Accounting for the New Gains from Trade Liberalization

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Abstract

1 Introduction

at the industry-level which allows us to control for contemporaneous shocks to Canada. Our main …nding is that Canada actually su¤ered from "new" welfare losses since it gained less from US entry into exporting than it lost from Canadian exit out of production. These losses accumulate to -1.52% of Canada's real income over our 8-year CUSFTA period between 1988 and 1996.[1]

While the "new" gains from trade are ultimately determined by the market shares of entering and exiting …rms, we can still decompose them into domestic variety, domestic productivity, import variety, and import productivity e¤ects. Our methodology allows us to do so in a fully theory-consistent manner thereby sidestepping some serious problems the trade and productivity literature has faced. For example, a common approach is to measure …rm productivity as revenue per worker which is inaccurate in Melitz (2003) type environments. This is simply because more productive …rms also charge lower prices so that variation in revenue per worker understates variation in …rm productivity.

Our methodology builds on the seminal work of Feenstra (1994) which shows how to account for new goods when calculating changes in CES price indices. We extend this work into a full-‡edged decomposition of the gains from trade based on a generalized Melitz (2003) model separating out "traditional" and "new", domestic and foreign, and variety and produc-

tions on entry into production and exporting and the distribution of …rm productivities used by Arkolakis et al (2012).

The remainder of this paper is organized as follows. In the next section, we present our methodology by developing our general heterogeneous …rm model, describing our decomposition of welfare changes into "traditional" gains from trade and "new" gains from trade, and linking our decomposition to su¢ cient statistics that can be tabulated from micro data. In the third section, we then turn to our application to CUSFTA by discussing our data, describing our aggregate …ndings, and presenting our industry-level results which also include the results obtained from our di¤erences-in-di¤erences analysis. A …nal section then draws conclusions and summarizes our main results.

2 Methodology

2.1 Basic framework

We introduce our methodology using a generic heterogeneous …rm model of trade. Consumers have constant elasticity of substitution preferences over di¤erentiated varieties sourced from many countries. These varieties are produced by monopolistic …rms with heterogeneous productivities at constant marginal costs using labor only and trade is subject to iceberg costs. We remain agnostic about the determin-336(4-322(on)-gr)1(e)-1(g)1(ate)-280(…)1o1(sti)rtf09-361(v)562g2m(ec

These bilateral trade flows can be rewritten as $X_{ij} = M_{ij} \left(\frac{w_i \tau_{ij}}{\tilde{\tau}_{ij} P_j} \right)^{1} Y_j$, where $\tilde{\tau}_{ij} = \left[\int_{\varphi \geq \varphi_{ij}} \varphi^{\sigma-1} dG_i(\varphi) \right]^{\frac{1}{\sigma-1}}$

in the average productivity of continuing …rms or because of changes in the composition of …rms, we separately de…ne the average productivity of continuing …rms $\tilde{\varphi}^{c}_{ij}$ and expand $\ln \frac{\tilde{\varphi}'_{ij}}{\tilde{\varphi}_{ij}} = \ln \frac{\tilde{\varphi}^{c\prime}_{ij}}{\tilde{\varphi}^{c}_{ij}} + \ln \frac{\tilde{\varphi}'_{ij}}{\tilde{\varphi}_{ij}} \ln \frac{\tilde{\varphi}^{c\prime}_{ij}}{\tilde{\varphi}^{c}_{ij}}$ so that $\ln \frac{p'_{ij}}{p_{ij}} = \ln \frac{w'_i}{w_i} + \ln \frac{\varphi'_{ij}}{\varphi_{ij}} \ln \frac{\tilde{\varphi}^{c\prime}_{ij}}{\tilde{\varphi}^{c}_{ij}} \ln \tilde{\varphi}'_{ij}$

For concreteness, let us elaborate on our decomposition by considering the welfare e¤ects of CUSFTA on the Canadian economy. The …rst term, $\ln \frac{p'_{ij}}{p_{ij}}$, simply describes that trade

Canadian …rms out of the Canadian market which would bring about a variety loss $\frac{1}{1}\ln\frac{M'_{jj}}{M_{jj}}$. However, these …rms are likely to be less productive than the average Canadian …rm so there would be a counterbalancing productivity gain $\ln\frac{\tilde{}'_{jj}}{\tilde{}_{jj}}$ $\ln\frac{\tilde{}c'_{jj}}{\tilde{}c_{jj}}$. Notice that these productivity adjustments simply capture that the US and Canadian …rms which enter and exit into serving the Canadian market o¤er their varieties for relatively high prices as a result of their relatively low productivity. This makes them relatively unattractive to Canadian consumers compared to the average US and Canadian …rms.

An important implication of this intuition which we will con…rm more formally below is that the productivity adjustments can only ever have a modulating character and never overturn the underlying variety e¤ects. In particular, Canadian consumers always gain from additional US varieties no matter how unproductive the new US exporters are. Similarly, Canadian consumers always lose from disappearing Canadian varieties no matter how unproductive the exiting Canadian …rms are. At the most basic level, this just re‡ects the fact that consumers value any variety in a di¤erentiated goods environment as long as it is available for purchase at a …nite price.

This means that if there are positive "new" gains from trade in this environment they should be associated with the entry of foreign …rms into exporting and not with the exit of domestic …rms out of production. While this might seem obvious in light of our discussion, it contradicts the standard narrative presented in the heterogeneous …rm literature. In particular, it is usually emphasized that trade liberalization increases average productivity by causing the least productive …rms to shut down. While this is true, it just means that consumers lose less from the -1((al)1(ly)-253(emp)-7h[(les(ely)]T-312(-307(jus)-1(t)-306(mhis)-fffl3-ff(t)-30r)1(o)-52um)-1(ons

pro…ts disproportionately to labor income.

It is sometimes observed that trade liberalization not only increases domestic productivity by forcing the least productive …rms to exit but also by reallocating resources from less to more productive continuing …rms. While one might suspect that such reallocations are also part of the "new" gains, they actually show up as terms-of-trade e¤ects in the "traditional" gains. To see this, notice that they do not change the purchasing power of domestic wages in terms of domestic goods since …rms charge constant markups over marginal costs. Hence, they can only change the purchasing power of domestic wages in terms of foreign goods which happens only if they a¤ect domestic wages relative to foreign wages.

An interesting special case of our framework is the Melitz (2003) model with Pareto distributed productivities considered by Arkolakis et al (2008). As we show in the appendix, it implies that $\sum_{i=1}^{N} \frac{}{1} \ln \frac{M'_{ij}}{M_{ij}} = 0$ and $\sum_{i=1}^{N} \ln \frac{\lambda'_{ij}}{\lambda_{ij}} \ln \frac{\lambda c'_{ij}}{\lambda c_{ij}} = 0$ following trade cost reductions so that there are then no "new" gains from trade. In our CUSFTA example, this would imply that the increased availability of US varieties would be exactly o¤set by the decreased availability of Canadian varieties in welfare terms. Similarly, the increase in the average productivity of Canadian …rms would be exactly o¤set by the decrease in the average productivity of US exporters in welfare terms.[6]

Feenstra (2010) has shown that in this special case it is also true that $\ln \frac{W'_j}{W_j} = \ln \frac{\lambda'_{jj}}{\lambda_{jj}}$. While it is tempting to conclude from this that domestic productivity gains are the only source of welfare gains, it is easy to verify that $\ln \frac{\lambda'_{jj}}{\lambda_{jj}} = \sum_{i=1}^{N} \ln \frac{\lambda'_{ij}}{\lambda_{ij}} + \ln \frac{w'_j}{w_j} \ln \frac{w'_i}{w_i} + \ln \frac{\lambda c'_{ij}}{\lambda c_{ij}}$. Hence, $\ln \frac{\lambda'_{jj}}{\lambda_{jj}}$ is simply a su¢ cient statistic for what we call the "traditional" gains which would also appear in a version of our model without …rm heterogeneity. For example, the term $\sum_{i=1}^{N} \ln \frac{\lambda'_{ij}}{\lambda_{ij}}$ simply captures the direct e¤ect trade cost reductions have on the domestic price index which then brings about a number of endogenous adjustments including domestic selection e¤ects among heterogeneous …rms.[7]

[6] Atkeson and Burstein (2010) show that the "indirect e¤ect" of small trade cost reductions is zero in a

Melitz and Redding (2015) have recently shown that, conditional on initial trade shares and

tion on the change in the market shares of continuing …rms serving market j . These simple su¢ cient statistics are easily measurable using micro data and capture the overall welfare

yields $\ln \frac{W_j'}{W_j} = \sum_{i=1}^{N} {}^{c}_{ij} \ln \frac{{}'_{ij}}{{}_{ij}} + \ln \frac{w_j'}{w_j} \ln \frac{w_i'}{w_i} + \ln \frac{\tilde{}^{c'}_{ij}}{\tilde{}^{c}_{ij}} + \frac{1}{1} \ln \frac{Y_j^{c}=Y_j}{Y_j^{c'}=Y_j'}$ in our environment, where the last term represents the "Feenstra-Ratio". As can be seen, this is closely related to our decompositions $\ln \frac{W_j'}{W_j} = \sum_{i=1}^{N} {}_{ij} \ln \frac{{}'_{ij}}{{}_{ij}} + \ln \frac{w_j'}{w_j} \ln \frac{w_i'}{w_i} + \ln \frac{\tilde{}^{c'}_{ij}}{\tilde{}^{c}_{ij}} + \frac{1}{1} \sum_{i=1}^{N} {}_{ij} \ln \frac{X_{ij}^{c}=X_{ij}}{X_{ij}^{c'}=X_{ij}'}$ as well(w)27(645)s

decomposition in which the Feenstra-Ratio captures the "new" gains also uses $\frac{c}{ij}$ to calculate the "traditional" gains so that our negative "new" gains result is robust to limiting these trade shares to continuing …rms.

2.4 Extensions

Before taking our methodology to the data, we consider a number of extensions to explore the robustness of our approach to departures from the assumptions we have so far imposed. In particular, we consider versions with nontraded and intermediate goods, endogenous markups, tari¤ revenues, multiproduct …rms, and heterogeneous quality. However, we continue to limit ourselves to one-sector models for now and postpone a discussion of multi-sector versions to when we introduce our di¤erence-in-di¤erences approach later on. In the interest of brevity, we relegate detailed derivations to the appendix and only provide an intuitive discussion of the central insights in the main text.

2.4.1 Nontraded and intermediate goods

We introduce nontraded and intermediate goods as in Alvarez and Lucas (2007) by assuming that consumers spend a share $1 \quad _j$ of their income on nontraded goods, …rms spend a fraction $1 \quad _j$ of their costs on intermediate goods, …rms aggregate varieties into goods just like consumers, and nontraded goods are produced under perfect competition and constant returns. In the appendix, we show that we can then still apply equations (1) - (3) with the only di¤erence that decomposition (1) has to be scaled by the factor $\frac{j}{j}$. Intuitively, nontraded goods dampen the gains from trade because they make trade less important while intermediate goods magnify the gains from trade because they allow …rms to bene…t from lower input costs.

In the presence of intermediate goods, the interpretation of decomposition (1) also has to be broadened in the sense that it then combines direct and indirect e¤ects. For example, a "traditional" fall in trade costs or a "new" increase in import variety then not only bene…ts consumers directly but also indirectly because …rms charge lower prices as a result of reduced input costs. Mechanically, these indirect gains then also show up as labor productivity gains even if the fundamental …rm productivities ' remain unchanged. This is simply because …rms

can produce more output per worker if they have access to cheaper or more intermediate goods.

2.4.2 Endogenous markups

We allow for endogenous markups in our CES environment by assuming that there is a discrete number of …rms instead of a continuum of …rms so that …rms take the price index e¤ects of their pricing decisions into account. The implication of this is that more productive …rms also charge higher markups since they face lower demand elasticities due to their larger market shares. In the appendix, we show that equations (1) - (3) then still remain valid as long as we reinterpret the average productivity terms in decomposition (1). In particular, they then no longer only capture average productivity e¤ects in isolation but a combination of average productivity and average markup e¤ects.

This reinterpretation applies to the selection e¤ects as well as the within-…rm productivity e¤ects. In the extended model, the term $P_{i=1}^{N}$ $_{ij}$ $\ln \frac{'_{ij}}{\tilde{'}_{ij}}$ $\ln \frac{c'_{ij}}{\tilde{c}_{ij}}$

production and exporting.[11]

opposition in Canada which was only overcome in a general election on November 21, 1988. As a result, we feel comfortable interpreting our measured welfare e¤ects as gains from trade resulting from CUSFTA but would also like to reiterate that our welfare decomposition is valid regardless of what shock hits the economy.

To implement our methodology, we need information on domestic sales in Canada and exports to Canada before and after CUSFTA came into force broken down into sales by continuing …rms, exiting …rms, and entering …rms. In order to separately identify variety gains and productivity gains, we also need these sales broken down into their extensive and intensive margins which essentially means that we need to know the respective number of …rms. As we now explain in more detail, we use micro data from Canada and the US. The US is by far the most important trading partner of Canada accounting for on average 70% of its manufacturing imports during our sample period.

Our Canadian data come from an annual survey of manufacturing establishments which was initially called Census of Manufactures and is now known as Annual Survey of Manufactures. It covers all but the very smallest Canadian manufacturing establishments currently requiring an annual value of shipments of only $30,000 or more. Notice that an accurate representation of small …rms is very important for our purposes since we are particularly interested in entering and exiting …rms.[13] We do not have direct access to this con…dential data and rely on special tabulations provided to us by Statistics Canada when calculating our Canadian estimates.

We have information on the counts and domestic shipments of all, all entering, and all exiting establishments in 1978, 1988, and 1996 at the 2-digit Canadian SIC level. We de…ne an enterigterifor267(as)-26er-445(a)3l

exiting and continuing ones with respect to the subsequent time period.

We choose the years 1978, 1988, and 1996 to construct our Canadian summary statistics because those are the years for which Statistics Canada o¢ cials were most con…dent in the sampling frame, resulting in the most reliable decomposition of the establishment population into entering, continuing, and exiting establishments.[14] Despite this precaution, there are still some discrepancies in the reported counts of continuing establishments in adjacent time periods. We correct this, by …rst adjusting the shares of establishments that are reported to exit until the next period and then recalculating their average revenues so that the total revenues remain unchanged.[15]

Our US data come from the Census of Manufactures which is available every …ve years. Unfortunately, this census only contains information on exports starting in 1987 so that we restrict attention to the 1987 and 1997 census years leaving us without direct information on US pre-trends. Moreover, exports are not reported by destination so that we have to calculate the su¢ cient statistics we need using more aggregated data.[16] We use data on the counts of new, continuing, and exiting exporters as well as their average revenues from export shipments which we match to the 2-digit Canadian SIC level using a concordance available from the website of the University of Toronto library.[17]

In our baseline calculations, we use the total number of new, continuing, and exiting US exporters as a proxy for the number of new, continuing, and exiting US exporters to Canada and proceed analogously with the corresponding total and average export revenues. As should be clear from our decompositions (2) and (3), this yields unbiased estimates of the associated welfare e¤ects in simple di¤erences as long as the establishment count, total revenue, and

[14] For example, it is well-known that small …rms were undercounted in the Annual Survey of Manufactures in the early 1990s due to budget cuts (Baldwin et al, 2002). As we mentioned in the previous footnote, taking long di¤erences also reduces the likelihood of measurement error.

[15] In particular, it should be true that
Inl609.5 4xitijd4= 8.966 Tf-153 (l)-71 245In343.2 50-31(5)0 8.96636f 93.821 2-4.319 -25483
Inl-14(t)l1(o)13(;)-38367(C335(w-14(3)-356(da339(f)-8(t)l1(o)-377(sn141(e)c35(i)-335(f)-9(2)-16(a)623(p)-16(f))8(e66)-14(u)-16

average revenue shares of continuing exporters to all destinations are representative of the establishment count, total revenue, and average revenue shares of continuing exporters to Canada.

Since it is hard to reliably verify the accuracy of this restriction, we interpret our simple-di¤erences results with caution and refer also to our di¤erences-in-di¤erences approach. In

domestic market shares of Canadian …rms, the export market shares of US exporters also adjusted exactly as one would expect following CUSFTA given that it made exporting more attractive for US …rms. In particular, the market share of exiting US exporters was smaller than the market share of entering US exporters in the CUSFTA period resulting in a fall in the market share of continuing US exporters.

of average sales (Table 3) so that the entries in Table 1 are simply the product of the entries in Table 2 and Table 3. For example, the domestic market share of continuing Canadian …rms was 75.6% in 1978 because 48.3% of Canadian …rms were continuing …rms, the average revenues of continuing …rms were equal to 156.5% of the average revenues of all Canadian …rms, and 75:6% = 48:3% 156:5%.

Table 2 reveals the extensive margin patterns which are underlying the market shares presented in Table 1. Most obviously, it shows that there was a lot of entry and exit among Canadian …rms and US exporters with entering and exiting …rms accounting for an average 56.2% of all …rms. Moreover, it indicates that the number of Canadian …rms dropped in the CUSFTA period despite a sharp upward trend in the pre-trend period while the number of US exporters grew dramatically in the CUSFTA period. This can also be seen directly from the total counts of Canadian …rms and US exporters which are shown in parentheses in Table 2.[21]

Table 3 complements this by turning to the intensive margin patterns which are underlying the market shares presented in Table 1. As can be seen, continuing …rms were much larger than exiting or entering …rms which implies that they were also much more productive according to the model we use. While this mechanically implies that exit increases average productivity due to selection and entry decreases average productivity due to selection, we can say more about the net e¤ects of selection by interpreting the revenue shares in Table 3 through the

selection e¤ect was minimal for Canadian …rms in the CUSFTA period, it was strikingly large for Canadian …rms in the pre-trend period and US exporters in the CUSFTA period. Using the average Ober…eld and Raval (2014) elasticity of = 3:7 for our calculations, the net e¤ect of selection on average productivity was -0.4% among Canadian …rms in the CUSFTA period, -12.8% among Canadian …rms in the pre-trend period, and -17.1% among US exporters in the CUSFTA period.

While the adjustments in the number of Canadian …rms, the number of US …rms, and the average productivity of US exporters following CUSFTA were therefore exactly as one would expect, the …nding that selection implied a slight decrease in the average productivity of Canadian …rms is quite surprising at …rst. However, it is important to note that there is a strong pre-trend in the data and that selection still increased the average productivity of Canadian …rms relative to this pre-trend. In any case, we will also …nd positive e¤ects of selection on Canadian productivity in our later di¤erences-in-di¤erences speci…cations so that this surprising result will not hold up.

3.2.2 Gains from trade

Table 4 puts all the pieces together and …nally calculates the "new" gains from CUSFTA on the Canadian economy. Panels A and B …rst show the welfare e¤ects of entry and exit by Canadian …rms and US exporters respectively, following formula (3). Panel C then turns to the combined e¤ect by aggregating across countries to generate net "new" variety gains and "new" productivity gains following formula (1). Panel D …nally accounts for nontraded and

2143/F7135 7.97 Tf 165.80821 ..62d[( ]TJ/F58 10.909 Tf 8.7 .611 ..62d[(a-35496)-1(x)1(p)-29l)1(atein-1(d)-3449
intermediate g-424(e(cti)3Td[(f)-e)-1(r3ou)-1(n)a-1(r)ps 1anadiaa’ (r37)-369(me)yo mepor-1(nd.)iyure349(me-1

income increased by 0.20% per year due to "new" variety gains but decreased by a -0.54% per year due to "new" productivity losses resulting in negative "new" gains from trade of -0.34% per year. Underlying this are positive net variety effects of 1.90% per year combined with negative net productivity effects of -1.71% per year resulting from the net entry of US exporters as well as negative net variety effects of -0.50% and negative net productivity effects of -0.05% resulting from the net exit of Canadian firms.

Canada's overall "new" gains from CUSFTA increase to -0.23% when we take simple differences thereby controlling for the pre-trend in Canada. We set all US pre-CUSFTA effects to 0.00% in these calculations since we do not have any US pre-CUSFTA data and the available evidence suggests that there were no major US pre-trends.[24] While the overall welfare effect is similar with or without taking differences, the net variety gains and net productivity gains switch signs. In particular, the variety gains become negative while the productivity gains become positive since Canada experienced substantial net entry of underperforming firms in the pre-CUSFTA period.

While these "new" welfare losses are quite large in absolute terms, they are small relative to the "traditional" gains which we compute as a residual following the approach explained in section 2.3. Focusing again on the CUSFTA period, we estimate the "traditional" gains from CUSFTA on the Canadian economy to be 0.89% per year which includes all terms from the "traditional" gains expression in formula (1) except for domestic within-firm productivity effects. This is much larger than the negative -0.34% per year "new" gains from CUSFTA and implies that CUSFTA after all had a sizeable positive overall effect on Canadian welfare amounting to 0.55% per year.

These numbers for the "traditional" gains are calculated using our baseline model with iceberg trade barriers but do not change much if Canada's tariff revenue losses are taken into account. In particular, the share of tariff revenues in Canada's total spending dropped from 0.69% in 1988 to 0.18% in 1996 so that the adjustment term $\ln \frac{1+\frac{R_j}{w_j L_j}}{1+\frac{R_j}{w_j L_j}}'$ derived in the appendix amounts only to -0.06% in annualized terms. This implies that the "traditional"

[24] Recall that our analysis of disaggregated trade data suggested that US exports to Canada were not subject to any major trend in the pre-CUSFTA period. Recall also that the total number of US firms (i.e. exporters and non-exporters) stays fairly constant over time.

gains fall from 0.89% to 0.83% per year if Canada's tari¤ revenue losses are taken into account. Recall that we allocate the adjustment term to the "traditional" gains so that the "new" gains remain unchanged.

Table 4 also allows us to revisit some of our earlier conceptual points. In particular, we proved earlier that gaining varieties is always good and losing varieties is always bad in our generic heterogeneous …rm environment regardless of the associated productivity e¤ects. This is re‡ected by the fact that the individual variety gains always dominate the associated productivity losses and the individual variety losses always dominate the associated productivity gains. Moreover, we argued that this is necessarily true only for the gross e¤ects but not for the net e¤ects, an example of which is the dominating e¤ect of net productivity over net variety in the pre-trend period.

As a result, inferring welfare gains from observed productivity increases is more problematic than it might seem. This can be illustrated most clearly with reference to the "Di¤erence" column in Panel A of Table 4 which controls for the pre-CUSFTA trend. As can be seen, the average productivity of Canadian …rms increased by 1.22% per year due to selection following CUSFTA relative to the pre-CUSFTA trend. While it is tempting to interpret this as a sure sign of welfare gains, it is actually indicative of underlying net exit which brings about a -0.42% per year net welfare loss since the 1.22% per year productivity gain is overturned by a -1.64% per year variety loss.

Similarly, Table 4 also con…rms our earlier conjecture that partial calculations can yield grossly mismeasured estimates of the "new" gains from trade. In particular, Canada's 1.90% per year net variety gain from the larger number of US exporters is almost entirely o¤set by its -0.50% per year net variety loss from the lower number of domestic …rms once both are appropriately weighted leaving Canada with only a 0.20% per year net variety gain. Also, the -0.05% per year productivity loss from domestic selection is made much worse by the -1.71% per year productivity loss from foreign selection implying an overall -0.54% per year net productivity loss again after taking the appropriate weights into account.

countries and not just from the US. We ...nd that the "new" gains from trade are -0.31% per

that

trade.[26] Second, we would like to explore the e¤ects of CUSFTA in a di¤erences-in-di¤erences setting comparing the most strongly and the least strongly liberalized industries in order to deal with the possibility that our baseline results also re‡ect macroeconomic shocks other than the trade liberalization brought about by CUSFTA.[27]

Essentially, all this extended formula says is that we can …rst apply our baseline formula at the industry level and then aggregate across industries using the weights $_{js}$. This implies that the welfare e¤ects we discussed earlier now apply at the industry level and it is easy to show that they can also be measured in the same way. In particular, equations (2) and (3) now become $\frac{1}{s\ 1}\ln\ \frac{X^{c}_{ijs}=X_{ijs}}{X^{c'}_{ijs}=X'_{ijs}}\ =\ \frac{1}{s\ 1}\ln\ \frac{M'_{ijs}}{M_{ijs}}\ +\ \ln\frac{\tilde{}'_{ijs}}{\tilde{}_{ijs}}\ \ \ln\frac{\tilde{}^{c'}_{ijs}}{\tilde{}^{c}_{ijs}}$ and $\frac{1}{s\ 1}\ln\ \frac{X^{c}_{ijs}=X_{ijs}}{X^{c'}_{ijs}=X'_{ijs}}\ =$ $\frac{1}{s\ 1}\ln\frac{M^{c}_{ijs}}{M_{ijs}}+\ \frac{1}{s\ 1}\ln\frac{\Gamma^{c}_{ijs}}{\Gamma_{ijs}}\ \ \frac{1}{s\ 1}\ln\frac{M^{c}_{ijs}}{M'_{ijs}}\ \ \frac{1}{s\ 1}\ln\frac{\Gamma^{c'}_{ijs}}{\Gamma'_{ijs}}$. Again, $\frac{1}{s\ 1}\ln\frac{M^{c}_{ijs}}{M_{ijs}}\ \ \frac{1}{s\ 1}\ln\frac{M^{c}_{ijs}}{M'_{ijs}}$ are the variety gains from exit and entry and $\frac{1}{s\ 1}\ln\frac{\Gamma^{c}_{ijs}}{\Gamma_{ijs}}\ \ \frac{1}{s\ 1}\ln\frac{\Gamma^{c'}_{ijs}}{}$

We then exploit cross-industry variation in tari¤ cuts to assess if our baseline results are indeed driven by CUSFTA. In our calculations, we mainly rely on the tari¤ cut measures

slope coe¢ cient of the regression line. Essentially, we …rst calculate the predicted y_{ijs} for all industries and then average over them using Sato-Vartia weights.

In speci…cation 3, we then estimate $y_{ijs} = {}_0 + {}_1 {}^{CAN}_{s} + {}_2 {}^{US}_{s} + {}_3 {}^{CAN;MEX}_{s} + {}_{ijs}$ for domestic e¤ects and $y_{ijs} = {}_0 + {}_1 {}^{CAN}_{s} + {}_2 {}^{US}_{s} + {}_3 {}^{MEX;US}_{s} + {}_{ijs}$ for foreign e¤ects and report $\sum_{s} {}_{js} {}_{ijs} \hat{}_1 {}^{CAN}_{s} + \hat{}_2 {}^{US}_{s}$, where the new variables are log-changes in US tari¤ preferences granted to Canada (${}^{US}_{s}$), Canadian tari¤ preferences granted to Mexico (${}^{CAN;MEX}_{s}$), and Mexican tari¤ prefere4

$_{s}^{C;MEX}$ $_{s}^{MEX;US}$ $_{sIT}$

Having said this, our domestic productivity results are quite close to zero which seems at odds with what Tre‡er (2004) …nds.[33] However, Tre‡er (2004) also reports that the average employment of all …rms grows about as fast as the average employment of continuing …rms, $\frac{\Gamma'_{jjs}}{\Gamma_{jjs}}$ $\frac{\Gamma^{\epsilon\prime}_{jjs}}{\Gamma^{\epsilon}_{jjs}}$, when analyzing the employment e¤ects of CUSFTA. When interpreted through the lens of our model, this immediately implies that $\ln \frac{\tilde{\iota}'_{jjs}}{\tilde{\iota}_{jjs}}$ $\ln \frac{\tilde{\iota}^{c\prime}_{jjs}}{\tilde{\iota}^{c}_{jjs}}$ 0 from formula (5) since $\ln \frac{\Gamma^{c}_{jjs}}{\Gamma_{jjs}}$ $\ln \frac{\Gamma^{c\prime}_{jjs}}{\Gamma'_{jjs}} = \ln \frac{\Gamma^{\epsilon}_{jjs}}{\Gamma_{jjs}}$ $\ln \frac{\Gamma^{\epsilon\prime}_{jjs}}{\Gamma'_{jjs}}$ given that average revenues are proportional to the average wage bill. Hence, our conclusion di¤ers from Tre‡er's (2004) not because we have di¤erent …ndings but because our model tells us to interpret them di¤erently.

Essentially, our measurement of …rm productivity di¤ers from Tre‡er's (2004) in fundamental ways. In particular, we adopt …rm revenue as a size-based measure of …rm productivity and calculate the e¤ects of selection on average productivity by comparing the average revenues of continuing …rms and all …rms. This works because relative …rm revenues are log-proportional to relative …rm productivities in our model since all other determinants of

It is worth contemplating what economic forces might explain our domestic productivity result. One possibility is that …xed costs are heterogeneous so that the most pro…table …rms which survive trade liberalization are not necessarily the most productive ones. A more elaborate story is that the theoretical link between trade liberalization and average productivity does not extend to multi-industry settings in which more complex general equilibrium forces are at play. Along these lines, Segerstrom and Sugita (2015) have recently shown that domestic productivity should actually fall in more deeply liberalized industries in a multi-industry Melitz (2003) model contrary to what is commonly thought.

Tables 8-10 report all regression results underlying the di¤erences-in-di¤erences calculations shown in Table 7. Table 8 e¤ectively just puts numbers on the correlations shown in Figures 1-6 now also taking into account heterogeneity in $\frac{1}{s\ 1}$. As the …gures suggest, Canada's tari¤ cuts against the US are signi…cantly related to Canada's variety gains and

Given the usual narrative that trade liberalization expands import variety and improves domestic productivity, how is it possible that we …nd negative "new" gains from trade? The narrow answer is simply that import variety gains are counteracted by domestic variety losses, and domestic productivity gains are counteracted by import productivity losses, which all have to be taken into consideration for an accurate measurement of the "new" gains from trade. Essentially, trade liberalization brings about mirroring selection e¤ects among domestic producers and foreign exporters and focusing only on import variety and domestic productivity gains amounts to cherry-picking only the positive parts.

But taking this logic one step further, the broader point is that there are gains from foreign entry into exporting and losses from domestic exit out of production which can add up to positive or negative "new" welfare e¤ects. The magnitudes of these gains and losses depend on the combined domestic market shares of a¤ected …rms which, in turn, depend on the number of …rms a¤ected and their average productivities. An implication of this is that the productivity e¤ects only have an attenuating character and do not overturn the underlying variety e¤ects. For example, losing a low productivity …rm is still harmful, just less harmful than losing a high productivity one.

Let us close with a reminder that our …nding of negative "new" gains from CUSFTA does

5 Appendix

5.1 Special case of Arkolakis et al (2008)

This appendix presents a version of Melitz (2003) considered by Arkolakis et al (2008) and derives the associated expressions mentioned in the main text. This is a special case of our model because it imposes a speci…c entry process and assumes Pareto distributed productivities. In particular, entrants into country i have to hire f_i^e units of labor in country i before drawing their productivities, where f_i^e is a …xed cost of entry. Moreover, entrants into country i wishing to serve market j have to hire f

pretation of the average productivity term. To see this, notice that we can simply rewrite the pricing formula as $p_{ij}(\varphi) = \frac{1}{1}\frac{w_i \tau_{ij}}{\varphi \varepsilon_{ij}(\varphi)/(\varepsilon_{ij}(\varphi)-1)}$, so that the model with endogenous markups looks like a model with constant markups and scaled productivities. In particular, it should be clear that we can still write $X_{ij} / M_{ij} \left(\frac{p_{ij}}{P_j}\right)^{1} Y_j$, $p_{ij} / \frac{w_i \tau_{ij}}{\tilde{\varphi}_{ij}}$, and $Y_j / w_j L_j$ just using the modi..ed de..nition of average productivity $\tilde{\varphi}_{ij} = \left[\int_{\varphi \geq \varphi_{ij}} \left(\frac{\varepsilon_{ij}(\varphi)}{(\varepsilon_{ij}(\varphi)-1)}\varphi\right)^{1} g_i(\varphi \mid \varphi \geq \varphi_{ij})\right]^{\frac{1}{-1}}$, where $g_i(\varphi \mid \varphi \geq \varphi_{ij})$ is now the fraction of country i ...rms with productivity φ serving country j.

5.4 Tari¤ revenue

continuum of products indexed by with the same elasticity of substitution so that the prices $p_{ij!}$ are also price indices given by $p_{ij!} = \int_{2\ ij!} p_{ij!}^{1}\ d\ ^{\frac{1}{1-}}$. To be clear, each …rm makes one variety, $_{ij}$ is the set of varieties from country i available in country j, and $_{ij!}$ is the set of products contained in variety $! \ 2\ _{ij}$.

It should be clear that changes in the aggregate price indices can then still be decomposed into $\ln \frac{P_j'}{P_j} = \sum_{i=1}^{N}\ _{ij}\ \ln \frac{'_{ij}}{_{ij}} + \ln \frac{w_i'}{w_i}\ \ \ln \frac{\tilde{}_{ij}^{c\prime}}{\tilde{}_{ij}^{c}}$ $\sum_{i=1}^{N}\ _{ij}\ \ \frac{1}{1}\ln \frac{M_{ij}'}{M_{ij}} + \ \ln \frac{\tilde{}_{ij}'}{\tilde{}_{ij}}\ \ \ln \frac{\tilde{}_{ij}^{c\prime}}{\tilde{}_{ij}^{c}}$ and measured using $\frac{1}{1}\ln \frac{X_{ij}^{c}/X_{ij}}{X_{ij}^{c\prime}/X_{ij}'} = \frac{1}{1}\ln \frac{M_{ij}'}{M_{ij}} + \ \ln \frac{\tilde{}_{ij}'}{\tilde{}_{ij}}\ \ \ln \frac{\tilde{}_{ij}^{c\prime}}{\tilde{}_{ij}^{c}}$. Moreover, one can show that changes in the average productivity of continuing …rms can then be further decomposed into $\ln \frac{\tilde{}_{ij}^{c\prime}}{\tilde{}_{ij}^{c}} = \int_{!\ 2\ i}$49 Td[(~)]TJ/F35 7.97 Tf -0.643 0 Td[(')]TJ/F36 5.978 Tf 5.cn8.97 ld[(4.978738]TJ/F36 5.28)]TJ/F38 5.978 Tf 6.292 2.813 Td -5.395 Tdduce0e151 -12.619

$= \int_{2}$

and all other expressions from this appendix are available upon request.

5.6 Industry-level extensive margin effects

This appendix elaborates on how we allow for industry-level extensive margin adjustments in our multi-industry extension as mentioned in the main text. At the aggregate level, we now assume that consumers in country j have access to varieties from S_j industries so that the aggregate price indices become $P_j = \left[\sum_{s \in S_j} P_{js}^{1-\sigma}\right]^{\frac{1}{1-\sigma}}$. At the industry-level, we now assume that N_{js} countries supply industry s varieties to country j so that we can write $P_{js} = \left[\sum_{i \in N_{js}} P_{ijs}^{1-\sigma_s}\right]^{\frac{1}{1-\sigma_s}}$ and $P_{ijs} = \left[\int_{\omega \in \Omega_{ijs}} p_{ijs}(\omega)^{1-\sigma_s} d\omega\right]^{\frac{1}{1-\sigma_s}}$, where Ω_{ijs} is the set of industry s varieties from country i available in country j. Notice that we have separated the original P_{js} from the main text into a new P_{js} and a new P_{ijs} which will be useful below.

Changes in the aggregate price index can then be decomposed into $\ln \frac{P_j'}{P_j} = \ln \frac{w_j'}{w_j} \ln \frac{\tilde{\lambda}_j^{c\prime}}{\tilde{\lambda}_j^{c}}$ $\frac{1}{\sigma-1} \ln \frac{S_j'}{S_j} + \ln \frac{\tilde{\lambda}_j'}{\tilde{\lambda}_j} \ln \frac{\tilde{\lambda}_j^{c\prime}}{\tilde{\lambda}_j^{c}}$ using $\frac{1}{\sigma-1} \ln \frac{X_j^c/X_j}{X_j^{c\prime}/X_j'} = \frac{1}{\sigma-1} \ln \frac{S_j'}{S_j} + \ln \frac{\tilde{\lambda}_j'}{\tilde{\lambda}_j} \ln \frac{\tilde{\lambda}_j^{c\prime}}{\tilde{\lambda}_j^{c}}$. Moreover, changes in the average productivity of continuing industries can then be decomposed into $\ln \frac{\tilde{\lambda}_j^{c\prime}}{\tilde{\lambda}_j^{c}} = \sum_{s \in S_j^c} \lambda_{js}^c \ln \frac{\tilde{\lambda}_{js}^{c\prime}}{\tilde{\lambda}_{js}^{c}} + \sum_{s \in S_j^c} \lambda_{js}^c \frac{1}{\sigma_s - 1} \ln \frac{N_{js}'}{N_{js}} + \ln \frac{\tilde{\lambda}_{js}'}{\tilde{\lambda}_{js}} \ln \frac{\tilde{\lambda}_{js}^{c\prime}}{\tilde{\lambda}_{js}^{c}}$ using $\frac{1}{\sigma_s - 1} \ln \frac{X_{js}^c/X_{js}}{X_{js}^{c\prime}/X_{js}'} =$ $\frac{1}{\sigma_s - 1} \ln \frac{N_{js}'}{N_{js}} + \ln \frac{\tilde{\lambda}_{js}'}{\tilde{\lambda}_{js}} \ln \frac{\tilde{\lambda}_{js}^{c\prime}}{\tilde{\lambda}_{js}^{c}}$. Finally, changes in the average productivity of continuing suppliers can then be decomposed into $\ln \frac{\tilde{\lambda}_{js}^{c\prime}}{\tilde{\lambda}_{js}^{c}} = \sum_{i \in N_{js}^c}$ -5.395 Td[(j)-57(s)7.97 T678 Tf18cijs

$\ln \frac{\tilde{\lambda}'^{c}_{ijs}}{\tilde{\lambda}^{c}_{ijs}}$. Together, this then implies the extended welfare decomposition:

$$\ln\frac{W_j^0}{W_j} = \underbrace{\sum_{s\in S_j^c}\Bigg(\sum_{i\in N_{js}^c}\lambda_{ijs}^c\Bigg)\Bigg[\ln\frac{\lambda_{ijs}^0}{\lambda_{ijs}} + \ln\frac{w_j^0}{w_j} - \ln\frac{w_i^0}{w_i} + \ln\frac{\tilde{\lambda}_{ijs}^{c0}}{\tilde{\lambda}_{ijs}^{c}}\Bigg]}_{\text{"traditional" gains w/o industry- or supplier-level selection}}$$

$$+ \underbrace{\frac{1}{\sigma-1}\ln\frac{S_j^0}{S_j} + \ln\frac{\tilde{\lambda}_j^0}{\tilde{\lambda}_j} - \ln\frac{\tilde{\lambda}_j^{c0}}{\tilde{\lambda}_j^{c}}}_{\text{"traditional" industry-level selection}}$$

$$+ \underbrace{\sum_{s\in S_j^c}\lambda_{js}^c\left[\frac{1}{\sigma_s-1}\ln\frac{N_{js}^0}{N_{js}} + \ln\frac{\tilde{\lambda}_{js}^0}{\tilde{\lambda}_{js}} - \ln\frac{\tilde{\lambda}_{js}^{c0}}{\tilde{\lambda}_{js}^{c}}\right]}_{\text{"traditional" supplier-level selection}}$$

$$+ \underbrace{\sum_{s\in S_j^c}\Bigg(\sum_{i\in N_{js}^c}\lambda_{ijs}^c\Bigg)\left[\frac{1}{\sigma_s-1}\ln\frac{M_{ijs}^0}{M_{ijs}} + \ln\frac{\tilde{\lambda}_{ijs}^0}{\tilde{\lambda}_{ijs}} - \ln\frac{\tilde{\lambda}_{ijs}^{c0}}{\tilde{\lambda}_{ijs}^{c}}\right]}_{\text{"new" gains from trade}} \tag{9}$$

This formula collapses to equation (4) in the main text if all industries are continuing industries, $S_j = S_j^c$, and all suppliers are continuing suppliers, $N_{js}^c = N_{js}$. The …rst additional term labelled "traditional industry-level selection" captures the welfare e¤ects of changes in the set of industries consumers in country j have access to. The second additional term labelled "traditional supplier-level selection" captures the welfare e¤ects of changes in the set of countries supplying industry s varieties to country j. While both these terms could appear in a general Ricardian model, the most common versions assume $S_j = S_j^c$ and emphasize supplier-level selection e¤ects.

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are available upon request.

5.7 Heterogeneous quality

This appendix elaborates on how we allow for heterogeneous quality. We introduce preference shifters $_{ij!}$ into the utility functions such that the demand functions become $q_{ij!} = {}_{ij!}{}^{1} \frac{p_{ij!}^{-}}{P_j^{1-}} Y_j$. Firms producing higher quality varieties then sell more but still charge constant markups over marginal costs since the demand elasticity remains unchanged. Bilateral trade flows can then still be written as $X_{ij}^{MP} = M_{ij} \left(\frac{w_i \ _{ij}}{1} \frac{1}{\tilde{}_{ij}} \frac{1}{P_j} \right)^{1} Y_j$ using the broadened definition $\tilde{}_{ij} = \frac{1}{M_{ij}} \int_{! 2 \ _{ij}}^{R} (\ _{ij!} \ ' \ _{!})^{1} d!$

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Exit	Cont.	Cont.	Enter	Exit	Cont.	Cont.	Enter
24.4%	75.6%	78.4%	21.6%	28.0%	72.0%		

Exit	Cont.	Cont.	Enter
51.7%	48.3%	35.5%	64.5%

Exit	Cont.	Cont.	Enter
49.6%	50.4%	56.2%	43.8%
(38,000 plants)		(34,000 plants)	

Exit	Cont.	Cont.	Entry
54.7%	45.3%	27.1%	72.9%

Exit	Cont.	Cont.	Enter
47.2%	156.5%	220.7%	33.4%

Exit	Cont.	Cont.	Enter
56.5%	142.7%	144.4%	43.0%

Exit	Cont.	Cont.	Enter
64.9%	142.4%	225.9%	53.1%

Notes: Panel A shows the average domestic sales of entering, continuing, and exiting Canadian plants as a share of the average domestic sales of all Canadian plants. Panel B shows the average foreign sales of entering, continuing, and exiting US exporters as a share of the average foreign sales of all US exporters. The numbers in parentheses give the implied average productivity growth rates due to selection assuming • A ï X ó

TABLE 4: "NEW" GAINS FROM CUSFTA OF CANADA

A: Annualized welfare effects of domestic entry and exit (Canadian plants)

	Pre-trend	CUSFTA	Difference
Net welfare effect	-0.14%	-0.56%	-0.42%
Net variety effect	1.14%	-0.50%	-1.64%
Net productivity effect	-1.28%	-0.05%	1.22%
Welfare loss from exit	-1.04%	-1.52%	-0.49%
Variety loss	-2.69%	-3.17%	-0.47%
Productivity gain	1.66%	1.65%	-0.01%
Welfare gain from entry	0.90%	0.96%	0.07%
Variety gain	3.83%	2.66%	-1.17%
Productivity loss	-2.93%	-1.70%	1.23%

B: Annualized welfare effects of foreign entry and exit (US exporters)

	CUSFTA	Difference
Net welfare effect	0.19%	0.19%
Net variety effect	1.90%	1.90%
Net productivity effect	-1.71%	-1.71%
Welfare loss from exit	-1.62%	-1.62%
Variety loss	-2.93%	-2.93%
Productivity gain	1.31%	1.31%
Welfare gain from entry	1.81%	1.81%
Variety gain	4.83%	4.83%
Productivity loss	-3.02%	-3.02%

C: Annualized overall welfare effects of entry and exit

	Pre-trend	CUSFTA	Difference
"New" gains from trade	-0.11%	-0.34%	-0.23%
"New" variety gains	0.90%	0.20%	-0.70%
"New" productivity gains	-1.01%	-0.54%	0.47%

	Pre-trend	CUSFTA	Difference
"New" gains from trade	-0.07%	-0.22%	-0.15%
"New" variety gains	0.58%	0.13%	-0.45%
"New" productivity gains	-0.65%	-0.34%	0.30%

Notes: Thistable decomposes

	w/o pre-trend	w/ pre trend	w/o pre-trend	w/ pre trend
Domestic (weighted)	-0.36%	-1.26%	-0.78%	

TABLE 6: BASELINE MODEL VERSUS INDUSTRY DIFFERENCES

A: Annualized "new" variety gains

	w/o pre-trend	w/ pre trend	w/o pre-trend	w/ pre trend
Domestic (weighted)	-0.36%	-1.26%	-0.25%	-0.85%
Foreign (weighted)	0.56%	0.56%	0.44%	0.44%
Combined	0.20%	-0.70%	0.20%	-0.41%

B: Annualized "new" productivity gains

	w/o pre-trend	w/ pre trend	w/o pre-trend	w/ pre trend
Domestic (weighted)	-0.04%	0.97%	-0.12%	0.57%
Foreign (weighted)	-0.50%	-0.50%	-0.40%	-0.40%
Combined	-0.54%	0.47%	-0.52%	0.17%

C: Annualized overall "new" gains

	w/o pre-trend	w/ pre trend	w/o pre-trend	w/ pre trend
Domestic (weighted)	-0.39%	-0.28%	-0.36%	-0.28%
Foreign (weighted)	0.06%	0.06%	0.04%	0.04%
Combined	-0.34%	-0.23%	-0.33%	-0.24%

	w/o pre-trend	w/ pre trend	w/o pre-trend	w/ pre trend
Domestic (weighted)	-0.25%	-0.18%	-0.23%	-0.18%
Foreign (weighted)	0.04%	0.04%	0.02%	0.02%
Combined	-0.22%	-0.15%	-0.21%	-0.16%

Notes: This table compares the "new" gains from CUSFTA from Table 4 which are calculated from formula (1) using aggregate data (under "Baseline") to the "new" gains from CUSFTA calculated from formula (5) using industry-level data (under "Industry"). All welfare effects are given in annualized terms and are weighted by their corresponding Sato-Vartia weights. The aggregate results assume terms ca ondustry"). 3.493 0 (d)]TJ 4.403 -0.007 Tw 1.866 0 Td

(1) Baseline	(2) Diff-in-diff, CAN tariffs only

TABLE 8: REGRESSION RESULTS UNDERLYING TABLE 7, SPECIFICATION 2

	"new" variety gains		"new" productivity gains		overall "new" gains	
	domestic	foreign	domestic	foreign	domestic	foreign
	$\frac{1}{\hat{e}_{æ}-1}\ln\frac{\lambda_{ÝÝæ}}{\lambda_{ÝÝæ}}$	$\frac{1}{\hat{e}_{æ}-1}\ln\frac{\lambda_{ÜÝæ}}{\lambda_{ÜÝæ}}$	$\frac{1}{\hat{e}_{æ}-1}\left(\ln\frac{N_{ÝÝæ}}{N_{ÝÝæ}}-\ln\frac{N'_{ÝÝæ}}{N'_{ÝÝæ}}\right)$	$\frac{1}{\hat{e}_{æ}-1}\left(\ln\frac{N_{ÜÝæ}}{N_{ÜÝæ}}-\ln\frac{N'_{ÜÝæ}}{N'_{ÜÝæ}}\right)$	$\frac{1}{\hat{e}_{æ}-1}\ln\left(\frac{p_{ÝÝæ}}{p_{ÝÝæ}}\frac{:_{ÝÝæ}}{:_{ÝÝæ}}\right)$	$\frac{1}{\hat{e}_{æ}-1}\ln\left(\frac{p_{ÜÝæ}}{p_{ÜÝæ}}\frac{:_{ÜÝæ}}{:_{ÜÝæ}}\right)$
$\ln\frac{\tau_{æ}}{\tau_{æ}}$	1.090***	-1.056**	-0.161	0.376	0.929***	-0.680**
	(0.260)	(0.381)	(0.213)	(0.318)	(0.222)	(0.316)
constant	-0.110	1.507***	-0.454***	-1.004***	-0.563***	0.503**
	(0.172)	(0.252)	(0.141)	(0.210)	(0.147)	(0.209)
observations	21	21	21	21	21	21
R^2	0.481	0.288	0.029	0.069	0.481	0.196

Notes: This table shows the regression results underlying the welfare effects reported in Table 7, specification 2. Standard errors are given in parentheses and ***, **, * indicate significance at the 1%, 5%, 10%

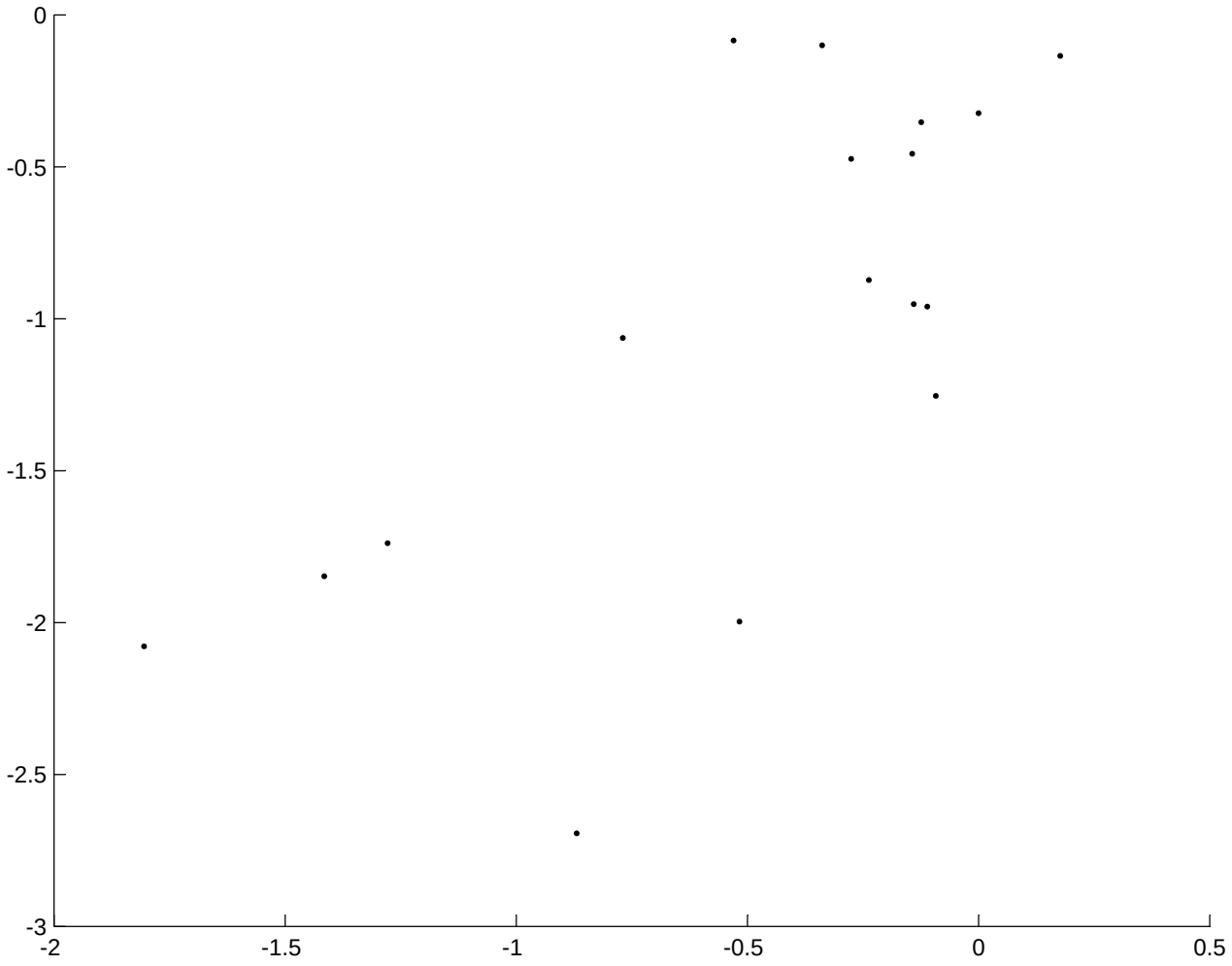
	domestic	foreign	domestic	foreign	domestic	foreign
	1.171***	-1.285**	-0.221	0.501	0.950**	-0.784*
	(0.392)	(0.505)	(0.285)	(0.434)	(0.358)	(0.447)
	0.317	1.204	-0.348	-0.736	-0.031	0.468
	(0.699)	(0.978)	(0.509)	(0.840)	(0.639)	(0.866)
	-0.079		0.027		-0.052	
	(0.178)		(0.129)		(0.162)	
		-0.056		0.041		-0.016
		(0.056)		(0.048)		(0.050)
constant	0.027	1.076	-0.616***	-0.680	-0.589***	0.397
	(0.198)	(0.630)	(0.144)	(0.541)	(0.181)	(0.558)
observations	20	21	20	21	20	21
R^2	0.556	0.390	0.155	0.152	0.452	0.216

Notes

TABLE 10: REGRESSION RESULTS UNDERLYING TABLE 7, SPECIFICATION 4

	"new" variety gains		"new" productivity gains			
	domestic	foreign	domestic	foreign	domestic	foreign
	1.329**	-1.285**	-0.120	0.501	1.209***	-0.784*
	(0.594)	(0.505)	(0.393)	(0.434)	(0.368)	(0.447)
	-0.371	1.204	-0.335	-0.736	-0.706	0.468
	(1.059)	(0.978)	(0.700)	(0.840)	(0.655)	(0.866)
	-0.694**		0.472**		-0.222	
	(0.269)		(0.178)		(0.167)	
		-0.056		0.041		-0.016
		(0.056)		(0.048)		(0.050)
constant	-1.172***	1.076	0.538**	-0.680	-0.633***	0.397
	(0.301)	(0.630)	(0.199)	(0.541)	(0.186)	(0.558)
observations	20	21	20	21	20	21
R^2	0.360	0.390	0.353	0.152	0.440	0.216

Notes: This table shows the regression results underlying the welfare effects reported in Table 7, specification 4. Standard errors are given in parentheses and ***, **, * indicate significance at the 1%, 5%, 10% level.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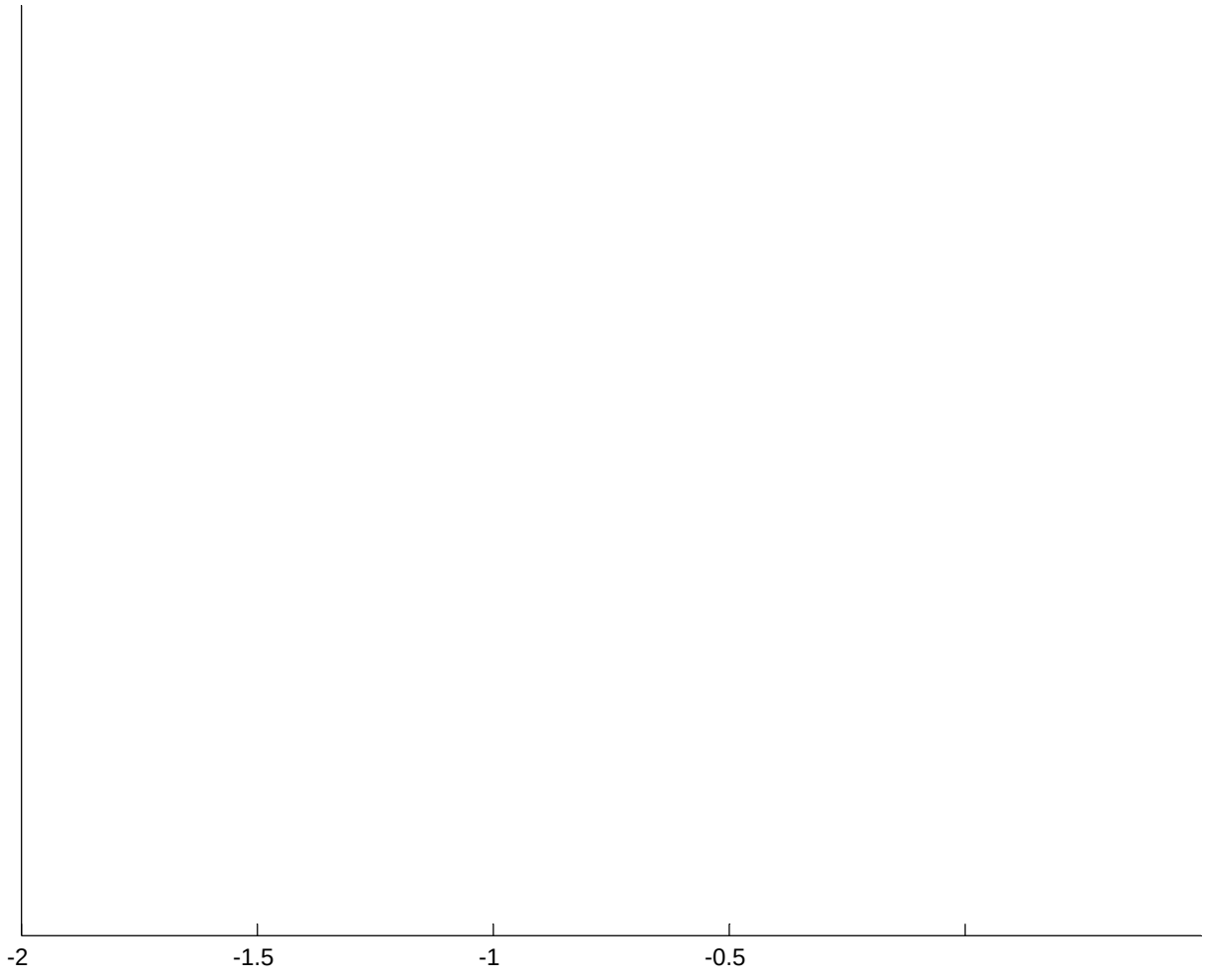
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-0.5

Figure 3: Domestic net productivity gains from CUSFTA

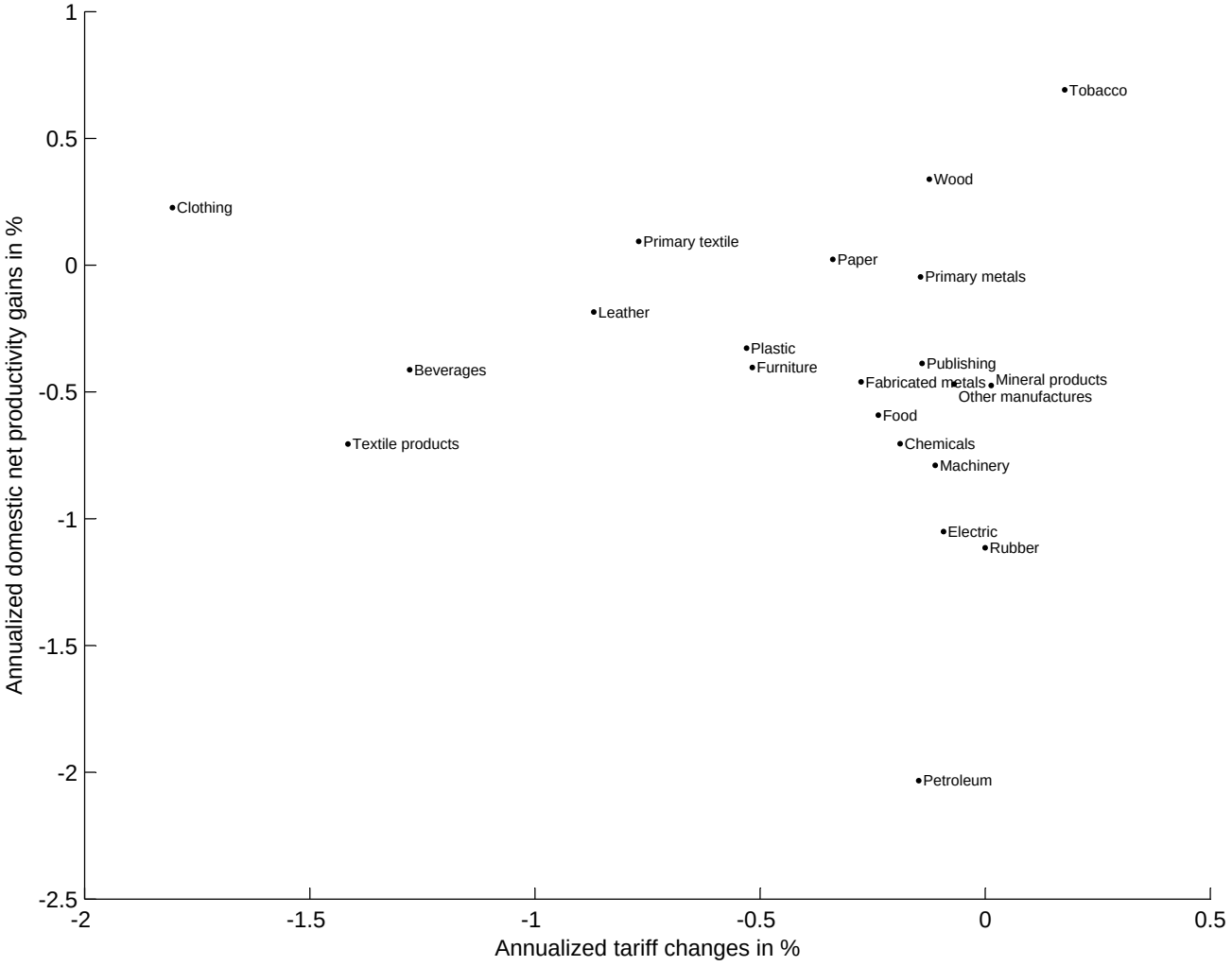

Figure 5: Foreign net variety gains from CUSFTA

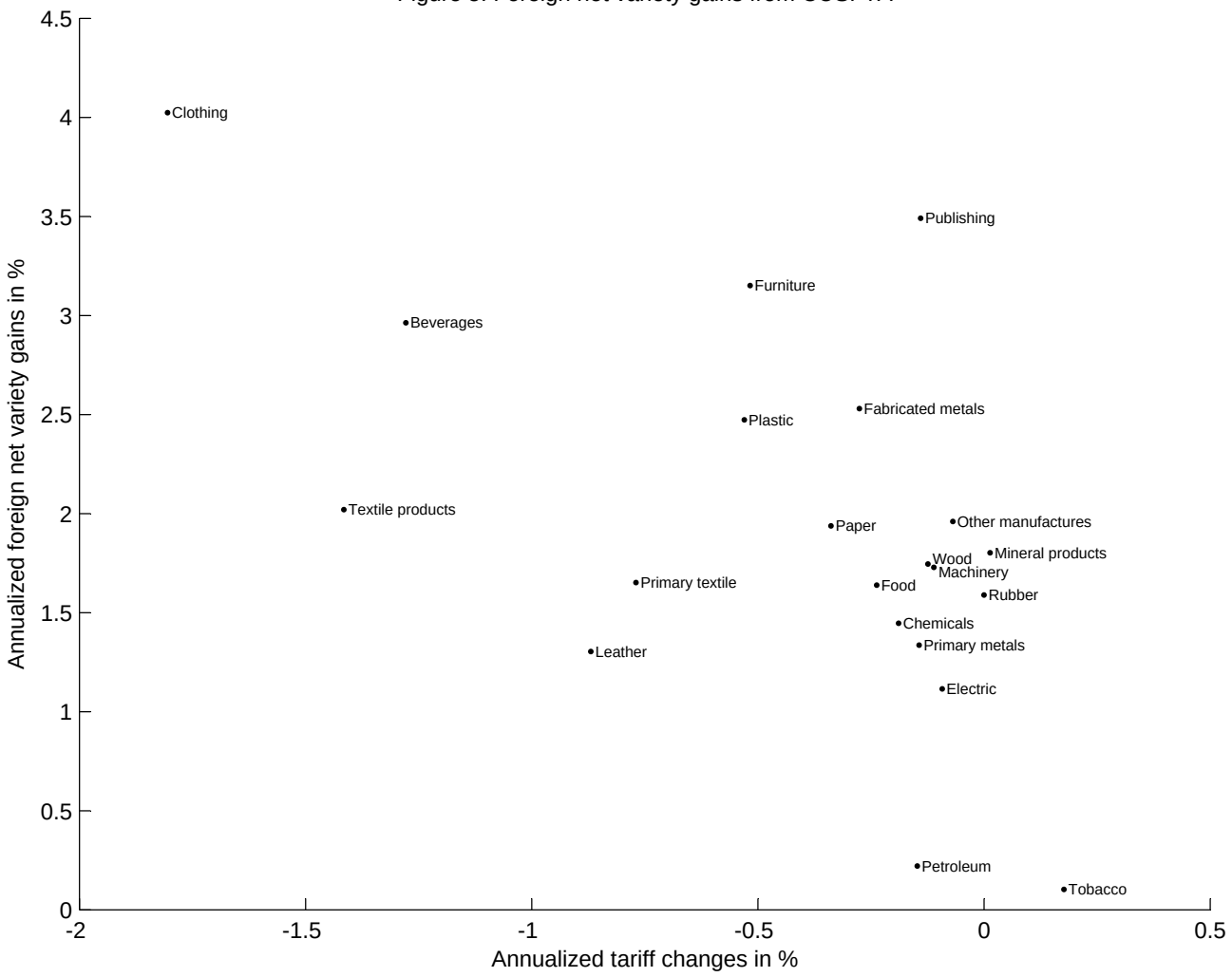

Figure 6: Foreign net productivity gains from CUSFTA

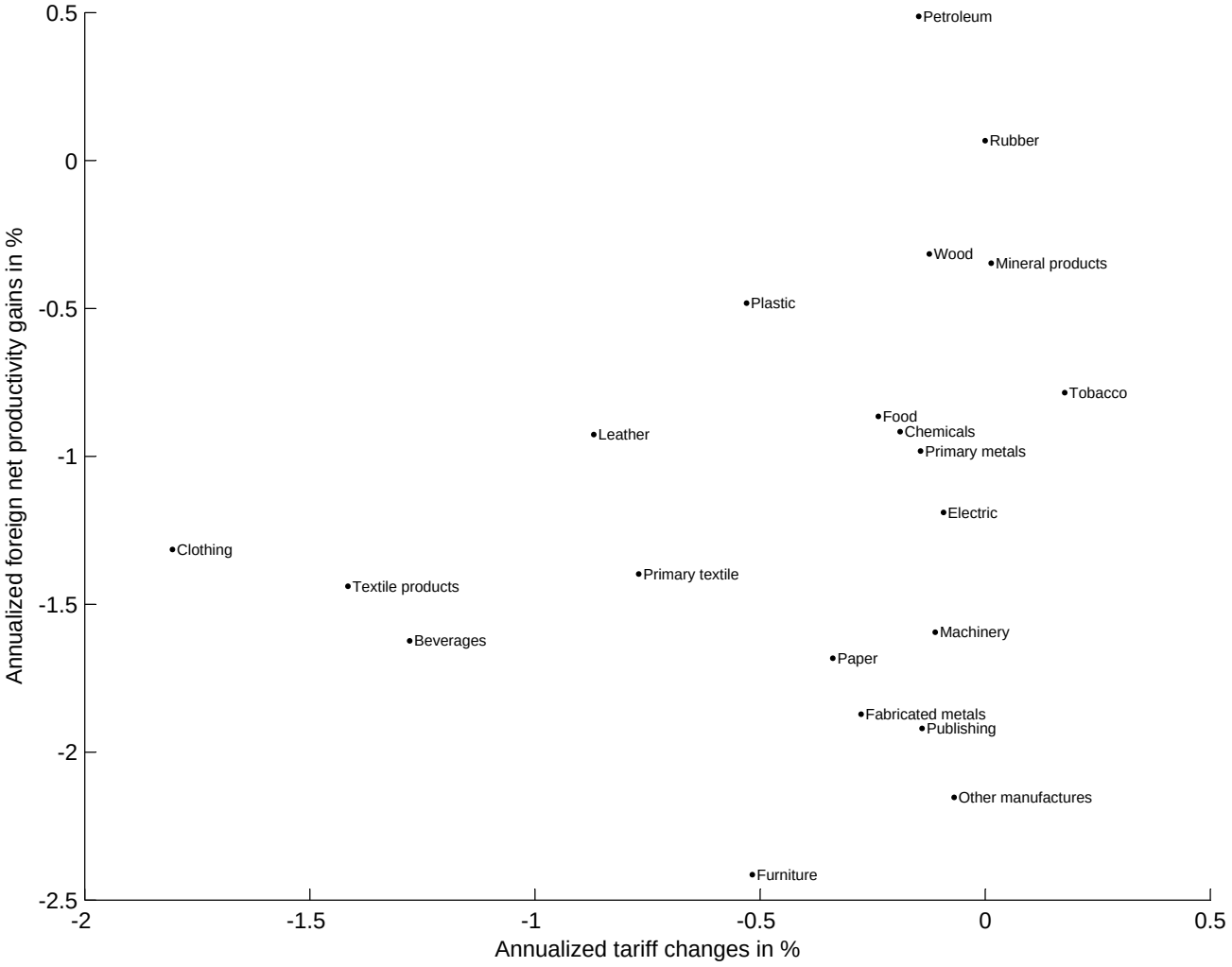

Figure 7: Overall domestic "new" gains from CUSFTA - exit only

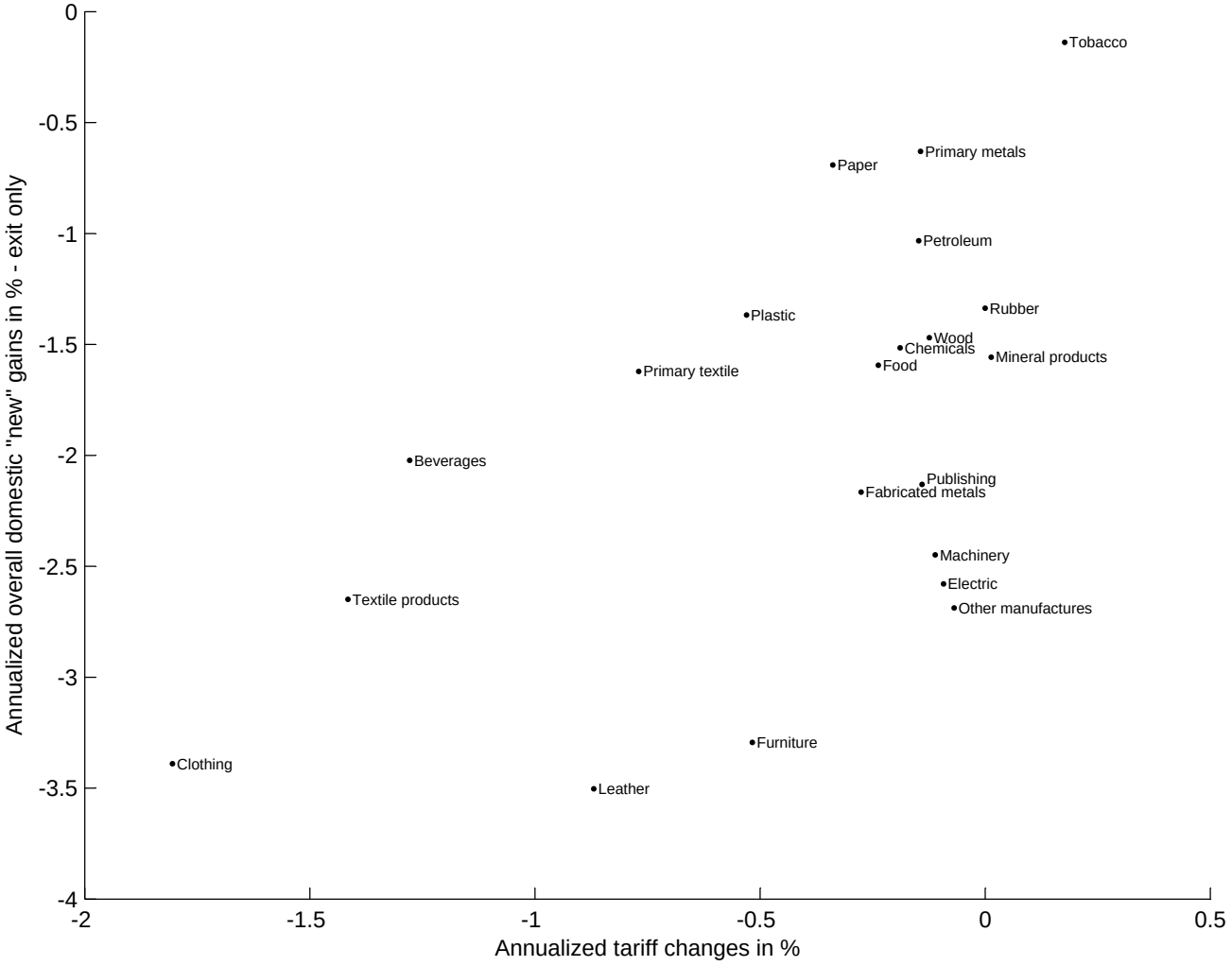

Figure 8: Overall domestic "new" gains from CUSFTA - entry only

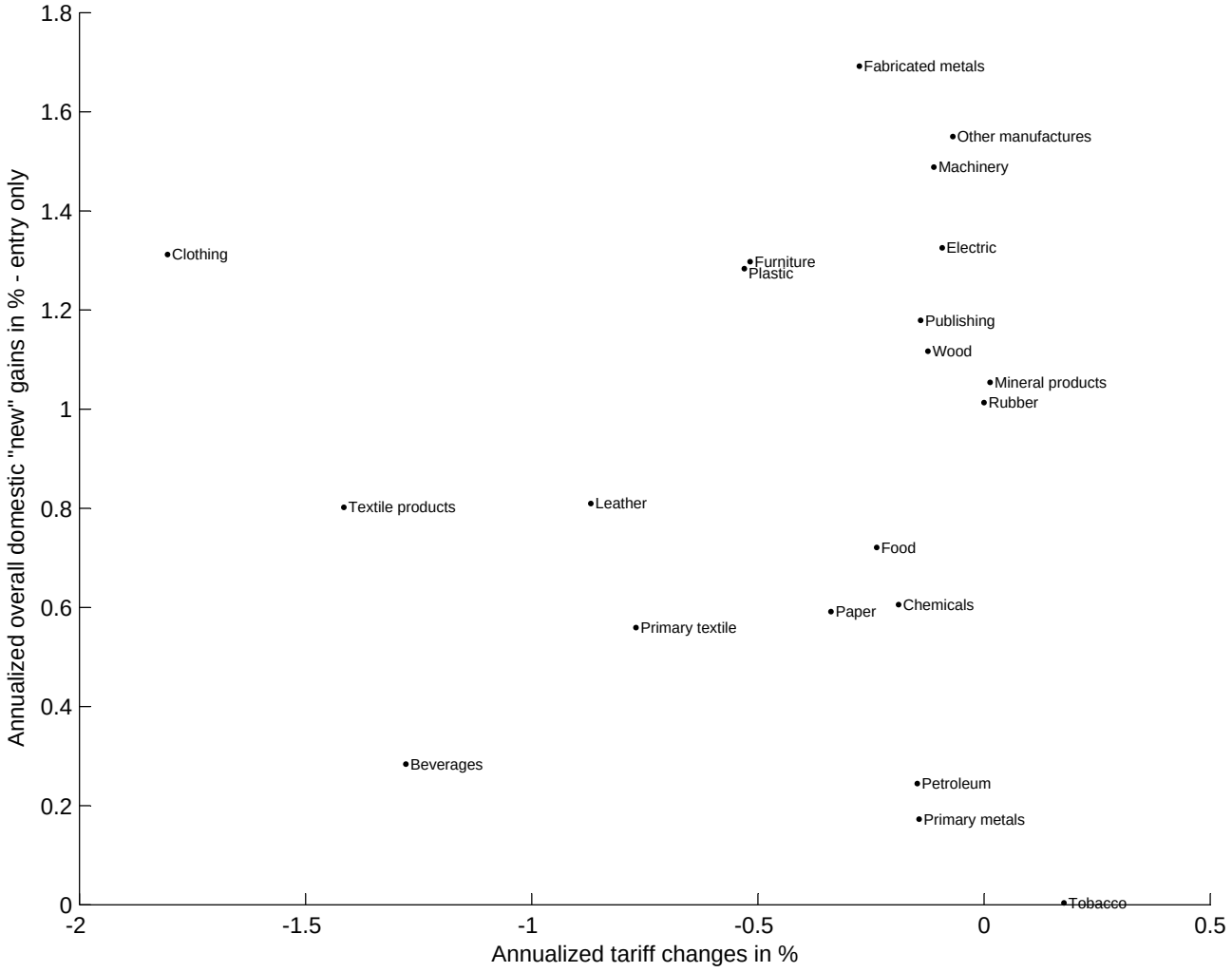

Figure 9: Domestic net variety gains from CUSFTA - exit only

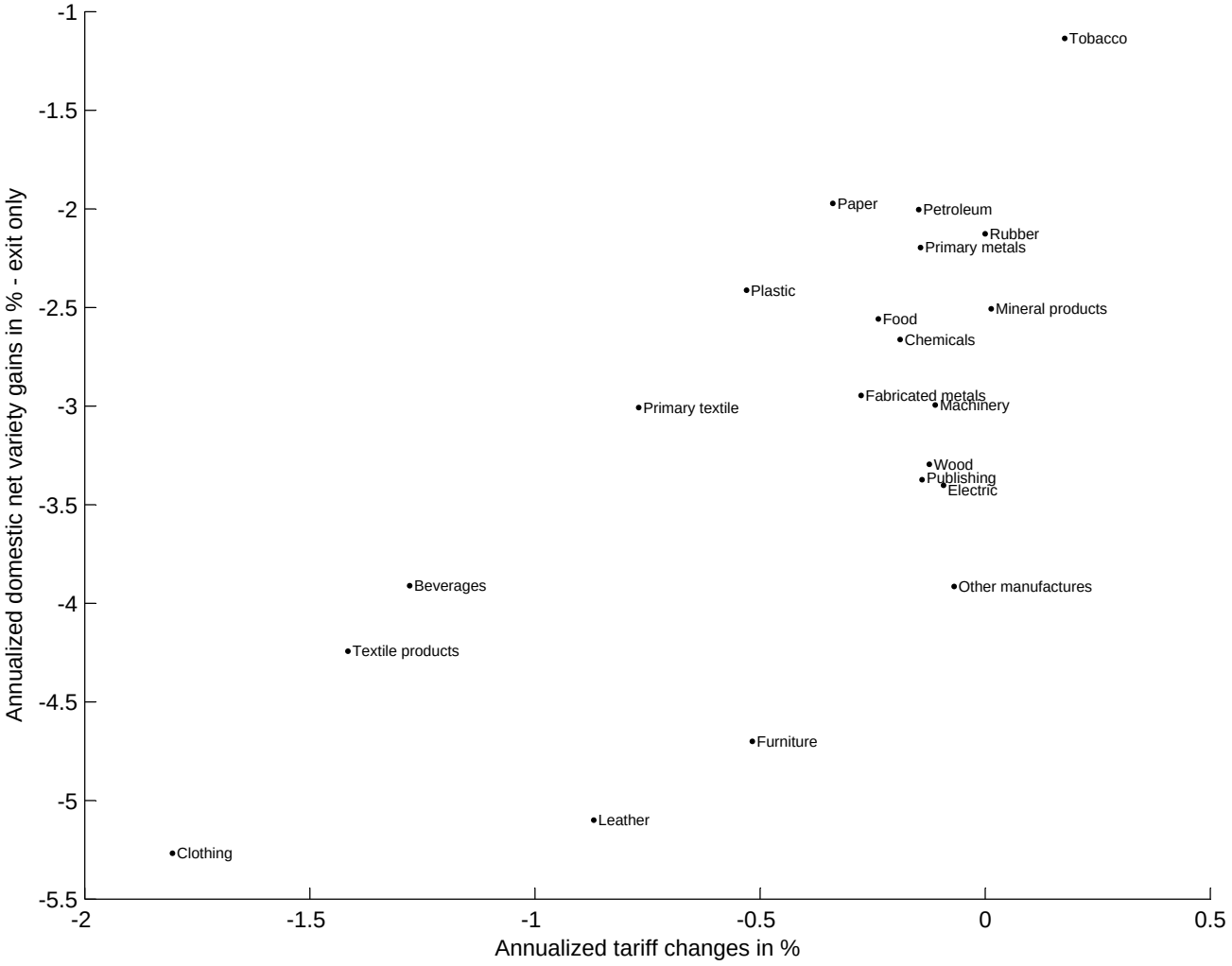

Figure 10: Domestic net productivity gains from CUSFTA - exit only