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“Electing into a Value-Added Tax:  
Survey Evidence from Ontario Micro-Entrepreneurs”

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Vanderbilt Hall – 208

Time: 4:00 – 5:50 p.m.

Week 12

# **SCHEDULE FOR 2018 NYU TAX POLICY COLLOQUIUM**

(All sessions meet from 4:00-5:50 pm in Vanderbilt 208, NYU Law School)

1. Tuesday, January 16 – Greg Leiserson, Washington Center for Equitable Growth. “Removing the Free Lunch from Dynamic Scores: Reconciling the Scoring Perspective with the Optimal Tax Perspective.”
2. Tuesday, January 23 – Peter Dietsch, University of Montreal Philosophy Department. “Tax Competition and Global Background Justice.”
3. Tuesday, January 30 – Andrew Hayashi, University of Virginia Law School. “Countercyclical Tax Bases.”
4. Tuesday, February 6 – Gerald Auten, U.S. Treasury Department. “Income Inequality in the United States: Using Tax Data to Measure Long-Term Trends.”
5. Tuesday, February 13 – Vanessa Williamson, Brookings Institution. “How the Taxpaying Experience Obscures Low-Income Taxpayers and Shapes Attitudes about Progressivity”
6. Tuesday, February 27 – Jacob Goldin, Stanford Law School. “Tax Benefit Complexity and Take-up: Lessons from the Earned Income Tax Credit”
7. Tuesday, March 6 – Lisa Philipps, Osgoode Hall Law School. “Gendering the Analysis of Tax Expenditures.”
8. Tuesday, March 20 – Lisa De Simone, Stanford Graduate School of Business. “Repatriation Taxes and Foreign Cash Holdings: The Impact of Anticipated Tax Reform”
9. Tuesday, March 27 – Damon Jones, University of Chicago Harris School of Public Policy. “How Do Distributions from Retirement Accounts Respond to Early Withdrawal Penalties? Evidence from Administrative Tax Returns.”
10. Tuesday, April 3 – Ajay Mehrotra, American Bar Foundation and Northwestern University School of Law. “T.S. Adams and the Beginning of the Value-Added Tax.”
11. Tuesday, April 10 – Jason Furman, Harvard Kennedy School. “Should Policymakers Care Whether Inequality Is Helpful or Harmful For Growth?”
12. Tuesday, April 17 – Emily Satterthwaite, University of Toronto Law School. “Electing into a Value-Added Tax: Survey Evidence from Ontario Micro-Entrepreneurs.”
13. Tuesday, April 24 – Wolfgang Schon, Max Planck Institute. “Taxation and Democracy.”
14. Tuesday, May 1 – Mitchell Kane, NYU Law School. "Collecting the Rent: The Global Battle to Capture MNE Profits"

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ELECTING INTO A VALUE-ADDED TAX:  
SURVEY EVIDENCE FROM ONTARIO MICROENTREPRENEURS

*Emily Ann Satterthwaite\**

*Abstract.* Why would an entrepreneur elect, on behalf of her business, to pay a tax that is not required? A little-studied provision embedded in the majority of value-added tax statutes (VATs) worldwide permits otherwise-exempt “small suppliers” (typically defined as businesses with annual revenues less than a specified registration threshold) to voluntarily register for, collect, and remit VAT on their sales to customers. Due to the input-credit mechanism that refunds registered sellers for the VAT they pay on inputs, entrepreneurs’ incentives to voluntarily register for VAT increase as they (1) purchase more of their inputs from registered firms (the input channel) or (2) sell more of their output to registered firms (the customer channel). According to established economic theories of the VAT, such “formality chain effects” unambiguously improve the efficiency and self-enforcing properties of a VAT. In the real world, however, many VATs’ registration thresholds are far lower in nominal terms than recommended by economists. Low VAT thresholds imply that only the smallest businesses, which often bear disproportionately high VAT compliance costs, are eligible to opt in. Yet the relevant literature both in tax law and public economics is silent on whether formality chain effects are effective with respect to the key taxpayer population in low-threshold settings: microentrepreneurs. To address this question, the paper presents results from a survey of nearly one hundred Ontario-based small suppliers (defined, under Canada’s federal Goods and Services Tax statute, as businesses with annual revenues less than CAD \$30,000). Within this sample, small suppliers’ decisions to voluntarily register were broadly consistent with the presence of customer channel formality chain effects. However, patterns consistent with the input channel were absent, and qualitative responses suggested that perceptions of high compliance costs were *ex ante* deterrents to claiming cash refunds for input credits. For policymakers, these findings offer new support for providing VAT registration choices to the smallest businesses. They also suggest that means-tested subsidies to defray the initial fixed costs of VAT registration may help promote the positive spillovers of chain effects in low-threshold settings.

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## INTRODUCTION

Three-quarters of the world's population live in jurisdictions in which value-added taxes (VATs) are collected on sales of goods and services.<sup>1</sup> VATs account for more than twenty percent of worldwide tax revenues, and the rise of the VAT has not been limited to developed countries: the role of the VAT in developing and transitional nations is equally, if not more, pronounced than in developed countries.<sup>2</sup> The United States is the only Organization for Economic Cooperation and Development (OECD) member without a VAT.<sup>3</sup>

Despite its broad geographical reach, fiscal importance, and the longstanding design maxim that “[a]ny exemption is anathema to the logic of the VAT,”<sup>4</sup> real-world VAT statutes take a surprisingly hands-off approach to an economically and socially important sector: small businesses.<sup>5</sup> Exemptions from the obligation to register for, collect, and pay VAT for “small suppliers” are nearly universal.<sup>6</sup> They exist because, as Kathryn

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<sup>1</sup> See KATHRYN JAMES, *THE RISE OF THE VALUE-ADDED TAX* (2015), 1-3 (citations omitted).

<sup>2</sup> See Sharon Smulders and Chris Evans, *Mitigating VAT compliance costs – a developing country perspective*, 32 *AUSTRALIAN TAX FORUM* 283 (2017), at 285 (“[t]he remarkable spread of the VAT in developed countries has been more than matched by its spread to countries in the transitional and developing world;” recent research tallies the count at “121 developing countries [that] have now adopted VAT” systems”).

<sup>3</sup> See ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT, *REVENUE STATISTICS 1965–2014* (2015), 29, Table C. Many transitional and developing countries rely on VAT for a greater proportion of government revenues than in developed countries (for instance, Canada draws about 20 percent of its government revenues from the VAT while Brazil raises over 50 percent of revenue from the VAT). In relation to the U.S. tax landscape, the VAT can be seen as a cousin of retail sales taxes levied by many state governments. See ALAN SCHENK, VICTOR THURONYI, & WEI CUI, *VALUE ADDED TAX: A COMPARATIVE APPROACH* 22-23 (2015) (contrasting a single-stage tax such as retail sales taxes in many U.S. states to a VAT, describing it as “[t]he modern sales tax imposed at all levels of production and distribution”).

<sup>4</sup> See IAN CRAWFORD, MICHAEL KEEN AND STEPHEN SMITH, *VALUE ADDED TAX AND EXCISES*, MIRRLEES REPORT 305 (2010). In general, exemptions are suspect because they provide opportunities for avoidance and increase complexity not just for taxpayers and administrators but also for adjudicators seeking to interpret the scope of the exemption. At the same time, exemptions necessitate higher (and thus more distortionary) taxes on the non-exempt tax base to raise the required amount of revenue.

<sup>5</sup> *Id.* at 297-8; see also James, *supra* note 1 at 57.

<sup>6</sup> See LIAM EBRILL, MICHAEL KEEN, JEAN-PAUL BODIN, AND VICTORIA SUMMERS, *THE MODERN VAT*. Washington, D.C.: International Monetary Fund (2001) (noting that a “critical decision in designing a VAT is the threshold level of firm size above which registration for the tax is compulsory”); see also (surveying 2016 OECD and EU thresholds; out of a sample of 45 only five—Chile, Mexico, Spain, Sweden and Turkey—have thresholds of \$0).

James puts it in her recent book, “simplicity is not...[the] VAT’s greatest virtue.”<sup>7</sup> Small supplier exemptions respond to a common challenge among VAT systems around the world: the costs of registering for and complying with a VAT are “always and everywhere...more burdensome for smaller firms.”<sup>8</sup> And because the smallest firms produce little if any VAT revenue net of government administration costs, exempting small suppliers are an easier sell to taxing authorities than other carve-outs from the consumption tax base.<sup>9</sup> Moreover, because “input-credit”-style (or invoice-credit) VATs give registered sellers a refundable credit for any VAT that they paid on inputs, the goods and services sold by “exempt” small suppliers are not truly exempt. Embedded in their cost is any non-refunded VAT paid by the small supplier on her inputs.

Small supplier exemptions are typically characterized by two core structural features. First, the scope of the exemption is determined by a registration threshold.<sup>10</sup> Most registration thresholds are expressed in terms of annual revenues, and provide that firms with revenues below the threshold are presumptively exempt.<sup>11</sup> The second

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<sup>7</sup> See James, *supra* note 1, at 31.

<sup>8</sup> See RICHARD BIRD AND PIERRE-PASCAL GENDRON, *THE VAT IN DEVELOPING AND TRANSITIONAL COUNTRIES* 120 (2007). For two recent review articles on the regressivity of VAT compliance costs, see LUCA BARBONE, RICHARD M. BIRD AND JAIME VAZQUEZ-CARO, *THE COSTS OF VAT: A REVIEW OF THE LITERATURE*, CASE NETWORK REPORTS NO. 106/2012 and Chris Evans, *Taxation compliance and administrative costs: an overview*, in MICHAEL LANG, C. OBERMAIR, J. SCHUCH, C. STARINGER AND P. WENINGER, LUCA BARBONE, eds., *TAX COMPLIANCE COSTS FOR COMPANIES IN AN ENLARGED EUROPEAN COMMUNITY* (2008), at 458. See also Smulders and Evans, *supra* note 2, at 283-4, 288 and 307 (noting “[VAT compliance] costs are also high and significant, as well as severely regressive — even more so than for other business taxes,” and elaborating that “[i]t is not just the frequency of reporting and payment that contributes to VAT compliance costs. The length of a VAT return and the amount of information requested by a revenue authority in respect of VAT can also have a significant impact on the compliance costs of taxpayers”).

<sup>9</sup> See Ebrill et al., *supra* note 6, at 117 (noting it is a “crucial empirical regularity” [that] “the size distribution of enterprises is typically such that a relatively small proportion of firms account for a large proportion of potential VAT revenue. Deploying scarce administrative resources so as to raise revenue most effectively thus calls, it is argued, for a concentration of those resources on the largest taxpayers; the revenue to be raised from the smaller firms is seen as insufficient to warrant the resources required for its collection”).

<sup>10</sup> *Id.*, at 113 (“[e]xperience has taught, sometimes harshly, that a critical decision in designing a VAT is the threshold level of firm size above which registration for the tax is compulsory”).

<sup>11</sup> There is variation in the design of registration thresholds, but nearly all refer to a firm’s quarterly or annual revenue. For example, Israel’s VAT requires registration for all firms but exempts the small from actually collecting and remitting tax. MOSHE SHEKEL AND MOTI EILON, *ISRAEL VAT NAVIGATOR: INTERNATIONAL INFORMATION FOR INTERNATIONAL BUSINESS* (Bloomberg BNA), July 2014, available at [http://www.shekel-tax.co.il/he/images/stories/site/VATN0714\\_israel\\_corrected\\_04.09.14.pdf](http://www.shekel-tax.co.il/he/images/stories/site/VATN0714_israel_corrected_04.09.14.pdf).

feature is the focus of this paper, and at first glance presents a puzzle: small suppliers are typically offered an election to voluntarily register for VAT.<sup>12</sup>

Why might a small business's owner-entrepreneur choose to opt into a tax from which she is presumptively exempt? Absent a startling level of fiscal patriotism, it seems unlikely that a business—especially a small one—would voluntarily take on the burden of registering for and collecting a significant tax. However, due to the input-credit mechanism of refunding registered sellers for the VAT they must pay on their inputs, theoretical models of VAT compliance predict that registration will be advantageous for a small business when it seeks to enter a supply chain with VAT-registered firms.<sup>13</sup> In particular, a small supplier is predicted to voluntarily register under either or both of two circumstances: (1) where it buys its inputs from registered suppliers (as opposed to buying the inputs from informal, VAT-unregistered suppliers) (the “input channel”) and (2) where it sells its outputs in a business-to-business (“B2B”) capacity to VAT-registered customers (the “customer channel”).<sup>14</sup> Where a small supplier is in the middle of, or seeks to join, this type of “formal” (VAT-registered) supply chain, its incentives for voluntary registration will be strongest.

Voluntary registration occurring through either or both of these channels has been referred to as a “formality chain effect,” and has been heralded as imparting important policy advantages.<sup>15</sup> First, formality chain effects are cited as one of the ways in which a VAT can be “self-enforcing:” the profit incentive to join a supply chain with formal firms propels firms to voluntarily register, not state-funded legal coercion such as audits or other costly sanctions.<sup>16</sup> Second, formality chain effects can improve the production

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<sup>12</sup> See Smulders and Evans, *supra* note 2, at 295 (“while not being in the VAT regime might sound attractive, the choice is not always obvious, as there can be benefits of VAT registration...virtually all countries with thresholds allow small businesses to register for the VAT if they so choose”).

<sup>13</sup> See Li Liu and Ben Lockwood, *VAT Notches*, working paper, May 31, 2015, at 3 [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2615702](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2615702) (“[w]...show that voluntary registration by a firm is more likely when either (i) the cost of inputs relative to sales is high, or (ii) when the proportion of B2C sales by the firm is low. The intuition for (ii) is simply that if most customers are VAT-registered, the burden of an increase in VAT can easily be passed on in the form of a higher price, because the customer itself can claim back the increase. The intuition for (i) is that when input costs are important, registration allows the firm to claim back a considerable amount of input VAT”).

<sup>14</sup> *Id.*, at 12-14.

<sup>15</sup> See Aureo de Paula and Jose A. Scheinkman, *Value-Added Taxes Chain effects and Informality*, 2 *AMER. ECON. J: MACROECONOMICS* 195-221 (Oct. 2010), at 196 (testing chain effect theory using data from firms in Brazil and finding that the credit system is correlated with chains whereas the effect vanishes for firms subject to the estimated tax withholding system without the feature of input tax credits).

<sup>16</sup> See Michael Keen and Stephen Smith, *VAT Fraud and Evasion: What Do We Know and What Can Be Done?* *NATIONAL TAX JOURNAL*, Vol. LIX, No. 4 (December 2006), 865

efficiency of the VAT.<sup>17</sup> Goods or services sold by firms that voluntarily register no longer get “stuck” with part or all of the embedded cost of non-refundable VAT paid on inputs.<sup>18</sup> Input tax stickiness can create incentives to self-supply inputs rather than purchasing them at arms-length, and can also distort prices of outputs by creating a “tax cascade.”<sup>19</sup> Formality chain effects stemming from voluntary registration can limit these downsides.<sup>20</sup> Finally, formality chain effects also eliminate the incentive for firms to manipulate their size to remain just below the registration threshold.<sup>21</sup> This can occur when an entrepreneur curtails sales to stay artificially small, splits one firm into two or more firms, or keeps some revenues out of sight of the tax authorities, all of which have deleterious efficiency implications.<sup>22</sup> Such margin for distortion created by a bright-line size-based threshold has been established as economically significant by a growing body of empirical VAT research.<sup>23</sup>

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(presenting the case for self-enforcement but also pointing out its weaknesses: there may be an incentive to register but no incentive for VAT to actually be paid; sellers to final consumers continue to have incentive to sell without tax). See also Crawford et al., *supra* note 4, at 296 (“traders selling to other businesses may indeed wish to register to charge the VT even if their annual turnover is below the threshold at which VAT registration is mandatory”).

<sup>17</sup> See Keen and Smith, *supra* note 16, at 865. (“arrangements for such voluntary registration are a key part of any well-designed VAT”).

<sup>18</sup> *Id.* at 863 (“[e]xemption in contrast means that no tax is due on output, nor is a credit available for input VAT. Thus, the VAT ‘sticks’ on business purchases; the Australian term ‘input-taxed’ is more evocative”).

<sup>19</sup> See Crawford et al., *supra* note 4, at 295 (“[a] tax cascade occurs when the VAT taxes intermediate transactions, which “runs foul of the presumption for production efficiency created by the Diamond-Mirrlees theorem”); See ALAN SCHENK AND OLIVER OLDMAN, *VALUE ADDED TAX: A COMPARATIVE APPROACH IN THEORY AND PRACTICE* 4-5 (2001) (on tax cascades).

<sup>20</sup> See Crawford et al., *supra* note 4, at 293.

<sup>21</sup> See Michael Keen and Jack Mintz, The optimal threshold for a value-added tax, *J. OF PUB. ECON.* 88 (2004) 567-583 (offering two models of optimal threshold-setting, one of which is a general equilibrium model that allows firm size to be endogenously determined by the threshold, finding in simulations that losses from firm-size distortions are significant).

<sup>22</sup> See Kazuki Onji, The response of firms to eligibility thresholds: Evidence from the Japanese value-added tax, 93 *J. OF PUBLIC ECON.* 766-75, 767 (2009) (describing “bunching” as relating to the densities of firms around the VAT registration threshold).

<sup>23</sup> Research on the Japanese and, more recently, the UK and Finnish VATs has found strong firm-size responses to VAT thresholds, with substantial efficiency consequences. *Id.* at 767 (finding bunching of firms below the eligibility threshold in Japan in a manner consistent with large firms “masquerading” as smaller firms through changes in organizational structures). See *id.*; see also Li and Lockwood, *supra* note 13 at 3 (documenting bunching in the context of the UK VAT) and Jarkko Harju, Tuomas Matikka and Timo Rauhanen, *The Effect of VAT Threshold on the Behavior of Small Businesses: Evidence and Implications*, CESinfo Working Paper, March 30, 2015, 1, 10 (using data on the VAT in Finland and finding that there are “notable efficiency implications” for firms that “bunch actively just below the [registration] threshold”).



At the same time that formality chain effects have firmly established themselves in the theoretical VAT literature, the impact of the tax system—VAT and otherwise—on small businesses has “become a matter of increasing interest in many countries.”<sup>24</sup> And although VAT experts have stated that policies affecting firms with revenues below registration thresholds “deserve closer attention,”<sup>25</sup> research on this sector remains scarce.<sup>26</sup>

Accordingly, this paper uses survey research methods to investigate the formality chain effect theory in the context of a low VAT registration threshold. Under Canada’s federal VAT, called the Goods and Services Tax (“GST”), registration is mandatory for firms with annual revenues exceeding CAD \$30,000 (about US \$23,000).<sup>27</sup> The threshold has not been changed since the GST was introduced in 1991, and is widely considered by VAT economists to be a fraction of the efficiency-maximizing level.<sup>28</sup> However, Canada is not alone in having a low registration threshold.<sup>29</sup> Registration thresholds vary widely across countries but—particularly where statutes do not index their levels to inflation—they often skew lower than the leading economic model, published in 2004 by Michael Keen and Jack Mintz, models as optimal from an efficiency perspective.<sup>30</sup>

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<sup>24</sup> See Richard M. Bird, *Commentary on Value-Added Tax and Excises*, Mirrlees Report 367 (2010). See also Michael Smart, *Departures from Neutrality in Canada’s Goods and Services Tax*, Working Paper (2011), at 19; available at: <http://homes.chass.utoronto.ca/~msmart/smart-GSTbase-oct2011.pdf> (“[e]conomic analysis in this [area] are still quite conjectural and policy recommendations are therefore subject to more qualifications than on other matters... too little is yet known about compliance costs, lost revenues, and the incentives for registration and tax evasion among small traders”).

<sup>25</sup> See Bird, *supra* note 24, at 367.

<sup>26</sup> See Ebrill et al., *supra* note 6, at 124 (“[t]he tax treatment of those below the VAT threshold has received scant attention”); see also Bird and Gendron, *supra* note 8, at 120.

<sup>27</sup> Canada’s Excise Tax Act was amended in 1990 to add Part IX, entitled “Goods and Services Tax,” see also Amending Act 1993, c. 27, s. 23; 1997, c. 10, s. 9 (hereinafter “GST”).

<sup>28</sup> See Keen and Mintz, *supra* note 21, at 569-7; Smart, *supra* note 24, at 19 (“[s]imulations suggest that the threshold should be in the range of \$100,000 or even substantially higher, and that a large proportion of businesses should optimally left unregistered for VAT. This suggests at least a prima facie case for increasing the GST threshold and indexing it to inflation”).

<sup>29</sup> See Bird and Gendron, *supra* note 8, at 116-20 (noting that the “conventional wisdom” that registration thresholds should be set high is “generally ignored” on the ground). See also Smulders and Evans, *supra* note 2, at 293 (“[t]he thresholds for registration for the VAT observed in different countries vary substantially, and this can have a significant impact on the level of compliance costs”).

<sup>30</sup> See Keen and Mintz, *supra* note 21, at 559-586 (offering a model of optimal (efficiency-maximizing) threshold-setting and using Canadian data in simulations of the model arriving at a counter-intuitive conclusion: the optimal VAT registration threshold should generally be

Although low registration thresholds have shown surprising persistence across many VAT jurisdictions,<sup>31</sup> there has been no research to date on how such thresholds (particularly those that are coupled with voluntary registration, as is the norm) operate in practice. Keen and Mintz’s model does not, for tractability, include voluntary registration in its stylized description of the choices facing small firms.<sup>32</sup> A recent paper by Li Liu and Ben Lockwood is the first to formally model the determinants of voluntary registration; however, it tests the model’s predictions using data on firms with annual sales in the vicinity of the UK VAT’s registration threshold, which is particularly high.<sup>33</sup> In studying the voluntary VAT registration experiences of Ontario microentrepreneurs, this paper is the first to shed light on the practical implications of coupling an election with a highly restrictive registration threshold.

Data was gathered using a hybrid (quantitative and semi-structured) survey instrument during the 2016-17 academic year. Nearly 100 small suppliers based in Ontario were surveyed. Participant eligibility was restricted to the primary owners of businesses that had revenues of less than \$30,000 in one of the past three tax years (2016, 2015, or 2014).<sup>34</sup> Moreover, the business owner’s activities had to fall within one of

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higher rather than lower; more rather than fewer firms should be classified as small suppliers and exempted from the VAT).

<sup>31</sup> See Ebrill et al., *supra* note 6, at 117 and 123; Bird & Gendron *Developing*, *supra* note 8, at 120 (“[i]t does not make sense for most countries to apply VAT as widely as their laws require [e.g., to the extent of their low threshold requirements for registration], and it is puzzling that so many developing and transitional countries persist in (nominally) attempting to do so”). See also *id.* at 116 (citing International Tax Dialogue’s 2005 report and noting that “it is a bit puzzling that most developing countries establish and maintain low thresholds for VAT registration, thus encumbering their already overburdened administrations with a large amount of essentially useless work”).

<sup>32</sup> See Keen and Mintz, *supra* note 21, at 574 (noting in conclusion under “other considerations that may arise” that “important interaction effects arise when firms trade with one another...for then a low threshold increases the likelihood that a firm not registered for the VAT—either because it is too small or because it is an outright evader— will find itself selling to registered firms, and so see a commercial advantage in registering (because they can then reclaim the tax paid on their inputs without increasing the net price to their customers (since the latter, being registered, can also reclaim tax on their inputs))”).

<sup>33</sup> See Liu and Lockwood, *supra* note 13, at 20-21. Liu and Lockwood restrict their inquiry to firms with turnover between 10,000 and 200,000 pounds; the average firm in their full dataset had turnover of 73,000 pounds (about \$102,000 US). *Id.* at 22 and 43.

<sup>34</sup> The survey was administered during the 2016-17 academic year using one of two methods: an interview-style survey conducted by a member of the research team, and a web-based survey that asked an identical series of questions using skip logic to mimic the experience of the in-person interview. The web-based analog of the paper survey is available at the following link: <http://www.surveygizmo.com/s3/3183055/Optional-Taxation-A-Study-of-the-GST-HST-Small-Supplier-Election>.

three sectors: artisans/“makers” (typically, producers of bespoke goods including art objects, jewellery, or furniture), farmers, or handy people. As described further in Part II, these sectors were chosen because of their relative likelihood of yielding variation in the strength of input and customer channels, through which chain effects could be explored.<sup>35</sup>

Both the quantitative and the semi-structured parts of the survey were designed to be descriptive and exploratory in nature.<sup>36</sup> The quantitative portions were designed generate sufficient data to comparing the real-world choices of microentrepreneurs to the predictions of the formality chain effect theory. The semi-structured portions were designed to shed light on how participants thought about and acted upon the opportunity to voluntarily register. These design choices are reflected in careful language surrounding the survey’s results. At no point does the paper make any causal claims: it does not *test* the formality chain effect theory and cannot identify the *effect* of firm characteristics on an entrepreneur’s decision to voluntarily register. Nor does it allow competing explanations for this pattern to be rejected.<sup>37</sup> This is, however, a limitation common to existing research on chain effects: Liu and Lockwood’s analysis of the registration choices of the full universe of UK firms is similarly circumspect in its framing.<sup>38</sup>

In awareness of these limitations, the survey was designed to focus on two very specific (null) hypotheses. The first hypothesis is that there is no significant relationship between a firm’s voluntary registration status and its input channel “score” (its purchases of inputs from formal, VAT-registered suppliers as a proportion of aggregate sales). The second hypothesis is that there is no significant relationship between a firm’s voluntary

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<sup>35</sup> For instance, agricultural products are zero-rated (no VAT assessed on sales) but registered sellers can claim input tax credits, so the chain effect theory predicts registration if credits are in excess of compliance costs.

<sup>36</sup> See ROBERT A. STEBBINS, *EXPLORATORY RESEARCH IN THE SOCIAL SCIENCES, QUALITATIVE RESEARCH METHODS* Volume 48 (2001) at 28 (explaining that exploratory research methods can and often do leverage both qualitative and quantitative data, as this study does; noting that “most scholars who routinely explore soon learn from the literature on the subject and their own experience that adjectives such as qualitative and interpretive refer to a methodological approach—to exploration—rather than to the nature of the data collected under the aegis of that approach”) (emphasis in original).

<sup>37</sup> For instance, community or sector-specific norms regarding tax compliance, or a “reflection effect” in which firms in a particular supply chain simply mimic their trading partners’ decisions on regulatory choices like GST registration, may have more explanatory power than the chain effect theory. The quantitative data cannot test whether that is so; only the qualitative results can provide clues as to competing explanations.

<sup>38</sup> See Liu and Lockwood, *supra* note 13 at 23 (never claiming causality in the analysis of voluntary registration behaviour: “we examine whether the decision of voluntary registration is consistent with the theory” and “we note in Table 4 that the empirical patterns are consistent”).

registration status and its customer channel “score” (its sales to formal, VAT-registered buyers as a proportion of aggregate sales).

Using logistic regression analysis, the null hypothesis relating to the input score could be rejected, but the customer score null hypothesis could not be rejected. In other words, voluntary registration behaviour consistent with the chain effect theory was observed, but only in one of the two predicted instances. This indicates that participants’ voluntary registration choices are not inconsistent with a customer-channel formality chain effect, but are inconsistent with an input-channel formality chain effect.

What might account for this asymmetry? These results suggest that participants may be more sensitive to registration pressures emanating from their customers than to the cash incentive (net of all costs) to voluntarily register to claim input tax credits. To weave together a set of possible explanations for these results, the survey’s qualitative data was analyzed. On the one hand, among those who had *not* registered, the voluntary registration process was perceived to be complex.<sup>39</sup> High anticipated costs (including hassles) of registering appeared to directly trade off in the minds of the participants against the availability of immediate cash input tax refunds.<sup>40</sup>

On the other hand, the customer-channel benefits of voluntary registration seemed to function as an independent incentive for voluntary registration without reference to the costs of registering.<sup>41</sup> The potential payoffs to expanding the business’s customer base by voluntarily registering was described by some participants as sufficiently compelling to justify adding a costly compliance burden for the business.<sup>42</sup> There were also hints among participants that registration might play an informational role as a signal of firm quality or growth prospects.<sup>43</sup>

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<sup>39</sup> See Part III, *infra*.

<sup>40</sup> See Part III, *infra*.

<sup>41</sup> See Part III, *infra*.

<sup>42</sup> See Part III, *infra*.

<sup>43</sup> See Part III, *infra*. Although it is beyond the scope of this paper, the possibility that voluntary registration can function as a mechanism to resolve information asymmetries between buyers and sellers has received scant attention in the VAT literature. One exception is a passing sentence in a very recent paper. See Pierre-Pascal Gendron, *Real VATs vs. the Good VAT: Reflections From a Decade of Technical Assistance*, 32 *AUSTL. TAX FORUM* 257, 268 (“[f]inally, a supplier that is VAT-registered may signal to clients that it runs a legitimate and reputable business”). A robust signaling account relies on canonical work in information economics (see Michael Spence, *Job Market Signaling*, 87 *Q. J. ECON.* 355, 368 (1973); George A. Akerlof, “The Market for ‘Lemons’: Quality Uncertainty and the Market Mechanism” (1970) 84:3 *Q. J. ECON.* 488 (demonstrating formally how asymmetric information can cause market “unraveling” in the absence of devices like screens and signals)) as well as recent tax scholarship exploring the role of tax rules in addressing information asymmetries. See Leigh Osofsky, *Who’s Naughty and Who’s Nice?: Frictions, Screening, and Tax Law Design* 61 *BUFF LAW REV* 1057, 1074-80 (2013); Andrew T. Hayashi, *A Theory of Facts and Circumstances*,

While this study relies on a fairly small number of firms in a particularized economic setting, its results suggest several concrete policy implications that should be confirmed by larger-scale research or field experiments. First, because low thresholds emerged as being unexpectedly compatible with voluntary registration due to entrepreneurs' reported sensitivity to the preferences of their customers, there is a case for adopting (and certainly not repealing) voluntary registration provisions despite their complexity costs. Along these same lines, mandatory *de*-registration provisions that require firms with revenues that have fallen below the registration threshold should be avoided: they risk squandering the efficiency gains created by customer-channel chain effects as well as hurting the competitiveness of the smallest players.<sup>44</sup>

In addition, the results provide a basis for revisiting policy proposals to provide a means-tested registration subsidy to voluntarily registering small suppliers as partial compensation for the upfront fixed costs of registration. In the debate surrounding the implementation of the Australian GST in the early 2000s, the rallying cry that VATs require businesses to act as unpaid tax collectors spurred proposals to offer small businesses compensation for the initial costs of registration.<sup>45</sup> In Canada, similar political pressures resulted in a transitional measure in the early 1990s to provide a one-time cash payment to smaller GST registrants.<sup>46</sup> To the extent that microentrepreneurs' *ex ante* fears about the costs of registration are deterrents to voluntary registration, modest registration subsidies for voluntary registrants may be warranted.<sup>47</sup> Such a subsidy would need to be field-tested, but it might be a surprisingly effective way to "sweeten the pot" for tentative registrants such that the efficiency gains from formality chain effects would far outweigh the revenue costs.

The paper proceeds as follows. Part I discusses the theoretical grounding of formality chain effects, provides a short review of the existing empirical literature, and

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69 ALABAMA LAW REV (forthcoming 2018); Emily Satterthwaite, Tax Elections as Screens, 42:1 QUEEN'S LAW JOURNAL (2016).

<sup>44</sup> See, e.g. William Turnier, Designing an Efficient Value-Added Tax, 39 TAX L. REV. 435, 451 (1983) (questioning the usefulness of voluntary registration as a feature of small supplier VAT architecture and suggesting compulsory de-registration once a business falls below the threshold may be a superior policy).

<sup>45</sup> See Jeff Pope and Nthathi Rametse, Small Business and the Goods and Services Tax: Compliance Cost Issues and Estimates, 9:2 SMALL ENTERPRISE RESEARCH 42, 52 (2001) (discussing the Australian experience).

<sup>46</sup> See Part IV *infra*; see also Prafula Fernandez and Lynne Oats, "GST and The Small Business, Curtin Business School Working Paper Series 98.01 (April 1998), at 25.

<sup>47</sup> Registration compensation is, in some sense, akin to offering token rewards post-audit for voluntary tax compliance, a practice that has attracted increasing attention in the form of field experiments in recent years. See Paul Carillo et al. Do Rewards Work to Maintain and Increase Tax Compliance? Evidence from the Randomization of Public Goods (2016) (working paper).

lays out the motivation for investigating voluntary registration decisions in the specific environment of low registration thresholds. Part II summarizes the survey methodology and the data. Part III presents results on the relationship between the input and customer channels for formality chain effects and the voluntary registration statuses of participants, as well as documenting the qualitative responses relating to these decisions. Part IV concludes.

## I. FORMALITY CHAIN EFFECTS WITH LOW REGISTRATION THRESHOLDS

### *A. Formality chain effects explained*

#### 1. Mechanics of formality chain effects

The “formality chain effect” theory of voluntary registration features two separate channels through which small suppliers may find it advantageous to voluntarily register.<sup>48</sup> As the theory’s name suggests, each requires that the small supplier be part of a “formal” (VAT-registered) supply chain of businesses.

##### a. Customer-channel chain effects

Consider a small supplier whose only input is (VAT-free) labour.<sup>49</sup> Suppose that the small supplier sells to a VAT-registered business customer. Such a registered customer will be indifferent, as a matter of cost, to the decision of the small supplier to voluntarily register and charge VAT. This is because the VAT it pays to the (registered) small supplier can be claimed as a refundable credit. The registered customer is thus in exactly the same position as it would be if the small supplier remained unregistered. Further suppose that the registered customer has a (weak) preference for trading with VAT-registered firms. This may be because an invoice will be issued that may improve accountability between the trading partners (e.g., reduce the risk of default), such records may create positive managerial or accounting

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<sup>48</sup> See de Paula and Scheinkman, *supra* note 15, at 196 (testing chain effect theory using data from firms in Brazil and finding that the credit system is correlated with chains whereas the effect vanishes for firms’ subject to estimated tax withholding system without the feature of input tax credits). The two channels mirror the hypotheses tested and validated using UK VAT data in Liu and Lockwood, *supra* note 13, at 21-24.

<sup>49</sup> To be clear, this implies that the input channel will exert no influence on the small supplier’s preference for voluntary registration. In the case where the small supplier could claim input credits, the customer channel will itself be strengthened. See Crawford et al., *supra* note 4, at 296 (“[for a registered customer] there is a strict advantage to purchasing from VAT-registered businesses, since unregistered businesses will be unable to reclaim the VAT they themselves have been charged on their inputs, and so may charge a higher output price. Thus traders selling to other businesses may indeed wish to register to charge the VATW even if their annual turnover is below the threshold at which VAT registration is mandatory...”).

spillovers, and the refundability of input taxes may provide a cash flow benefit.<sup>50</sup> Last, suppose that the small supplier's compliance costs associated with registration (as distinguished from the burden of the VAT itself) are sufficiently low so as not to be passed along to customers in the form of (significantly) higher pre-tax prices relative to its competitors.<sup>51</sup> In this setting, voluntary registration will *not* put the small supplier at a competitive disadvantage vis a vis other suppliers, a problem that would occur if the small supplier needed to recoup compliance costs associated with registration. Voluntary registration for the small supplier will be advantageous in this scenario because it will satisfy the preferences of the registered customer without reducing the profit margin or hurting the competitiveness of the small supplier.

Voluntary registration that occurs as a result of customer-channel formality chain effects is revenue-neutral for the government.<sup>52</sup> However, there may be independent benefits of bringing such low-compliance-cost small suppliers into the VAT net: it may produce a more complete paper trail to enforce VAT compliance, or to enhance cross-instrument compliance by using VAT records for income tax enforcement. To be weighed against this are the additional administrative costs to the government of adding the voluntarily registered small firm to the VAT system (for instance, processing its registration and annual filings, providing assistance, administering guidance).

b. Input-channel chain effects

The second channel for the formality chain effect is the input channel. In this scenario, the small supplier facing the decision to voluntarily register *does* purchase taxable inputs from formal VAT-registered firms (perhaps exclusively, or perhaps along with some purchases of inputs from informal VAT-exempt suppliers). Voluntarily registering in this case allows the small supplier to claim input tax credits. The higher a small suppliers' taxable input expenses relative to her sales (and especially in the case of

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<sup>50</sup> The VAT literature discusses at some length the managerial and accounting benefits of VAT registration/trading with VAT-registered firms—keeping track of sales and expenses for VAT purposes may provide useful information for other business decisions. See Jeff Pope, Estimating and Alleviating the Goods and Services Tax Compliance Cost Burden on Small Businesses, 11 REVENUE LAW JOURNAL 1, 13 (hereinafter “Pope Estimating”); see also Cedric Sandford, Minimising the Compliance Costs of a GST, 14 AUSTRALIAN TAX FORUM 135 (1997).

<sup>51</sup> Alternatively, one could imagine that the small supplier might be willing to absorb the costs of registration/compliance by sacrificing net (after-tax) profits. This is plausible in several scenarios: if the loss in current net profit increased expected future net profits, or the small supplier derives independent utility from voluntary registration that leaves her equally happy despite lower net profit.

<sup>52</sup> The net VAT paid by a voluntarily registered small supplier reduces the net VAT paid by the immediately downstream registered seller.

losses resulting from taxable inputs; that is, taxable inputs in excess of revenue), the higher the returns to the small supplier from voluntarily registering.<sup>53</sup> In addition, firms with high start-up costs may benefit from voluntarily registering upon beginning operations.<sup>54</sup> However, because complying with the VAT is costly, the small supplier must perceive her benefit from claiming input tax credits to be in excess of her compliance costs. She must also take into account any competitive disadvantage she would bear from charging VAT to her unregistered customers.<sup>55</sup>

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It is clear that the most compelling scenario for voluntary registration is where the small supplier sits in the middle of a formal supply chain: purchasing its input from a VAT-registered supplier and selling output to a VAT-registered customer. The presence of *both* the customer channel and the input channel amplify the incentives for voluntary registration: arguably, the small supplier *must* voluntarily register to avoid being put at a competitive disadvantage.<sup>56</sup>

## 2. Welfare implications of chain effects

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<sup>53</sup> See Crawford et al., *supra* note 4, at 296 (noting that “there is a strict advantage [to registered firms] in purchasing from VAT-registered businesses, since unregistered businesses will be unable to reclaim the VAT they themselves have been charged on their inputs, and so may charge a higher output price. Thus traders selling to other businesses may indeed wish to register to charge the VAT even if their annual turnover is below the threshold at which VAT registration is mandatory...”).

<sup>54</sup> See Harju et al., *supra* note 23, at 4 (examining the effects of a change to the rate of VAT that applies to firms near Finland’s threshold of 8500 euros; noting that “[t]here are logical reasons for registering even when it is not necessary...voluntary registration could be important for businesses that have large start-up costs. Also, firms below the threshold that have a large share of business-to-business sales have an incentive to register, as the VAT rebate is only possible from purchases of VAT registered firms;” however, the authors’ empirical analysis of firm bunching below the threshold, consistent with the predictions of Keen and Mintz (2004) does not specifically examine the role of voluntary registration or report results on small firms’ voluntary registration behavior in response to the change in policy).

<sup>55</sup> Where this latter effect is significant, the payoff from fraudulent refund claims due to understatement of non-VAT-invoiced sales is high, although such fraud potential arises with all retail sales as well as sales to informal businesses. The VAT is vulnerable to evasion by sellers who under-report taxable sales while claiming (or even over-reporting) input tax credits. Where the small supplier sells to non-registered customers (either informal businesses or individual consumers; e.g., the customer channel is also lacking), the ability to understate sales is exacerbated by the lack of an input tax credit invoice trail that can be traced by the tax agency.

<sup>56</sup> See Crawford, Keen and Smith, *supra* note 4, at 296 (quoted above).



From an optimal taxation perspective, voluntary registration is unambiguously desirable.<sup>57</sup> Having a small supplier exemption without offering voluntary registration would allow the VAT to raise revenue for the government, but at the cost of production efficiency.<sup>58</sup> Unregistered small suppliers that purchase taxable inputs are—albeit without registering—paying VAT, simply because they lack the ability to claim input credits. Having VAT “stick” in this fashion to purchases made at the business input stage is undesirable. The Diamond-Mirrlees production efficiency theorem shows that, where the government has the ability to make transfers, taxing consumption is generally superior to taxing business inputs.<sup>59</sup> This is because “any distortion of production decisions reduces aggregate output, which cannot be wise so long as there is some useful purpose to which that output could be put.”<sup>60</sup> Voluntary registration “unsticks” VAT paid on inputs and prevents it from cascading into prices of the unregistered seller.

*B. Formality chain effects for microenterprise: an uncertain proposition*

This paper focuses on small supplier voluntary registration in the particular setting of a low VAT registration threshold. Because this focus requires some explanation, or at least motivation, this subpart lays out the reasons that formality chain effects may be weak among the smallest businesses or, for alternative reasons, quite the opposite. Below, the term “microenterprise” is used to refer to businesses with revenues below a VAT registration threshold that is considered sub-optimally “low” with reference to the optimal taxation model of Keen and Mintz.

1. The case against microenterprise formality chain effects

Microenterprises are particularly likely to face disproportionately high VAT compliance costs, and the evidence on the regressive distribution of VAT compliance costs with respect

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<sup>57</sup> Id. (“arrangements for voluntary registration are a key part of any well-designed VAT”).

<sup>58</sup> Id. at 283 (“[p]ut simply, business transactions should not be taxed”).

<sup>59</sup> See Peter Diamond and James A. Mirrlees, Optimal Taxation and Public Production I: Production Efficiency, *AMERICAN ECONOMIC REVIEW* 61.1 (1971), 8-27 (taxing business inputs to address distributive concerns—e.g., to raise revenue—is short-sighted). Such taxes distort production, which reduces aggregate output and in turn means there are fewer resources in the economy to tax and redistribute. That is, taxing business inputs reduces the size of the public revenue pie that is available for distribution.

<sup>60</sup> See also Crawford, Keen and Smith, *supra* note 4, at 281 (assuming that there are no restrictions on the government’s ability to make transfers, “any distortion of production decisions reduces aggregate output, which cannot be wise so long as there is some useful purpose to which that output could be put”).

to firm size is overwhelming.<sup>61</sup> Estimates show both a substantial fixed portion of firm-level annual compliance costs as well as higher absolute costs for smaller firms.<sup>62</sup>

Voluntary registration will be optimal for the profit-maximizing small supplier only if the net benefits of registering are positive. Accordingly, compliance costs that are high relative to other measures of a business's available resources might easily weaken or eliminate a formality chain effect, whether it manifests through the input channel, the customer channel, or both.<sup>63</sup> This is similar to other observed instances in which resource-constrained business taxpayers leave elective tax benefits "on the table" because the opportunity cost of available resources necessary to prepare the paperwork necessary to claim the benefits is too high.<sup>64</sup> In such a setting, the mechanism for formality chain effects can reverse itself, creating what de Paula and Scheinkman model as informality chain effects.<sup>65</sup>

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<sup>61</sup> For recent literature reviews see Barbone et al., *supra* note 8; Evans, *supra* note 8, at 458; Smulders and Evans, *supra* note 2, at 288 (noting that VAT compliance costs are "severely regressive [for smaller firms]—even more so than for other business taxes").

<sup>62</sup> See Barbone et al., *supra* note 8, at 15-17.

<sup>63</sup> Some suggestive evidence that firms may not opt into "beneficial" tax treatment, potentially because of complexity costs, comes from the observation that in Canada few firms use the Quick Method and Simplified Filing (which are available in some circumstances). See Smart, *supra* note 22, at 19. See Fernandez and Oats, *supra* note 46, at 25-27 (stating somewhat cryptically "small firms who did not upgrade their equipment to account for GST properly could use one of the simplified accounting methods" but apparently did not).

<sup>64</sup> See Susan C. Morse and Eric J. Allen, *Innovation and Taxation at Start-Up Firms*, 69 *TAX LAW REVIEW* 357, 360, 366 (2016) (showing that early-stage firms forgo investments in tax planning because of high opportunity cost of investment: there is a trade-off between probability of success and tax planning; "the more a tax strategy costs relative to a firm's endowment, the smaller the firm's incentive to adopt the strategy. This means that many income tax incentives are unlikely to motivate the desired innovative or entrepreneurial behaviour at early-stage start-up firms). In the VAT context, see Brian Wurtz, *Report on the Plamondon Compliance Cost Study for Canadian GST*, in *TAXATION COMPLIANCE COSTS MEASUREMENT AND POLICY*, SANDFORD ED. (1995) (noting that the VAT concession of annual accounting was studied—e.g., VAT reporting annually rather than more frequently—finding that "[t]here is a "take-up issue" in that entrepreneurs are somehow constraining themselves and not taking advantage of reliefs offered"). See also Ann Hansford, John Hassledine, Carole Howorth, *Factors affecting the costs of UK VAT compliance for small and medium-sized enterprises*, 21 *ENVIRONMENT AND PLANNING C: GOVERNMENT AND POLICY* 479, 490 (2003) ("[a]lthough some would view this [not electing beneficial method] as inertia, it is more often a result of prioritization, and possibly of 'firefighting"—which is a common feature of small-business management"), citing Howorth, *Late Payment and Cash Flow Problems: An Empirical Investigation of Working Capital Management and Finance in Small UK Firms*, PhD thesis, Management Centre, University of Bradford, Bradford, W York (1999).

<sup>65</sup> See de Paula and Scheinkman, *supra* note 15, at 196 ("[s]ince purchases from informal suppliers do not generate tax credits and informal buyers cannot use tax payments from formal

## 2. The case for microenterprise formality chain effects

On the other hand, the formality chain effect might be important for microenterprises, for several possible—and non-mutually-exclusive—reasons.<sup>66</sup> First, an important subset of voluntarily registered firms is likely to be *new* firms that expect to be transitorily small (i.e., they are small as a result of being new). For such firms, surviving the start-up stage may require that revenues grow to be greater than the registration threshold; that is, to be profitable, the firm requires sufficient scale such that it must graduate from the small supplier category. Here, the input channel may be particularly relevant: early-stage microenterprises typically incur costs prior to generating revenue (or, with the same differential, have initial costs in excess of initial revenue). By voluntarily registering for VAT, they can receive a subsidy for such start-up costs (whether capital or current) via a refund for VAT paid on inputs.<sup>67</sup> Voluntary registration will be attractive to loss firms so long as the refund exceeds the costs associated with registration.<sup>68</sup>

Second, for transitory small suppliers, compliance costs may be less of a hurdle than in other cases. Empirical studies of VAT compliance indicate that in addition to *annual* fixed costs of filing VAT returns, firms typically experience a *one-time* fixed cost of registration and learning about VAT compliance.<sup>69</sup> If the microenterprise expects to grow quickly, and

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suppliers, there is an incentive for informal (formal) firms to deal with other informal (formal) firms”). See also M. Shahe Emran and Joseph E. Stiglitz, On Selective Indirect Tax Reform in Developing Countries, 89(4) *Journal of Public Economics* 599-623 (2005).

<sup>66</sup> There is some empirical support for this. The experience in New Zealand and Canada suggest that more small suppliers registered at the time that the VAT was adopted than expected. See Claire Young, Introduction of a Goods and Services Tax: The Canadian Experience, 9 *AUSTRALIAN TAX FORUM* 259, 275 (1991) (“In New Zealand the number of businesses eligible for exemption that actually chose to register under the Act meant that the original estimate of the number of registrants (180,000) fell well short of the actual number (290,000). In Canada the initial estimate was for 1.6 million but it appears the figure will be significantly more”). See Turnier, *supra* note 44, at 458-60 (discussing the high rate of voluntary registration for the UK VAT, even at a very low threshold; 200,000 out of a total of 1.25 million registered vendors, or 16 percent).

<sup>67</sup> See Harju et al., *supra* note 23, at 4 (noting the importance of start-up costs in motivating voluntary registration).

<sup>68</sup> This assumes that the incidence of the VAT is fully shifted forward to the consumer. However, if there is competition in the market from other small suppliers with leaner cost structures (e.g., fewer taxable inputs or inputs generally, thus able to offer lower prices), this assumption will not hold.

<sup>69</sup> See Nthathi Rametse and Jeff Pope, Start-up Tax Compliance Costs of the GST: Empirical Evidence from Western Australian Small Businesses, *AUSTRALIAN TAX FORUM*, 17(4): 407-422 (2002) (surveying 4,000 taxpayers, approx. 800 surveys were returned; for

thus anticipates incurring this one-time cost in the near future when it expands past the threshold, accelerating it to gain the benefit of a current-period VAT refund may be advantageous. This is especially true when seen in conjunction with the preceding rationale for voluntary registration: anticipatory early-stage voluntary registration sacrifices deferral of the one-time fixed costs of registration to gain the benefit of capturing credits generated by start-up expenses.

Last, if a small supplier's choice to voluntarily register has informational value to larger registered businesses who are potential customers of the small supplier (i.e., acts as a signal about the small supplier), this may reinforce the formality chain effect. Registered trading partners (or prospective trading partners) may care about a small supplier's registration status not only because of the availability of input credits but because voluntary registration may convey important information about the entrepreneur or the firm. With respect to the entrepreneur, voluntary registration may indicate that the entrepreneur doesn't find the registration process daunting: it might signal that her internal costs of registration are low, with the implication that she is savvy about making legal choices given her high compliance abilities. With respect to the firm, voluntary registration may indicate that the firm is highly productive and thus expects its revenues to quickly exceed the registration threshold. If any of these informational cues are present, one would expect the formality chain effect to be reinforced, or at least not weakened).<sup>70</sup>

### C. *Why we should care*

As the above discussion highlights, whether formality chain effects exist in the context of a low VAT registration threshold is an open question. But why is it an important one?

First, scholars have argued that tax elections in other mass-compliance settings risk *increasing* overall compliance costs rather than reducing tax-induced waste and behavioural distortions.<sup>71</sup> This is the tax-election-specific version of the “choice

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businesses with less than \$50,000 in revenues, start-up compliance costs of GST were about 15 percent; for businesses in the range of \$50,000 to \$99,999, costs were 4.5 percent; for the range \$100,000 to \$500,000, costs were 1.7 percent; over \$500,000 costs were only 0.44 percent). See also Pope Estimating, *supra* note 50, at 13 (discussing Rametse and Pope).

<sup>70</sup> None of the qualitative responses was so detailed as to offer a “real life” signaling story along these lines. However, by referring to wanting to seem more “professional” or “serious”, registration's informational role was suggested, and (in this author's opinion) warrants further research.

<sup>71</sup> See Emily Cauble, *Tax Elections: How to Live with Them If We Can't Live Without Them*, 53 SANTA CLARA LAW REVIEW 101, 123 (2013) (“tax elections generate complexity. In order to evaluate whether to make an election, taxpayers must understand the consequences of making the election as well as what occurs if the election is not made. This task can be particularly difficult for elections that affect future years. In addition, taxpayers must determine

paradox” popularized by Barry Schwartz: having choices is a indicator of freedom, but having too much choice can lead to overload and paralysis.<sup>72</sup> Such unintended consequences of voluntary tax provisions have been the target of criticism in the context of a VAT, as “businesses have an incentive to compute their net tax liabilities under all of the methods [exemption, registration, or any simplified methods of calculating VAT offered to certain firms] for which they are eligible.”<sup>73</sup> If low VAT thresholds are associated with weak formality chain effects among microenterprises, there may be a case for eliminating the election or imposing mandatory de-registration on firms that drop below the threshold. In fact, in the early days of the VAT, some scholars argued against small supplier voluntary registration on grounds of revenue-efficiency: small-firm administration and enforcement costs incurred by government are substantial, yet the lions’ share of VAT revenue is produced by the very largest firms.<sup>74</sup> There were also proposals that firms should be de-registered if their revenues dipped below the threshold.<sup>75</sup> Voluntary registration came to be seen as a necessary complement to non-zero registration thresholds due to production efficiency considerations. Because formality chain effects are the mechanism through which production efficiency is promoted, their absence undermines the rationale for offering voluntary registration. Conversely, if they are present, the rationale for keeping voluntary registration is strengthened.

Second, formality chain effects alongside low registration thresholds may have implications for setting an optimal threshold. Keen and Mintz exclude, for simplicity, voluntary registration from both their simple and general equilibrium models of the

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the proper procedure for making the election. Finally, IRS [tax agency] examiners must be aware of the consequences of the election and how it is made”).

<sup>72</sup> See BARRY SCHWARTZ, *THE PARADOX OF CHOICE* (2004) at 2-12 [add block quote].

<sup>73</sup> See Smart, *supra* note 22, at 19 (doing this “to choose whichever method is most profitable. Indeed, many accountants and tax advisers routinely insist on computing all methods in order to avoid the risk of professional liability if the wrong method is chosen. Thus the optional nature of exemption may actually increase compliance costs for small business, even though its explicit intent is to reduce them” (citing Mirrlees 2011)).

<sup>74</sup> See Ebrill et al., *supra* note 6, at 117; Bird and Gendron, *supra* note 8, at 116.

<sup>75</sup> See Turnier, *supra* note 44, at 458-60 (discussing the high initial rate of voluntary registration for the UK VAT at adoption. However, these voluntary registrants generated only two tenths of one percent of all VAT receipts while imposing high administrative costs on the Exchequer; suggesting compulsory de-registration once a business falls below the threshold may be a superior policy).

optimal threshold.<sup>76</sup> Neither de Paula and Scheinkman<sup>77</sup> nor Harju et al.<sup>78</sup> model or measure the extent of voluntary registration. Only Liu and Lockwood track firms' voluntary registration status using linked UK tax and corporation data, noting that “[o]ur work is the first, as far as we know, to quantitatively analyse the determinants of the voluntary registration decision.”<sup>79</sup> Liu and Lockwood find substantial evidence of chain effects through both the input and the customer channels; on average, around 41 percent of firms with a turnover below the current-year VAT threshold are registered.<sup>80</sup> However, the UK VAT's registration threshold is among the highest in the world.<sup>81</sup> Thus, the extent to which chain effects exist in low-registration threshold settings, and what this means for optimizing the level of the threshold (e.g., production efficiency, revenue-raising potential, etc.), is something of an open question.

## II. THE SURVEY

### *A. Methodology*

Ninety-eight small suppliers in Ontario, Canada were surveyed. The surveys were conducted during the 2016-17 academic year, from October 2016 to May 2017. It contained open-ended questions about challenges with filing taxes, knowledge of the small supplier election, and factors considered in evaluating whether to voluntarily register. It also asked categorical and numerical-response questions regarding the registration and financial status of the business: participants estimated input costs from all sources (formal registered firms versus informal nonregistered firms) and the magnitude of sales to registered businesses, unregistered businesses, and retail consumers. The survey concluded with a series of demographic questions.

#### 1. Eligibility

Each participant was the sole owner (or the primary owner, meaning more than 50 percent ownership and confirmed decision-making capacity) of a business located in

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<sup>76</sup> See Keen and Mintz, *supra* note 12, at 567.

<sup>77</sup> The choice to be formal vs. informal is an analog to voluntarily registering, but analysis of voluntary registration for those beneath the threshold is absent. See de Paula and Scheinkman, *supra* note 15, at 210-214 (empirically testing their model of informality chain effects using data spanning the introduction of the SIMPLES reform affecting VAT by state governments in Brazil; voluntary registration as a feature of this system is not mentioned).

<sup>78</sup> See Harju et al, *supra* note 21, at 1-5 (only mentioning voluntary registration but not assessing its determinants or prevalence in Finland's low-registration threshold setting).

<sup>79</sup> See Liu and Lockwood, *supra* note 13, at 6.

<sup>80</sup> *Id.* at 18-19 (but also reporting that 22 percent of firms “in the entire sample are voluntarily registered”—need to figure out difference).

<sup>81</sup> See OECD report, *supra* note 3, at [add]. *Id.* at 17 (noting threshold of £ 79,000 in 2014 or about \$124,000 U.S. dollars).

Ontario. To be eligible, the business must have annual sales (also referred to as revenues and turnover) of less than CAD \$30,000 in 2016, 2015 or 2014.<sup>82</sup>

The survey targeted three particular industry sectors: sellers of fresh produce, meats, and other agricultural products (“farmers”), artisans or craftspeople (“artisans”), and small-job service providers such as handymen or women (“handy people”). A limited number of sectors were chosen to provide de facto “controls” for industry sector in the analysis. These particular industry sectors were chosen because the strength of input and customer channel chain effects seemed likely to exhibit substantial variation, as follows.

- **Farmers.** The GST statute classifies as “zero-rated” basic foodstuffs such as fresh produce and other agricultural products.<sup>83</sup> This special status for GST purposes means that small farmers who register charge a zero rate of VAT on their sales while still being able to claim input tax credits from their purchases of taxable supplies. Assuming that they buy intermediate inputs from formal (GST-registered) businesses that are not themselves selling zero-rated supplies, a registered farm business is likely to be in a GST refund position, and the input channel for the formality chain effect is likely to be dominant. To the extent that the business sells zero-rated products, the customer channel is unlikely to matter.
- **Handy people.** The typical small supplier handy person’s business is likely to have a high “value added” component, meaning that most of the value of the end product or service is derived from the entrepreneur’s labour rather than other taxable inputs such as materials. With reference to the input channel, the formality chain effect predicts that the typical handy person’s business is unlikely to generate sufficient credits to justify the compliance costs of opting into GST registration. With reference to the customer channel, to the extent that the clients of a handy person are generally private individuals who are not GST-registered as businesses and thus have no ability to claim input tax credits, the customer-channel effect would be weak or non-existent. (Note, however, that this would reverse if a handy person reported that her typical client was a registered business.)
- **Artisans.** Small-scale artisans, such as jewellery makers or ceramicists who sell their products locally at art fairs or markets, are not zero-rated and are likely to have more inputs (whether or not those inputs are purchased from GST-registered suppliers) than handy people. For an artisan, the value of inputs such as materials and tools may be significant, so the input channel for the formality chain effect may be

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<sup>82</sup> Because the term “revenues” may not be an immediately familiar to all, the phrasing of the eligibility screen was also stated in the survey instrument in terms of “sales” or “turnover.”

<sup>83</sup> See GST, *supra* note 25, at section 148 (defining “small supplier” for Federal Excise Tax Act purposes).

important even as compared to the compliance costs of registering. But because an artisan's output is not zero-rated, registering means she will incur VAT liability on her sales. If the customer of the artisan is a formal GST-registered business, such as a bricks-and-mortar store or online boutique, it will be indifferent to GST (and may even prefer it for contractual reasons noted above). But for artisans that sell directly to individuals, who are not GST-registered, there may be a competitive disadvantage that accompanies the decision to voluntarily register.

## 2. Recruitment

Farmer and artisan participants were recruited primarily in person at local farmers' markets and art fairs in the Greater Toronto Area. For the handy person sector, local postings, such as signs on lampposts and on coffee shop bulletin boards, as well as popular help-offered Internet portals (Kijiji, Craigslist) were scoured. For farmers and artisans, an effort was made to recruit all eligible individuals selling in a given market on a given day or, at minimum, to try to select individuals on as random a basis as possible (i.e., avoid gravitating towards sellers of a particular gender, race, prominence of placement in the market, etc.). We also used local associations or groups to try to reach eligible participants.. For those participants who were unable to make time for an in-person interview, we offered the online survey instrument, which was designed to mimic the in-person interview as closely as possible.

Participants were offered a token honorarium for taking the survey: a gift card for coffee in the amount of \$10 (or, in some instances \$15).<sup>84</sup> Typically, the survey took between 15 and 30 minutes.

## 3. Confidentiality

The survey was carefully designed to protect the confidentiality of the participants, particularly in the event of a possible subpoena from the taxing agency (the Canada Revenue Agency, or "CRA"). Although the project was not focused on tax evasion per se, tax is a sensitive topic and the CRA has broad powers to obtain information that

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<sup>84</sup> See notes on gift card distribution in Appendix A (survey instrument). Generally, it is a best practice when surveying for-profit businesses to offer token compensation for the time taken to participate in the study. See Alicia Robb, and D. DesRoches, *Kauffman Firm Survey: Baseline/First Follow-Up/Second Follow-Up/Third Follow-Up/Fourth/Fifth Follow-Up* (2011). Framing the amount as a "honorarium for participation" circumvents the risk that participants might deem the amount to be insufficient as "compensation" and, on that basis, refuse to participate. In addition, by presenting the amount as an honorarium that recognizes the participant's contribution to the success of the study, participant commitment to the earnest research objectives of the study may be bolstered.



“may be relevant” to tax administration and enforcement.<sup>85</sup> The two available exceptions to the CRA’s broad subpoena power are the solicitor-client or the litigation privilege; neither would typically be applicable in the setting of information divulged by a taxpayer to a researcher in the context of an academic study. Therefore, the study was designed *ex ante* to maximize the strength of a possible future claim of common law privilege.<sup>86</sup>

#### 4. Description of Survey

The survey began with a semi-structured questions about the tax compliance attitudes and experiences of the participant, including a question about the participant’s typical sources of tax advice and information. It proceeds to more specific questions about the GST, including the participant’s awareness of the registration threshold and the exemption of suppliers with annual sales below it. Here, follow-up questions asking about the factors that the participant has considered in her choice to opt-in or stick with the default exempt status are embedded. It then asks a series of quantitative questions about inputs (formal versus informal) and sales, and inquires about discussions with customers or suppliers about the issue of GST registration. It concludes with a limited series of

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<sup>85</sup> See Steve Suarez, “Canada Revenue Agency Forces Taxpayer to Disclose Discussions with Accountant,” *Tax Notes Int’l*, May 11, 2015, p. 553. In Canada, the two exceptions to this broad subpoena power are the solicitor-client privilege or the litigation privilege. See CRA Technical Information, *Acquiring Information from Taxpayers, Registrants and Third Parties*, July 3, 2015, available at [http://www.cra-arc.gc.ca/tx/tchncl/cqrngnfrmn/menu-eng.html#\\_ftn3](http://www.cra-arc.gc.ca/tx/tchncl/cqrngnfrmn/menu-eng.html#_ftn3).

<sup>86</sup> The protocol (a) emphasized the importance of confidentiality to the interviewer-participant relationship and thus to the validity of the information gathered in the study, (b) documented the centrality of confidentiality to the interview conversation by adding a question along the lines recommended by the Ogden litigation (“would you participate in this study if your confidentiality was not guaranteed?”) and (c) ensured that no third parties would be present at interviews and no one other than primary researcher and research assistants would have access to data to avoid inadvertent waiver of privilege. See *Ogden v. Simon Fraser University*, 1998 Carswell BC 3260, [1998] B.C.J. No. 2288 (providing details about the research study on assisted dying and the specific questions about illegal actions). See discussion in Ted Pals and John Lowman, “Anticipating Law: Research Methods, Ethics and the Law of Privilege,” 32 *SOCIOLOGICAL METHODOLOGY* 1 (2002), at 6 (citing authorities for the proposition that researchers can take a number of actions *ex ante* (e.g., before the study begins) that will, in particular, help establish the first two criteria in the Wigmore [common law privilege] test. These criteria are: “(1) the communications must originate in a confidence that they will not be disclosed and (2) this element of confidentiality must be essential to the full and satisfactory maintenance of the relation between the parties...” Pals and Lowman argue that the stronger the guarantee of confidentiality given to the participants, the more likely it is that the first part of the Wigmore test will be passed.

demographic questions about the proprietor and the business. The survey that was administered in person or by phone was identical to the online survey.<sup>87</sup>

The general design of the survey drew upon both grounded theory techniques for qualitative research<sup>88</sup> and best practices for quantitative research on entrepreneurs and small firms.<sup>89</sup> The use of multiple platforms for administering the survey (in person/phone versus online) reflects a similar approach to that of the Kauffman Firm Survey, a high-profile large-sample survey of recently-launched firms that offered phone, web, and mailed-in versions of the survey.<sup>90</sup>

## 5. Limitations

As noted in the introduction, the survey is unable to exploit a source of exogenous variation in the registration threshold or a natural experiment such that the hypothesis testing results could be interpreted as causal.

Nor does the survey claim to be representative of the experiences of Ontario microentrepreneurs in the three target sectors or more broadly. The study does not claim to have surveyed a representative sample of small suppliers in each of the industry sectors, even within the Greater Toronto Area or Ontario. In particular, microentrepreneurs who were successfully recruited may have been particularly visible (either via advertising or their presence in a market). Conversely, those who sell their goods or services via less-public networks (i.e., word-of-mouth, subscription services, client referrals rather than postings on Craigslist) will not be included in my sample.

Finally, response bias, or the concern that entrepreneurs willing to take fifteen to thirty minutes out of their busy days to respond to a survey may be systematically different from those the set of those who refused, cannot be ruled out and indeed will inevitably be present—those who are busier with making sales will, on average, be less likely to agree to participate. Similarly, those will those who simply dislike talking about taxes or feel that the topic is invasive of their privacy will also decline to participate.

### *B. Summary of Data*

Figure 1 summarizes the survey sample. It contains roughly equal numbers of artisans and farmers (46 and 43, respectively). Handy people were harder to locate and

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<sup>87</sup> See <http://www.surveygizmo.com/s3/3183055/Optional-Taxation-A-Study-of-the-GST-HST-Small-Supplier-Election> for the online version of the survey (nearly identical to the in-person/phone version due to the use of skip logic in the surveygizmo instrument).

<sup>88</sup> See B.G. GLASER, AND A. STRAUSS, *THE DISCOVERY OF GROUNDED THEORY: STRATEGIES FOR QUALITATIVE RESEARCH* (1967); J.S. OKTAY, *GROUNDED THEORY* (2012).

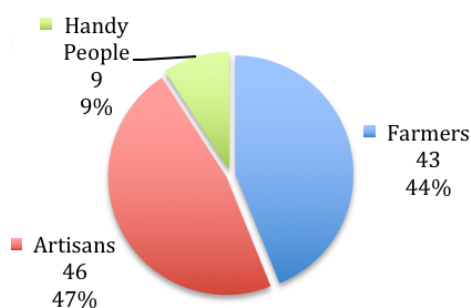
<sup>89</sup> See Robb and Desroches, *supra* note 84, at 5.

<sup>90</sup> *Id.*

frequently declined to participate when the sensitive subject (taxes) of the survey was disclosed. Only nine handy people agreed to participate. Thus, drawing conclusions about VAT compliance among the broader population of handy people on the basis of the 9 interviews is not advised. Nonetheless, the handyperson data offers qualified insights regarding a sector that rarely agrees to talk about tax compliance issues, so I have not [yet] dropped them from the sample.

To prepare the data for analysis, some cleaning was needed. This included merging the phone/in person surveys with the web surveys and categorizing verbal responses to the quantitative questions into usable numeric responses in a systematic and uniform manner. To promote replicability, a clear set of cleaning rules was employed (see Appendix A).<sup>91</sup>

Figure 1: Summary of Sample (n = 98 participants)



The tables below summarize the survey population's demographic, financial and GST-registration-related responses. Each of the responses refers to the calendar year in which the participant reported having business revenues of \$30,000 or less. They are presented in two different ways to convey the maximum amount of useful information: first, the sample is divided by firm registration status; second, it is divided by sector.

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<sup>91</sup> See Appendix A (a short list of rules used in cleaning and standardizing the data across the interview-style responses and the web-based instrument).

Table 1: Entrepreneur and Firm Descriptive Variables, by Registration Status, Part I

	Unregi stered (count)	% (of 57 Not Registe red)	Registe red (count)	% (of 41 Registe red)	Total	% (of 98 full sample)	No response (count)
Have you voluntarily registered?	57		41		98	100%	0
Among the unregistered, number who have considered registering	40	70%	-	-	40	41%	0
Heard of Exemption	22	39%	18	44%	40	41%	0
Sells to VAT- registered customers	16	28%	25	61%	41	42%	0
Buys materials from an informal supplier	16	28%	14	36%	30	31%	2
Identified as female	34	68%	21	54%	55	62%	9
Born in Canada	44	79%	33	80%	77	79%	1
Identifies as minority	15	26%	8	20%	23	24%	1
Business is primary source of income	20	36%	11	27%	31	32%	1
First business started	44	77%	30	75%	74	76%	1

Table 1 indicates that 42 percent of the sample voluntarily registered, with just over 58 percent remaining unregistered. Of the 57 unregistered participants, nearly 70 percent had considered registering. The percentages of participants that had heard of the registration threshold and/or the small supplier election/exemption were less than a majority across both categories (39 percent for unregistered, 44 for registered). This suggests that the name

recognition of the exemption or the election may not be high or that terms including “small supplier election” and “small supplier exemption” are not common parlance.<sup>92</sup>

The disparity across registered versus unregistered firms with regard to the percentage of firms that made sales to GST-registered customers is consistent with the customer channel formality chain effect. Only 28 percent of unregistered firms had a formal GST-registered customer; in contrast, 61 percent of registered firms had at least one GST-registered customer.

The presence of informal suppliers showed variation as well. Registered firms were more likely to have at least one informal supplier as compared to unregistered firms (36 versus 28 percent, respectively). Table 2 below suggests that this may be simply a function of size—as the revenues of the business grow, the chance of having at least one input from an unregistered seller (no matter how tiny—this variable was categorical not continuous) also grows.

With the exception of native-born Canadian status (about 80 percent for both registered and unregistered firms) and first-start-up status (both around 76 percent), answers to the demographic questions at the end of the survey exhibit substantial variation across registered versus unregistered firms. Female primary ownership was present in a majority of *all* firms, but unregistered firms were more likely to have a female primary owner than registered firms (68 percent versus 54 percent. 26 percent of primary owners of unregistered firms identified as being part of a minority group, whereas 20 percent of registered firms’ primary owners so identified. For neither group was the business a primary (majority) source of income, but somewhat surprisingly the percentage was higher (36 percent) for unregistered firms than for registered firms (27 percent).<sup>93</sup>

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<sup>92</sup> The percentages of firms that had heard of the exemption/election was much lower than the percentage of those who said they had considered registering (suggesting that they had some information about the requirements, but perhaps not the specifics).

<sup>93</sup> The drafting for this question proved tricky, so several variations were tried in initial pilot surveys. The language we settled on was: “Is your business the primary source of your own income? By ‘primary,’ we mean more than 50 percent of your income comes from your business, [and] by ‘own’ we mean your personal income. Do not consider the incomes of any other members of your household.” See survey instrument, available online at

Table 2: Entrepreneur and Firm Descriptive Variables, by Registration Status, Part II

	Not Registered			Registered			Full Sample		
	25 <sup>th</sup>	Median	75th	25th	Median	75th	25th	Median	75th
Entrepreneur Age Tier	2	3	4	3	4	5	2	3	5
Household Income Tier	2	3	4	3	4	4	2	3	4
Firm Age Tier	2	3	3	3	4	5	2	3	4

Notes:

Entrepreneur Age Tier: 2 = 25 to 34; 3 = 35 to 44; 4 = 45 to 54

Income Tier: 2 = \$20,000 to \$39,999; 3 = \$40,000 to \$79,999; 4 = \$80,000 to \$149,999

Firm Age Tier: 2 = 1 to 2 years; 3 = 3 to 5 years; 4 = 6 to 10 years

Table 2 confirms that older, higher-income entrepreneurs who have been in business longer are more likely to voluntarily register their firms, all else equal. With regard to age, the median unregistered firm’s primary entrepreneur’s age was 35 to 44, while for registered firms the median age was 45 to 54. Median entrepreneur household income for unregistered firms was \$40,000 to \$79,999; for registered firms it was \$80,000 to \$149,999. Median firm age was 3 to 5 years for unregistered firms and 6 to 10 years for registered firms.

Table 3 reports summary statistics of the measures necessary to evaluate the hypotheses relating to the two channels for the formality chain effect. Following the methodology of Liu and Lockwood, two “scores” relating to the formality chain effect were calculated for each firm: input and customer channel scores.<sup>94</sup>

The input channel score is the firm’s purchases of inputs from formal GST-registered suppliers (that is, purchases for which an input tax credit could be offered) as a proportion of its aggregate sales. The higher this score—especially if it is greater than 1—the stronger the firm’s incentive will be to voluntarily register to claim refundable input tax credits.

For the customer channel score, a similar measure was constructed: the firm’s sales to formal GST-registered businesses (which would be able to use an input tax credit and thus be indifferent to paying GST on a purchase from a supplier) as a proportion of its aggregate sales. The higher this score (maximum value is 1), the stronger the firm’s incentive will be to voluntarily register such that it can provide input tax credits to its customers.

<sup>94</sup> See Liu and Lockwood, *supra* note 13, at 40 (discussing “input cost ratio” and “share of B2C sales”). The former is inverted here so the directionality of the effects is positive.

Table 3: Formality Chain Effect Summary Statistics, by Registration Status

	Not registered			Registered			Full Sample		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
Aggregate sales	\$9,314	\$7,000	57	\$18,608	\$20,000	41	\$13,202	\$12,000	98
Total inputs (aggregate expenses)	\$5,336	\$2,400	57	\$12,930	\$10,000	41	\$8,513	\$4,900	98
Informal inputs (cost of inputs purchased from GST- unregistered suppliers)	\$966	\$0	56	\$894	\$0	39	\$936	\$0	95*
Ratio of formal inputs to total inputs	0.93	1	56	0.93	1	39	0.93	1	95*
Formal sales (sales to GST-registered customers)	\$633	\$0	57	\$8,289	\$300	41	\$3,836	\$0	98
Input channel score (ratio of formal inputs to aggregate sales)	0.68	0.36	54	0.68	0.5	39	0.68	0.42	93*
Customer channel score (ratio of formal sales to aggregate sales)	0.06	0	56	0.37	0.04	40	0.19	0	96*

Notes:

\*loss of observations in rows 3, 4 and 6 due to three "prefer not to answer" responses for cost of informal inputs

\*\*two participants reported aggregate sales = \$0.

As one might expect, registered firms had higher sales (aggregate and to formal GST-registered customers) and higher input costs (aggregate and informal). See Appendix B Tables B1 through B2 for entrepreneur and firm descriptive variables, reported by industry sector.

### III. RESULTS

#### A. Quantitative Results

##### 1. Input Channel Results

The formality chain effect predicts that the availability of input tax credits (relative to a firm's overall sales) will have a positive relationship to voluntary registration. In the two figures that follow the sample is separated by registered versus unregistered

firms, and the input channel “score” discussed above (the ratio of purchases of inputs from formal VAT-registered suppliers to aggregate sales, abbreviated “ICR” for “input cost ratio”) is graphed.

Figure 2: ICR Kernel Density Estimates

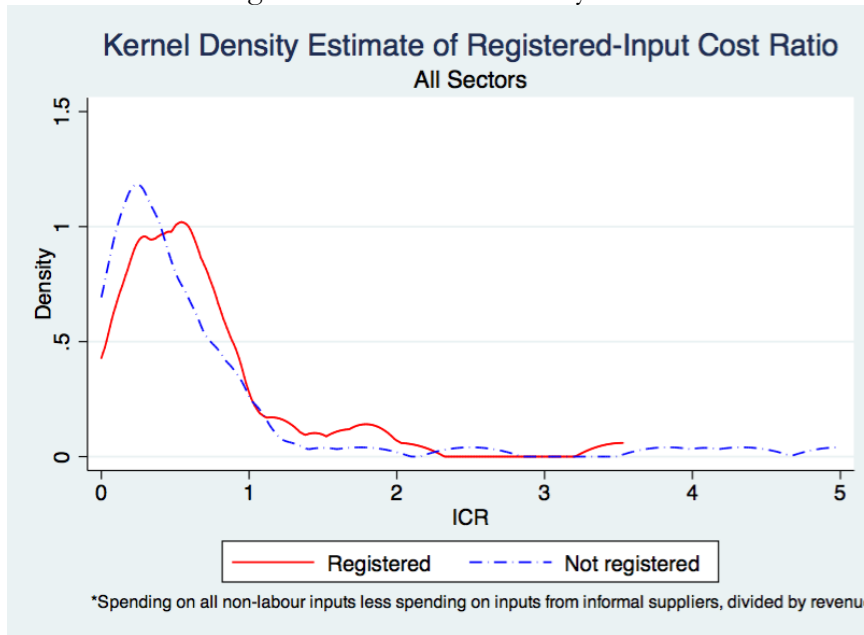
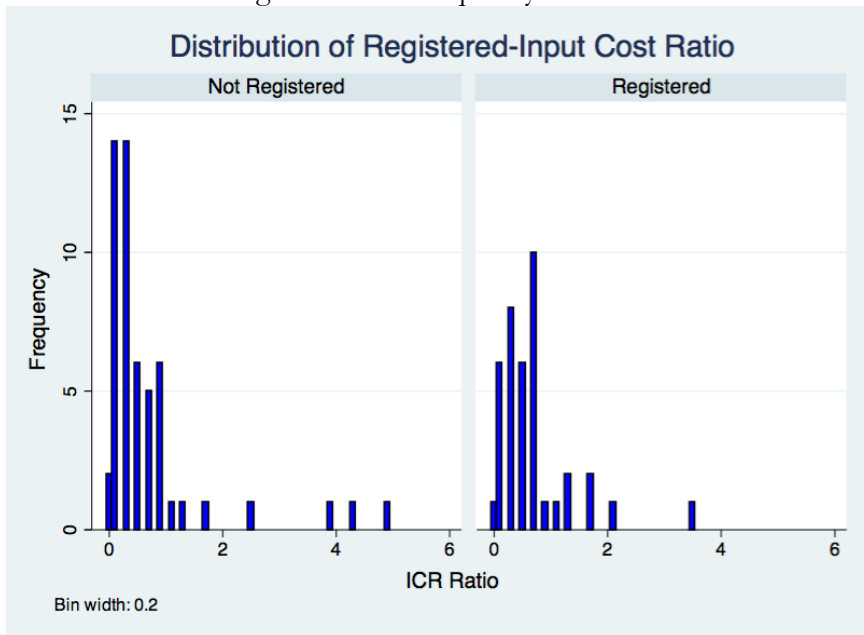


Figure 3: ICR Frequency Distributions





Taken together, Figures 2 and 3 indicate that registered firms' distributions of ICRs are slightly higher than unregistered firms (that is, skewed to the right). However, the distribution of both groups is fairly lumpy, and the third subpart below uses regression analysis to confirm that the effect of ICR on registration is not significant.

## 2. Customer Channel Results

The formality chain effect predicts that businesses with more sales to formal GST-registered customers relative to their aggregate sales will be more likely to voluntarily register. Following Liu and Lockwood, the customer channel score discussed above (sales to registered customers divided by total sales) is called the "B2B Ratio."<sup>95</sup>

Figure 4: B2B Ratio Kernel Density Estimates

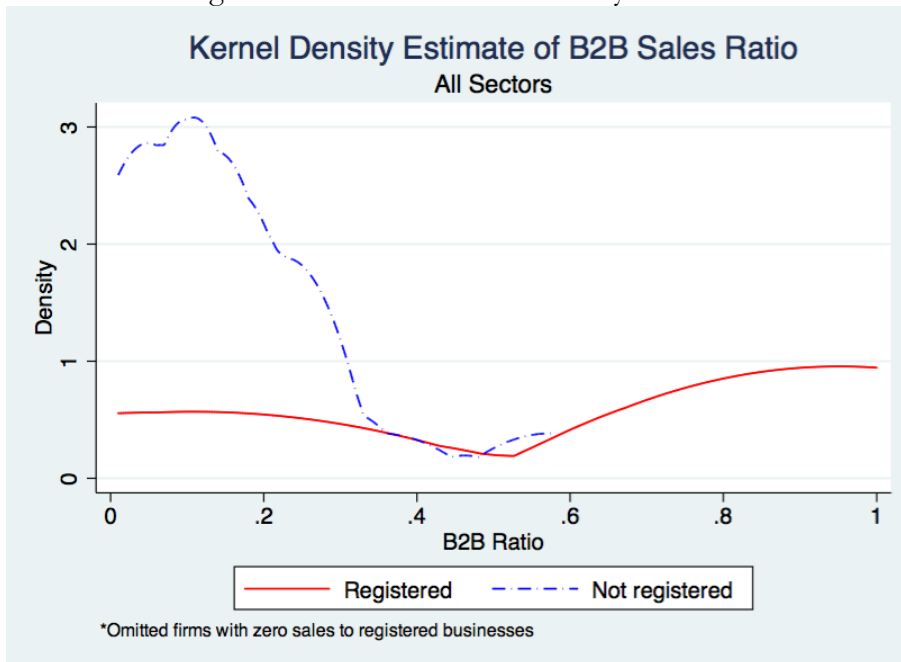
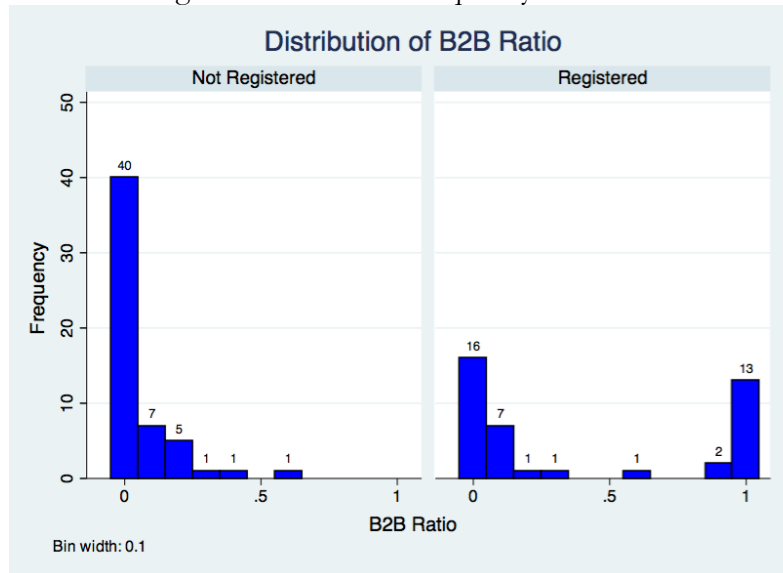


Figure 4's kernel density omits firms with no sales to registered businesses (a restriction that will be relaxed in later figures). Registered firms are somewhat bi-modal, and unregistered firms generally have lower B2B ratios. Because of the distribution of observations, particularly for registered firms, these results are more easily interpretable when viewed alongside the frequency distributions, as in Figure 5.

<sup>95</sup> Id.

Figure 5: B2B Ratio Frequency Distributions



A visual inspection suggests that voluntary registration is indeed related to having a B2B ratio over, roughly, 0.5 (i.e., more than half of sales are to GST-registered businesses rather than unregistered businesses or individual consumers). Only two firms in the sample with B2B ratios over 0.5 are *not* registered. This result is confirmed in the main regression specifications.

Figure 6: B2B Rank

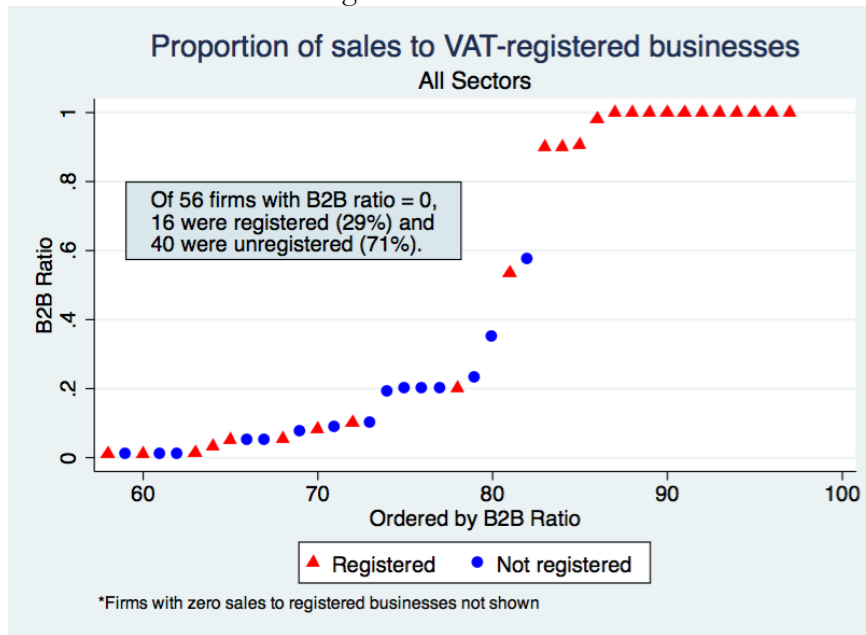
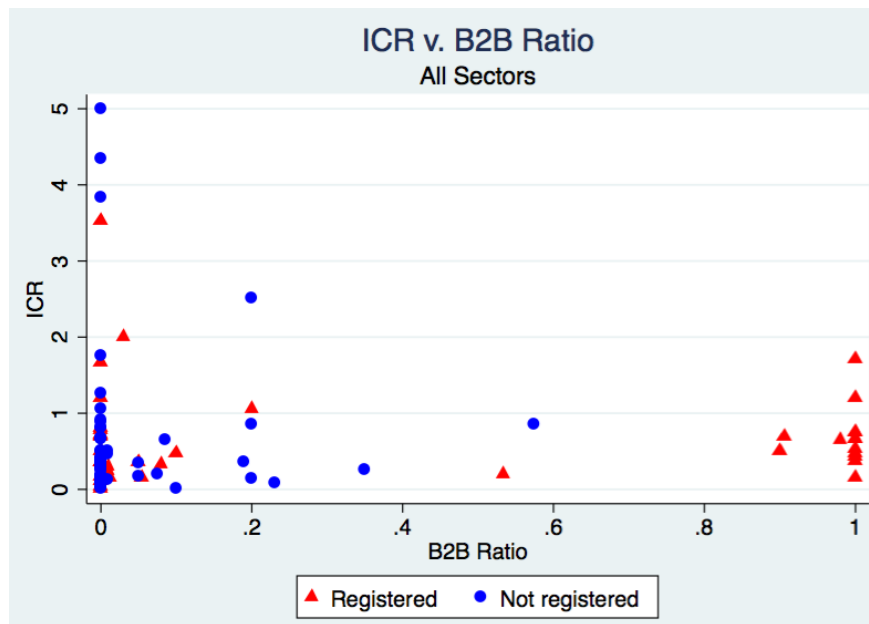


Figure 6 simply graphs the dataset in order of (increasing) B2B Ratio, with unregistered firms (blue circles) distinguished from registered firms (red triangles). Observations with a B2B Ratio of zero (no sales to GST-registered businesses) are omitted, but as noted in the text box, over two-thirds (71 percent) of these low-B2B ratio firms were unregistered. It is clear that, as the B2B ratio gets higher, there are more registered firms represented in the rank ordering.

### 3. Combined Input Channel-Customer Channel Results

This section seeks to put the two aspects of the formality chain effect together.

Figure 7: Input Cost and B2B Ratios



In Figure 7, to the extent that firms' voluntary registration choices are consistent with the input and customer channels of the formality chain effect, circles (unregistered firms) should be clustered towards the origin, and there should be more triangles (registered firms) as the measures on the x-axis (B2B) and y-axis (ICR) increase. This is generally what is observed for the B2B ratio, but not for the ICR.

To test these visual clues that voluntary registration choices in the sample are consistent with customer channel chain effects but not input channel chain effects, Table 4 reports a set of logistic regression results. In these regressions, VAT-registration status (a dummy) is the dependent variable, taking a value of 1 if the firm voluntarily registered and 0 otherwise. Specifications (1) and (2) include only one independent variable: ICR in specification (1); B2B in specification (2). Specification

(3) includes both ICR and B2B. Specification (4) adds dummy variables for sector to the specification in (3). To avoid collinearity, the omitted category is farmers, so reported estimates for artisans and handy people should be interpreted as average voluntary registration outcomes relative to those of farmers.

In all specifications, 95 percent confidence intervals are reported instead of standard errors to emphasize that the magnitudes (including the signs) of the estimates are imprecise due to small sample size.

Table 4: Determinants of Voluntary Registration: Logistic Regression Results

	(1) Only ICR	(2) Only B2B	(3) ICR and B2B	(4) Incl. Sector Controls
ICR	-0.0092 [-0.48,0.46]		0.011 [-0.50,0.52]	0.0050 [-0.56,0.57]
B2B Ratio		3.77*** [1.64,5.90]	3.74*** [1.58,5.90]	2.94* [0.66,5.22]
Artisan				-1.41* [-2.48,-0.33]
Handy- person				-0.70 [-2.32,0.92]
Constant	-0.32 [-0.84,0.20]	-0.87*** [-1.37,-0.38]	-0.90** [-1.52,-0.29]	-0.069 [-1.00,0.86]
<i>N</i>	93	96	93	93
pseudo $R^2$	0.000	0.187	0.184	0.237

Notes:

95% confidence intervals in brackets.

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

In the first three specifications, B2B Ratio emerges as being highly significantly related to voluntary registration status. When industry controls are added, the significance attenuates, but still reaches the 5 percent level. The B2B ratio's positive and significant correlation with voluntary registration is consistent with the presence of customer-channel formality chain effects.

These B2B Ratio estimates contrast with the estimates for input credit ratios. ICR is not significant in any of the specifications; that is, one cannot reject the null

hypothesis that the estimated coefficient is zero, and logistic regressions of each sector separately confirm—even for farmers, the category for which the input channel would seem to be most important due to zero-rating of basic food—that the coefficient on ICR is insignificant.<sup>96</sup> The null hypothesis of no relationship between ICR and voluntary registration status cannot be rejected.

In sum, these results suggest that firms' voluntary registration patterns are consistent with customer channel formality chain effects but not input channel formality chain effects. Entrepreneurs understandably may be sensitive to the expressed or implied preferences of their customers with respect to voluntarily registering. What is perhaps surprising is that they are less sensitive to the availability of a cash refund for input tax credits. The next subpart explores the qualitative responses for possible insights into this observed asymmetry.

### *B. Qualitative Results: Complexity of Registration*

The survey instrument sought to draw out, both through specific and open-ended questions, participants' qualitative experiences with the GST/HST voluntary registration decision as well as the factors they considered in making the choice. The key theme that emerged concerned the complexity of registering relative to the possible benefits.

Two specific questions explored the process of obtaining information about voluntary registration and then actually registering.

#### 1. Navigating the choice (question 1a)

The first question in the survey was about whether the participant had heard about the election to voluntarily register. If the participant answered “yes,” the follow up question (1a) was an open-ended one about the experience of getting information about the election: was it easy or difficult to get the information necessary to decide whether to voluntarily register?<sup>97</sup> Of the 98 participants, 40 had heard of the election (about 41 percent). Of those who had heard of the election, a clear majority (30 respondents, or 75 percent) thought it was fairly easy to get the info, whereas 9 thought it was difficult, and one had some other response.<sup>98</sup> The “easy” responses

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<sup>96</sup> Robustness checks on file with author also partitioned the sample and looked at the effect of ICR and B2B on voluntary reporting for each sector. ICR was insignificant for all sectors, including farmers, in specifications where it was included alone and also alongside B2B ratio. By contrast, B2B was highly significant across sectors.

<sup>97</sup> The exact wording of the question is: “Was it easy or difficult to obtain the information you needed about the small supplier exemption from GST/HST? Please explain.” See Appendix A, question 1a.

<sup>98</sup> Coded responses and breakdowns on file with author.

weren't very interesting (most often one-word answers); however, the comments of those who struggled to find information about the election were revealing at times..

One participant commented: "It took time....[I] researched online and went to a workshop for taxes for artisans at City Hall."<sup>99</sup> Another noted that, "[The] only information is via the internet, and there isn't that much information regarding small supplier exemption online."<sup>100</sup> Said a third: "[It was] not easy—when I went to register I didn't see the info, and I didn't know about it at that time (only later on my uncle's accountant told me about it!) so I just went ahead and registered, thinking that I had to."<sup>101</sup>

Participant #1026's answer was particularly spirited: "I did some research on the CRA website, but because I have sales of (a lot) less than \$30K, it seemed to be voluntary. I didn't fully understand it! From what I gathered it is voluntary, and if I did register that I would be paying more than I got back. I figured this out by talking to my boyfriend, who is in finance....Generally, I go straight to the CRA website, I watch all the videos, etc. But it is all very confusing. After I watched the HST one, I was thinking 'why *not* register?' It didn't really come across that if you registered you would have to charge your customers and pay the HST. And can you include HST in the price? How does this work? It is confusing. Because I sell my stuff through Arts Market [an organization that provides stalls/space for individual independent vendors], I asked them what to do. They said they don't do anything with taxes [implying I was on my own to figure things out]."<sup>102</sup>

## 2. Experience of registering (question 2(a)(i))

Artisans: of the nine artisans that had registered, six had something to say about the process of registering and complying (three declined to answer). Three said that it was fairly straightforward, but two found it difficult. The sixth artisan (Participant 1012) had a hybrid response—she found registering "super easy, it took two seconds," but de-registering was described as "a nightmare and very confusing."<sup>103</sup>

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<sup>99</sup> Participant #1032.

<sup>100</sup> Participant #1005.

<sup>101</sup> Participant #1012.

<sup>102</sup> Participant #1026. This was given in response to a question soon after 1a, but addressed the same issue. This participant asked the interviewer if she knew any small business tax advisors.

<sup>103</sup> Participant #1012. This participant also noted: "But to get OUT of it, this has been a nightmare and very confusing." Further noted that "I never charge it, even for bigger jobs when my client is a corporation or bigger business."

Among those who thought registering and complying was easy, Participant 250 noted that her process had gotten easier over time: “I build the HST directly into my prices, so at the end of the year go to the CRA site where I do the reverse HST calculations to find out what to send in. I used to calculate my amounts on a per product bases which was really hard and time consuming.”<sup>104</sup> Participant 1024 stated simply that it was “fairly easy”<sup>105</sup> Participant 1031 noted that the actual process was easy, but that researching and understanding it was time-consuming.<sup>106</sup>

Among the artisans who found the process to be challenging, Participant 1036 stated that it was “[n]ot very easy. I want to file properly and do everything right, but the steps that I need to take to do that are not clear.”<sup>107</sup> He listed issues that included: hard to change addresses, not easy to call and get someone on the phone to help, things not explained well on the CRA website.<sup>108</sup> Participant 1023 reported: ““Hassle. I did all my orders inclusive of HST initially because [I] moved to Canada from New Zealand and thought that it was required.”<sup>109</sup>

Farmers: of those who were registered, the following responses stood out. 24 of the 29 farmers who voluntarily registered said the process was easy. Four said it was difficult, and one declined to answer.<sup>110</sup>

- “Easy. I track all the GST I paid in a year and then submit to my accountant once at the end of the year to claim.”
- “I’ve had an HST number since 2000 and it’s an annual remittance. It’s a hassle because each year I lose receipts and therefore don’t get my HST back. I remember way back when my Mom and Dad farmed and they were GST exempt if they showed their card at certain outlets. Now it’s pay HST everywhere and then try and get it back if you have the receipts. I wonder if it’s planned that way.”

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<sup>104</sup> Participant #250

<sup>105</sup> Participant #1024.

<sup>106</sup> Participant #1031. “Easy; just went online and filled out a form. Everything was done within an hour and received the registration within two weeks. In terms of collecting and remitting, it’s easy. [I put] the tax into the price of the product to the consumer. No problem with remitting. However, I did spend a lot of time researching the issue.”

<sup>107</sup> Participant #1036.

<sup>108</sup> Id.

<sup>109</sup> Participant #1023.

<sup>110</sup> [update for participant #]

- “Registration was easy but I really wasn’t sure if necessary since I don’t do \$30,000 in sales. The HST people made me register twice when I put solar panels on my farm [e.g., for sale] so I know have two numbers. Other local farmers didn’t have to register twice; they allowed them to use the same number. With both farm and solar, my sales are still below \$30,000.”
- “Mostly easy. I was just a bit confused at the start but think I have it under control now.”
- “It is really not too bad for me. My issue originally was I did not have to collect through an exemption [e.g., zero-rated] but now I have to collect if I wish to claim input credits. I have no choice.”
- “It’s a hassle but I keep my receipts and qualify for a refund. I do not gross enough to have to charge my customers the HST. As all my sales are food items I don’t have to charge anyway [because of zero-rating].”
- “No problems. We have been registered for 30 plus years.”
- “Registering was fairly easy. Collecting and remitting is not too difficult, but it is time consuming.”
- “It is confusing because most of what I sell is zero rated so I do not need to collect or remit but every once in awhile I sell something and I am expected to collect and remit. Scrap metal on a farm vehicle for example and I get mixed messages from CRA and accountant. If any doubt I just collect and remit.”
- “It can be a little confusing, especially when first learning. While it’s a pain for me still, I have gotten the hang of it over time.”
- “It was not a problem getting registered or remitting the GST/HST.”
- “I only recently registered for GST/HST. I have not yet filed, however, the process seems fairly straightforward.”
- “It was pretty easy once I called them [the Canada Revenue Agency] and they explained it to me.”
- “Registering was really easy, just registered the farm name online. She does [her taxes] through Quickbooks, which prints out a report for her.”



But, she's not impressed with the fact that she is on an annual remittance which is always a large sum. She asked if she could go quarterly for her remittance, and when it came up this year she filed a remittance, they sent it back to her, and said they had no record of the change, so she is stuck with a yearly remittance."

- "Easy, very straightforward, registered over the phone, and she just did her first remittance online, and that was an easy process. Only difficult part was figuring out the tax language because she does not have an accounting background."

Handypeople: of the nine in this sector who agreed to be interviewed, three were registered and one was formerly registered. Like the artisans, the handy people were evenly split on the difficulty/hassle of the process of registering.

- Characterized it as a hassle. Because his customers are mainly homeowners he found it (when registered) "terribly laborious" to try and encourage himself to ask for 13% [the GST/HST rate] more.
- "It was complicated at first; had to take the time to inform himself and go through government websites; not common knowledge."
- "Easy – just had to go on the the website and enter basic information."
- "Easy. Went online and checked the process; called directly; gave business number; was sent everything needed."

\* \* \* \* \*

As the above survey responses and interviewer notes illustrate, there was significant heterogeneity in the reported experiences of the process of voluntarily registering. However, among those firms that had voluntarily registered (particularly among farmers), entrepreneurs' *ex ante* fears about complexity and high compliance costs did not appear to be borne out by the actual experience of registering and navigating the GST system. On the flipside, for those who were not registered, trepidation about complexity was frequently cited as a reason for remaining informal (particularly among artisans). This may imply that, in the case in which the input channel would otherwise provide incentives to register (i.e., cash refunds for input taxes paid), participants' fears about hassle and complexity costs of registering may have reduced the attractiveness (or perhaps simply the perceived net value) of the cash benefit.

Might the observed asymmetry in formality chain effect responsiveness stem from high perceived (if not actual) costs of registration and compliance among the unregistered firms? The qualitative responses suggest that complexity was a primary deterrent for unregistered forms that without customer channel formality pressures. These suggestions are not, of course, conclusive, but they raise the possibility that limited incentive for voluntary registration for such “input channel hold-outs” may be merited.

Such proposals are scarce in the literature, and to this author’s knowledge have not been discussed since the late 1990s when the GST was introduced in Australia.<sup>111</sup> However, there is policy precedent for offering registrants one-time partial compensation for the fixed costs of registration, in Canada no less. When Canada adopted the GST in 1991, part of its transition measures included a payment to small businesses to “offset the costs involved in the introduction of GST.”<sup>112</sup> The sliding scale cash payment was provided upon registration: enterprises with up to \$600,000 in sales received a cash payment of \$300, and enterprises with sales from \$600,000 up to \$2 million received a cash payment of the lesser of 0.5 percent of their sales or \$1,000.<sup>113</sup> In addition, during 1991 and 1992, a special provision allowed full expensing for income tax purposes of the capital cost of electronic point-of-sale and related inventory equipment.<sup>114</sup>

Given this suggestive evidence that entrepreneurs’ trepidation about the complexity of voluntary registration is a deterrent to formality chain effects, field experiments exploring the effectiveness of a small (potentially even a *de minimis*) subsidy for voluntary registration among firms with revenues below the threshold may be warranted. Such studies could shed light on whether the positive spillovers from formality among the set of firms that would be unlikely to register but for the subsidy—that is, those without customer channel incentives to register—are sufficient to justify the policy’s fiscal impact. Such studies could also assess, using interviews, recipients’ subjective perceptions of such a policy.<sup>115</sup>

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<sup>111</sup> See Fernandez and Oats, *supra* note 46 at 25.

<sup>112</sup> See L. Dana, A Goods and Services Tax (GST) and the Small Business Sector: Some Canadian Reflections, 52:4 *Australian J of Public Admin* 457, 461 (1993). [Editors: I am still tracking down the primary source for this, but it’s been verified by Bird as these two secondary source; I expect to have it very soon.]

<sup>113</sup> See Fernandez and Oats, *supra* note 46 at 25.

<sup>114</sup> See Dana, *supra* note 112, at 461.

<sup>115</sup> The possibility that a positive “carrot” might pay dividends in increasing trust or subjective good will towards the tax authority has been investigated by other studies, and might be relevant here. See Carillo, *supra* note 47, at 3-5.

#### IV. CONCLUSION

This paper explored the voluntary GST registration decision-making of a sample of ninety-eight Canadian small suppliers (businesses with annual revenues of less than \$30,000). The formality chain effect theory relating to input credit VATs, of which the GST is an example, predicts that businesses with high ratios of (1) purchases of formal inputs to aggregate sales and (2) registered business sales to aggregate sales will find it advantageous to voluntarily register through either one or both of those channels. There is a voluminous empirical literature on the problem of high VAT compliance costs for small firms. This paper addresses the possibility that, in the context of a VAT with a low registration threshold (i.e., voluntary registration only available to microenterprises) such costs would weaken or even eliminate the formality chain effect.

Quantitative results show that microentrepreneurs' voluntary registration decisions are broadly consistent with customer channel formality chain effects but not input channel chain effects. To help understand this asymmetry, the qualitative responses in the survey were analysed and a key set of themes emerged. Particularly for those who had not registered (and lacked customer channel incentives), the voluntary registration process was perceived to be complex and potentially costly.

Further research on voluntary registration and formality chain effects among microenterprises is needed, particularly studies that use large administrative datasets, field experiments, or all of the above. Indeed, one of the primary goals of this project was to stimulate further interest in such studies. Nonetheless, the study's results can be seen as consistent with a set of policy implications with potential value to legislators as well as advocates for micro-entrepreneurs. First, there may be a case for adopting (and certainly not repealing) voluntary registration provisions in spite of the complexity costs they add. Similarly, mandatory de-registration provisions for firms with revenues that have fallen below the registration threshold has been discussed in various context, and this study suggests that such proposals may sacrifice the gains from strong customer-channel chain effects. Second, policy proposals to revive transitional policies (such as in Canada) that provided subsidies to small businesses as compensation for (some of) the fixed costs of registration merit particular study.

## APPENDIX A: APPROACH TO DATA CLEANING

1. “Amount of informal inputs” (variable name: `informal_materials_amt`) where participant said yes informal inputs but didn’t specify amount, inserted value of 10 percent of input expenses (applies to: participants 167, 1018)
2. “Amount of sales to registered businesses” (variable name: `sales_to_registered`) where participant said yes sales to registered businesses but didn’t/couldn’t specify amount, inserted value of 10 percent of sales (applies to: participant 179)
3. “Amount of expenses on inputs” (variable name: `materials_spending`): For declared loss firms who won’t say amount of loss, we apply a 20 percent rule - assume input expenses are 1.2x sales.
4. When range was given for dollar amounts or percentages, used midpoint.
5. When responded “less than” X amount, inputted next whole-hundreds increment (i.e., less than \$30,000 = \$29,900) for dollar values and next percentage for percentages (i.e., less than 20 percent = 19 percent).
6. When responded “very small” proportion of sales were to registered businesses, inputted 1% of revenues.
7. General rule: we read responses in their entire context to catch potential mis-codings. This applied to only one observation (participant 1047): a farmer who marked “NOT registered” but then talked about getting GST back after spending money on a capital repair and experiences in registering was recoded, based on the balance of the information available, as being registered.<sup>116</sup>

Note: none of these rules applied to more than four observations.

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<sup>116</sup> A farmer who said he was not registered (“No - doesn’t have anything to sell that requires charging for GST/HST”) answered a later question (about his experience filing taxes) with this:

“Anything to do with taxes is a hassle; would rather be outside working than sitting at the table doing paperwork. He preferred the system when farmers were tax exempt. He was registered at the local farm store as a farmer and didn’t have to pay tax at all. Now he has to pay tax, keep track of what he spends on tax, and he gets is back at the end of the year. He finds all of this extra paperwork a hassle.” Finally, he answered the question “What specific tax issues present problems for you?” with: “One year he had to do a transmission repair on his truck and he had to figure out whether or not he could get the GST back after paying for that service.” Based on this, he was recoded as being registered.

## APPENDIX B: SUMMARY OF DATA BY SECTOR

Table B1: Entrepreneur and Firm Descriptive Variables, by Sector, Part I

	Far mer s	NA	% Far mer s	Artis ans	NA	% Artis ans	Ha ndy	NA	% of Han dy	Tota l	NA	% of Full Sample
Registered for VAT	29	-	67%	9	-	20%	3	-	33%	40	-	41%
Considered registering*	7	-	50%	29	-	78%	4	-	67%	40	-	69%
Heard of Exemption	16	-	37%	18	-	39%	6	-	67%	40	-	41%
Sells to VAT-registered customers	24	-	56%	11	-	24%	6	-	67%	41	-	42%
Buys materials from an informal supplier	15	2	37%	14	0	30%	1	-	11%	30	2	31%
Identified as female	17	6	46%	37	3	86%	1	-	11%	55	9	62%
Born In Canada	38	-	88%	32	1	71%	7	-	78%	77	1	79%
Identified as minority	3	1	7%	15	-	33%	5	-	56%	23	1	24%
Business is primary source of income	13	-	30%	13	1	29%	5	-	56%	31	1	32%
First business participant has started	31	1	74%	36	-	78%	7	-	78%	74	1	76%

Notes:

(1) NA indicates “prefer not to answer.”

(2) \*Calculated as a percentage of non-registered firms.

Farm businesses had the highest levels of voluntary registration, at 67 percent, although the fact it was *only* 67 percent is notable, given farm products’ zero-rated status. This may suggest that input credits were not sufficient to justify registration for the 35 percent of farmers who had not voluntarily registered. By contrast, only 20 percent of artisan businesses were registered. 33 percent of handy businesses were registered (a proportion that seems surprisingly high and is likely driven by the presence of formal customers – 67 percent of handy people had formal customers).

The name recognition of the small supplier election, or the exemption for small suppliers (see question phrasing), was fairly low among farmers and artisans (a bit shy of 40 percent had heard of it), but 67 percent of handy people responded that they had heard of it. This suggests that the handy people who agreed to respond to the survey may be particularly GST-literate, which (again) may be a function of the fact the handy person sample was particularly likely to have GST-registered customers.

The percentage of handy people that reported selling to VAT-registered business customers was the highest of the three sectors at 67 percent. 56 percent of farmers sold to registered customers, and 24 percent of artisans made sales to VAT-registered customers.

With respect to having made purchases of informal inputs, in no sector did a majority of the participants say “yes.” 37 percent of farmers reported buying inputs from an unregistered (informal) seller, 30 percent of artisans, and only one (11 percent) of the handy people (out of the nine).

The demographic characteristics showed substantial variation with respect to gender identification, native born status, and minority group identification. 86 percent of artisans identified as female, 46 percent of farmers, and again only one (11 percent) handy person. Native-born Canadians were the clear majority of participants in all the subsectors, but farmers had the highest proportion (88 percent native-born) followed by handy people at 78 percent and artisans at 71 percent. Identifying as a minority group<sup>117</sup> had the greatest variation across sectors: only 7 percent of farmers, 33 percent of artisans, and 56 percent of handy people.

Table B2: Entrepreneur and Firm Descriptive Variables, by Sector, Part II

	Farmers			Artisans			Handy people			All sectors		
	25 <sup>th</sup> %ile	Media n	75th %ile	25th %ile	Med ian	75th %ile	25th %ile	Med ian	75th %ile	25th %ile	Me dian	75th %ile
Entrepreneur Age Tier	3	4	5	2	3	4	2	3	3	2	3	5
Household Income Tier	2.5	3.5	4	2	3	4	2	2	3	2	3	4
Business Age Tier	3	4	5	2	3	3	2	2	3	2	3	4

Notes:

Entrepreneur Age Tier: 2 = age 25 to 34; 3 = age 35 to 44; 4 = age 45 to 54

Income Tier: 2 = \$20,000 to \$39,999; 3 = \$40,000 to \$79,999; 4 = \$80,000 to \$149,999

Business Age Tier: 2 = 1 to 2 years; 3 = 3 to 5 years; 4 = 6 to 10 years

<sup>117</sup> The phrasing of the question was simply, “do you identify as part of a minority group”?