual bankruptcy filings is that the data include the full textual answer to this open-ended question posed on the bankruptcy filing form: "*Give reasons for your financial difficulties"* (OSB Form 79, Question 14). Using textual analysis software, these open-ended answers are coded into the 17 categories described in Table A1. Individual filers can have multiple codes if they provide multiple reasons for their financial distress. All of these 17 different reasons are included as dummy variables in our specifications. We also control for past neighborhood bankruptcies using measures of all past bankruptcies in every dissemination area (DA) in our sample. To this end, we take counts of bankruptcies in the 2000–2004 period (i.e., bankruptcies before the start of our sample).

To capture neighborhood income, we use 2006 census data on average personal incomes at the DA level. In addition, we also control for shocks to income using changes to annual personal disposable income at the provincial level, obtained from Statistics Canada. A large number of other DA-level demographic data (age, education, gender, etc.) is described in Table 7. We also control for a neighborhood's level of financial literacy (see, e.g., Lusardi, 2012) using data provided to us by Murray (2011). Numerical literacy measures for each DA are imputed from the 2003 International Adult Literacy and Skills Survey and the 2006 census.

Table A1. Variables, Levels of Aggregation, and Data Sources

Variables	Aggregation	Measurement	# of Units	Data Source
Actual trustee-filer distance	Individual	km	382,285	Office of the
Closest trustee-filer distance		km		Superintendent
Employment status		0 or 1		of Bankruptcy (OSB),
Financial benefits of bankruptcy		dollars		authors' calculations
Age of filer		years		
Dummy for car ownership		0 or 1		
Dummy for self-employment		0 or 1		
Marital status: divorced dummy		0 or 1		
Household size		persons		
Prior defaults		0 or 1		
Marital breakdown	Individual	0 or 1	382,285	Reasons for financial
Unemployment		0 or 1		difficulties as recorded
Insufficient income		0 or 1		by the OSB in
Business failure		0 or 1		bankruptcy petitions
Health concerns		0 or 1		
Accidents/emergencies		0 or 1		
Overuse of credit		0 or 1		
Student loans		0 or 1		
Gambling		0 or 1		
Tax liabilities		0 or 1		
Loans to friends		0 or 1		
Bad/poor investments		0 or 1		
Garnishee		0 or 1		
Legal action		0 or 1		
Moving/relocation		0 or 1		
Substance abuse		0 or 1		
Supporting relatives		0 or 1		
Bankruptcy exemptions	individual	dollars		BankruptcyCanada.com
Numerical literacy	dissemination areas (DAs)	score between 100 and 500	54,626	Murray (2011)
Past neighborhood bankruptcies (in 2000–2004)	dissemination areas (DAs)	0 or 1	54,626	OSB
Population density	DAs	persons/sq. km.	54,626	2006 Canada Census
Average income	DAs	dollars	54,626	
Change in income (provincial)	Province	percent	10	

Note: The numbers of units are as reported by Statistics Canada. OSB = Office of the Superintendent of Bankruptcy Canada, DA = dissemination area.