Transaction Costs in Resource Redeployment for Multi-niche Firms

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ABSTRACT

Transaction costs have played an important role in the diversification literature based on resource theory. Since Teece's (1982) seminal contribution, the mainstream view has linked the profitability of diversification with the existence of transaction costs that prevent the firm from trading in fungible scale free resources. This paper takes transaction costs into a neo-Penrosian perspective that sees diversification as driven by redeployment of non–scale free resources. An empirical analysis that uses tax changes as a measure of exogenous demand variation in the drink industry is consistent with the fact that redeployment is particularly relevant when retailing is concentrated and when single-product competition within a focal product niche (i.e., beer) is fragmented. We measure redeployment within the portfolio of a multi-niche firm when changes in sales growth rates in a particular product niche imply opposite-sign changes in other product niches. This evidence is consistent with predictions that demand uncertainty and transaction costs present redeployment opportunities for multi-niche companies.

1. Introduction

In 2007, Carlsberg was affected by a surge in taxes on beer in Sweden. Given that Carlsberg is a multi-niche company selling water, juice, and sport drinks, what was the impact on Carlsberg's sales in the beer niche compared to the impact on a single-niche company like BrewDog? And what happened to Carlsberg's sales in, for example, the juice niche, compared to a single-niche company specialized in juices like Innocent Drinks?

To investigate these questions, this paper draws on a subset of diversification theories, which predict that multi-niche companies are driven by fungible resources, whose capacity is progressively exhausted by their use (Lenvithal and Wu 2010). Managerial attention, marketing expenditures (Natividad and Sorenson 2015), and allocation of R&D inventors are examples of these resources with opportunity costs. They are usually labeled non–scale free resources.

The research tradition highlights how excess capacity of non-scale free resources (Penrose 1959; Mitchell 2000) is key to understand product niche extensions, and diversification more generally. Recently, the attention has moved on the concept of *inter-temporal* economies of scope (Helfat and Eisenhardt 2004) that create value when diversifieds redeploy resources across product niches and time. Under this theoretical perspective, Wu (2013) and Lieberman, Lee, and Folta (2017) explain patterns of entry and exit from product niches and sectors by diversifieds versus specializeds.

But what are the boundaries of these flexibility advantages of redeployment? This article adds to this debate by highlighting conditions under which multi-niche companies should enjoy advantages in resource redeployment. Precisely, transaction costs affecting single-niche companies are considered as one determinant of advantages for multi-niche companies driven by non–scale free resources. These costs determine whether multi-niche hierarchies are activating redeployment to seize new market opportunities. Thus, the level of these costs could represent additional causes that explain the lack of a universal competitive advantage of diversifieds over specializeds. This view will complement the well-known internal problems that multi-niche firms face like higher coordination costs (Zhou 2011), increased agency problems (Scharstein and Stein 2002), and cognitive biases in resource allocation (Bardolet, Fox and Lovallo 2011).

After detailing our theory, we provide evidence in the beverage industry in seven large EU countries and the United Kingdom during 2007–2012. Tax changes at the country level reduced demand for alcoholic beverages and might have prompted resource reallocations from alcoholic to other beverage niches (Cawley, Frisvold, Hill, and Jones 2018). We infer resource redeployment by a multi-niche firm when we observe a sales decrease (compared to a single-niche company) in the niche affected by the tax change, matched by a simultaneous sales increase (again, compared to a single-niche company) in niches not affected by the tax. Redeployment looks particularly prevalent when competition from single-niche firms is higher (Santalo and Becerra 2008), and downstream retail industries are more concentrated (Thomassen et al. 2017), two factors that affect transaction costs suffered by specializeds.

This article makes the following contributions. On the theory side, we borrow the canonical transaction-cost lens used to analyze economies of scope in multi-niche firms where resources are scale free (Teece 1982; Silverman 1999; Feldman and Yoon 2011), and use it to identify conditions in which the neo-Penrosian argument about non–scale free resources can explain value creation (Wu 2013; Ahuja et al. 2014; Lieberman, Lee, and Folta 2017). We posit that that multi-niche firms owning non-scale free resources (Sakhartov and Folta 2014; Wu 2013; Lieberman, et al. 2017) could take advantage from specializeds' inertia to respond to changing circumstances (Masten, Meehan and Snyder 1991). This redeployment advantage works better when transaction costs are in place, and multi-niche companies can fine-tune the allocation of non–scale free resources to industry dynamics better than specializeds (Foss and Foss 2008; Gancarzyk 2016).

Mostly in the context of entry and exit decisions, scholars (e.g., Helfat and Eisenhardt 2004; Lieberman et al. 2017; Dickler and Folta 2018) already discussed transaction costs as a benchmark against which we should compare internal costs of managing a multi-niche firm. For example, Folta and colleagues (2016) reflect on how redeployment generates more inter-temporal economies of scope when internal markets are more efficient than external ones. This paper moves transaction costs to center stage, and it treats entry and exit from niches as extremes on a continuum. Most importantly, we highlight that a potential sources of transaction costs for single-niche firms depends from industry vertical value-chain relationships, which define and shape decisions on the allocation of fungible non-scale free resources. This broader perspective could connect inter-temporal economies of scope to buyer-supplier transaction costs, providing an original lens to read diversification and resource redeployment.

On the empirical side, we seek to reduce endogeneity by focusing on a demand shock generated by a tax change that isolates the effects of reallocation on the portfolio of multi-niche firms. We control for several competition and demand variables at the product niche level plus firm and time fixed effects. We do not observe shelf-space reallocations directly, our key non-scale free resource. However, we propose that for a multi-niche company portfolio, a negative sales change in product niches that are taxed jointly with a simultaneous positive change in niches that are not taxed represents a sound approximation

to infer the presence of redeployment. This argument received an additional strong confirmation: in our sample, sales of specialized companies in non-taxed niches are dropping when multi-niche companies that are affected by a tax in another niches compete there. In a final simulation exercises, we also show that only the highly diversified companies (about top 3%) are able to increase the overall company sales after a tax hit one of their niches.

2. Theory

2.1 Background

In Teece's (1982) framework, profit-maximizing firms diversify to reduce the transaction costs of using the market to trade internal proprietary fungible resources. When a resource is fungible, or deployable in different markets, the firm has incentives to rent it out to other firms operating in other markets or sectors, to recoup some of its substantial sunk investments. But when tacitness creates information asymmetries (Arora and Fosfuri 2003), when synergies are difficult to be defined in a contract (Henderson and Cockburn 1996), or when there is a high risk of imitation (Liebeskind 1996), in all these cases the resource instead may drive firm diversification (Montgomery and Wernefelt 1988; Palich, Cardinal, and Miller 2000). Teece (1982: 45) argues that transaction costs are more evident when the firm's capability lies upstream, "in a generalizable capability which might well find a variety of final product applications." A classic example is the diversification growth by DuPont, fostered by polymer technology (Chandler 1977). Superior performance depends on the firm's ability to share resources across markets (Markides and Williamson 1996); resource extension into unrelated businesses might cause losses. Thus, multi-niche companies that diversify into new niches in which their existing production and technology resources are more applicable tend to perform better (Robins and Wiersema 1995), suggesting an inverted U-shaped relation between diversification and performance.

More recent studies propose more complex relationships between performance and diversification, such as U-shaped (Barroso and Giarratana 2013; Zahavi and Lavie 2013) or even S-shaped ones (Hashai 2015). Influenced by this recent evidence, several authors have moved toward a neo-Penrosian approach (Penrose 1959; Helfat and Eisenhardt, 2004), highlighting resources that are fungible,

but constrained in capacity (Levinthal and Wu 2010; Wu 2013). These non–scale free resources, such as managerial attention or distribution channels (Brahm, Tarzijan, and Singer 2017), are progressively exhausted through use, so they need to be allocated optimally (Sakhartov and Folta 2014; Ahuja et al. 2014). If using a fungible resource in one niche precludes using it in another, the relationship between performance and diversification becomes clear only with a dynamic perspective usually under a real option logic (Folta et al. 2016): Enhanced performance in one niche entails diminished performance in other niches (Helfat and Eisenhardt 2004).

The neo-Penrosian view may explain the varying empirical evidence, in that it highlights temporal differences in performance, but it also has left a puzzle over the boundaries of this flexibility advantage. Ghemawat and Khanna (1998) and Folta et al. (2016) intuit that multi-niche companies are more common in environments with acute transaction costs, because managing some resources internally allows multi-niche firms to overcome those costs, and gain superior performance. That is, multi-niche firms are more efficient than single niche firms because they can allocate resources more optimally. This prediction partly echoes Williamson's (1981) view on vertical scope, which suggests that the horizontal boundaries of a firm depend on its ability to use hierarchy to lower transaction costs. Teece (1982) emphasizes that transaction costs matter only if they affect these firms' internal proprietary resources. Our approach uses this insight to complement neo-Penrosian approaches (Levinthal and Wu 2010; Wu 2013; Sakhartov and Folta 2014; Brahm et al. 2017). We propose that under this logic multi-niche firms will enjoy redeployment advantages when there is external uncertainty (Masten, Meehan and Snyder 1991), because they can better seize growth opportunities by experiencing lower transaction costs (Foss and Foss 2008; Gancarzyk 2016) compared to specializeds. Moreover, we propose that transaction costs are influenced by the vertical value-chain relationships in an overall industry, which could inform on the processes of exploiting the advantage of fungible resources.

2.2 Assumptions

Transaction costs can disrupt the connections between a focal seller and its downstream buyers (Porter 1996). We anticipate that at least one buyer in the industry should demand products in different niches

(Von Nordenflycht 2011), so that satisfying its demand could require several single-niche sellers or a multi-niche company. We analyze resources that are fungible and that create an advantage through a demand effect (Priem 2007; Ye at al. 2012). This means that we are leaving in the background any efficiency issue, assuming that what we observe is an optimal decision on resource allocation that is based on an evaluation of marginal revenues derived from lowering external transaction costs (Masten et al. 1991) and potential marginal internal costs of diversification (Braham et al. 2017; Hashai 2015). We focus on a resource that is capacity constrained, or non–scale free (Wu 2013) like shelf space. We assume a positive relationship between the sales of a product and the capacity of the resource dedicated to it. Keeping unit prices fixed, more shelf space devoted to a focal product will increase its unit sales. Curhan (1972: 411) finds that "on the average, unit sales changed about 8 % in the direction of shelf space changes." Finally, the shock has demand driven features, and inside the product space, there is a stable map of product niches (i.e., no new niche arrives).

A key building block of our theory relies on the assumption that specializeds could suffer larger transaction costs with buyers when redeploying resources compared to diversifieds. As Levy and Haber (1986: 293) state, "when an unforeseen event occurs, [...] market transactions may not be feasible when the costs of specifying complete and enforceable contracts is prohibitive. In the face of an unanticipated event, the multi-niche firm provides certain advantages not available to the single niche firm." Teece (1980) classifies the sources of transaction costs into: 1) recognition; 2) disclosure; and 3) team organization. In our context, if shelf space is reallocated from niche A to niche B, the optimal reallocation requires an estimate of how much sales change in the two niches. If the same multi-niche company is selling product A and B, then this information may be easier to obtain. However, if the reallocation has to be done involving specializeds' transactions, then these opportunity could not be spotted. As far as concern disclosure, if the transaction for a reallocation has to be done between two single niche firms that have private information about the relationship between shelf-space and sales, then it will be harder to achieve an agreement given the strategic use of private information. These incentives to misrepresent private values may cause the disruption of value enhancing transactions (Myerson and Satterthwaite

1983). Finally, even if the two conditions identified above do not exist, co-specialized human capital assets are an important explanation of the value generated by a resource, because of tacit learning-by-doing effects. Marketing managers should pitch and convince retailers about their vision on the best use of shelves; moreover, some co-specialized promotion practices that reinforce the impact on sales of the shelf space are likely needed in this context. If changes in the shelf space are not accompanied with the rest of organization practices, then the impact of shelf space reallocation on sales may be diminished. Multi-niche companies could have an advantage because the fungibility of shelf-space is associated to better information about product trends and supply chains, which could be easily understood and assimilated by retailers. On the contrary, specialized firms could lack these learning capabilities and they may have extra transaction costs according to this threefold perspective (Teece 1980). Thus, the key point is to understand when these transaction costs become larger or smaller.

2.3 Hypotheses

When conditions in a niche deteriorate, all resources used to increase sales in that niche become less profitable (Raith 2003; Aghion and Griffith 2008), changing the optimal allocation of resources. Niche products that experience falls in demand lower their resource marginal returns and thus their mark-ups. Managers then usually ask to make the resources available to other products with potentially higher sales. However, when buyers are larger, and therefore more concentrated, single-niche firms face higher transaction costs (Lieberman et al. 2017).

A demand shock likely requires contract changes. The fewer the buyers, the more a small number of organizations gather information of all producers' offers and customers' tastes, creating information asymmetries and advantages. In the extreme case, monopolistic buyer must change contracts with single-niche companies affected by the shock owning quasi-perfect information of all the niche trends and potential competing offers. On the contrary, multi-niche diversifieds can reallocate resources internally with less changes in the contract with the buyer. An increasing concentration of buyers will thus increase the cost of recognition and disclosure, because every single-niche company will face an increasing unbalanced position due to high transaction costs. This generates higher costs of changing contracts, and

greater multi-niche firm's advantage. If instead there are many buyers, but with similar diversification, the complexity of contract relationship with specializeds will decrease, because each buyer will manage only a limited number of single-niche producers. In this case, the multi-niche advantage should tend to disappear (see also Broniarczyk, Hoyer, and McAlister 1998).

There is also a second order effect linked to buyer concentration. Given the presence of diversified retailers, the lower their concentration, the lower the contract complexity faced to reallocate resources between specialized sellers. This happens whenever the higher presence of diversified retailers translate into a higher number of sellers that develop exclusive relationships with these retailers. Figure 1 displays these arguments. When buyer concentration increases, the transaction costs of reallocating resources for multi-niche firms is mostly unaffected. However, the transaction costs of moving resources across specializeds increase with buyer concentration because it also increases the complexity of potential contractual changes.

Insert Figure 1 about here

Take the case of a monopoly vs. duopoly of equally diversified retailers. Consider two niches (*A* and *B*), with *N* specialized producers in each niche, N_a and N_b, and one multi-niche firm, which sells in both niches. In case of a monopolistic retailer, given a redeployment opportunity from *A* to *B* (or vice-versa), the redeployment can happen with a one-to-one renegotiation. For specialized sellers, the retailer should deal with all the potential combinations of contract changes among $N_a + N_b$ specialized sellers. Consider instead the duopoly condition of two equally diversified retailers: R_1 and R_2. Now the number of specialized sellers subject to contract change is reduced as long as there are exclusive relationships between buyers and specialized sellers. Assume X_{1A} (or X_{2A}) specialized sellers of product *A* develop an exclusive relationship with R_1 (or R_2); X_{1B} (or X_{2B}) specialized sellers of product *B* develop an exclusive relationship with R_1 (R_2). In that case, R_1 (R_2) will have to deal with all the potential contract changes among $(N_a - X_{2A}) + (N_b - X_{2b})$ (or $(N_a - X_{1A}) + (N_b - X_{1B})$) specialized sellers to reallocate resources. If there is at least one $X_{ij} > 0$, at least one of the two retailers will have to deal with lower complexity. In other words, in case of a two retailers, the presence of just one exclusive contract between a retailer and one of

the $N_a + N_b$ specialized producers will reduce the number of potential transaction changes that each retailer has to manage, and progressively the advantages of the diversified firm. In sum, when buyer concentration is higher, so should the advantage of a diversified seller to better redeploy resources in comparison to single-niche sellers.

Consider now a less abstract setting: allocating shelf space. Would the costs of reallocating shelf space be greater or lower for a multi-niche company in a more concentrated retailer market? From this premise, assume first that there are no substitution effects, i.e. final customers consume only one type of product— i.e., beer. When a demand decrease happens, the shelf-rotation of the affected product will decrease, and so will its mark-up. In economic terms, a negative demand shock decreases the marginal productivity of devoting shelf space to the affected product, so a multi-niche firm may redeploy shelf space towards other products, and other customers, for which the marginal productivity of shelf space has not changed. The shelf space will be reallocated up to the point where the marginal productivity of shelf space is equal for all of the firm's products (Levy and Haber 1986). Hence, in affected niches, sales of the multi-niche firm will suffer not only because of the demand decrease, but also because of the redeployment away of resources. Total corporate firm sales may still go down, but not as much as if the multi-niche firm were unable to find a more productive use of its shelf space.

If we now assume that final customers also consume alternate products—say, juice and water (i.e., substitution exists)—these customers will adjust their optimal preferences. If there is a one-stop-shop effect (Ye et al. 2012) that multi-niche companies want to maintain, they have pressing incentives to adapt their shelf-space composition to the new customers' preferences to avoid the migration of its customers to other suppliers. In both cases, a multi-niche company will experience a higher decrease in sales in the product niches affected than single-product companies will, because it is moving away valuable resources, i.e., shelf space. Therefore, we can posit that:

Hypothesis 1a: Sales changes in a product niche experiencing adverse demand shocks will be more negative for multi-niche firms than for single-niche firms when buyers are more concentrated.

To confirm our arguments, we conducted two open interviews with a retailer manager of a large UK supermarket chain and a marketing director of a diversified Italian-Dutch multinational that sells chocolate, food bars, candies, and gums in supermarkets. From these interviews we learned that (a) shelf-space constitutes a valuable corporate resource associated with sales; (b) shelf space is booked by sellers with a six-month contract; (c) the decision to reallocate shelf space must be communicated 12 weeks in advance (the so-called reasonable notice). These managers confirm that between retailers and multi-niche companies there is "more than a negotiation, a partnership […] to deliver the highest level of shelf rotation […] and to increase value for us and the customers." "Clearly, the final decision on shelf allocation is a retailer decision, but as a [multi-niche] company we are proactive in highlighting to the retailer the most correct arrangement of the product range that, based on our assumptions and our knowledge of the product categories, would allow the retailer to optimize the space assigned to us." It is evident in this last sentence not only the low recognition and disclosure problems between a multi-niche companies and a retailer, but also that there could be learning effect attached to human capital in the ability to pitch the right allocation of shelf-space. The common practice is that retailers rely on individual category managers that are in charge in dealing with manufacturers with the objective to optimize shelf space use. In that regards, products grouped within the same category, and therefore in charge of the same category manager, will be easier to reallocate than products belonging to different categories. From our interview, managers confirm that beverage is a category, and soft-drink and alcoholic beverages are corresponding subcategories. As a note of caution, though 90% of the product hierarchy followed may be similar across retailers, there may be minor deviations for specific retailers. However, even in this case our respondents stressed that the retailers can also reallocate shelf space among category managers.

Hypothesis 1a assumes that non–scale free resources are transferred away from a focal niche affected by a demand shock toward new product niches. Under a specular logic, unaffected product niches inside a portfolio also should experience an impact, with an opposite sign, higher in magnitude as the buyer concentration increases. Single-product companies that specialize in the unaffected niches do

not have access to extra shelf space, and if they do, transaction costs in an eventual spot market in shelf space will slow down shelf space reallocation towards them. This is the classical effect of resource redeployment (Helfat and Eisenhardt 2004; Sakhartov and Folta 2014; Levinthal and Wu 2010; Wu 2013). Granted, we derive the following prediction:

Hypothesis 1b: *In a market in which a product niche is hit by adverse demand shocks, sales changes in product niches not experiencing these shocks will be more positive for multi-niche firms than for single-niche firms when buyers are more concentrated.*

Transaction costs also should affect alternative market mechanisms by which sellers sublet shelf space to other sellers. Multi-niche companies can redeploy resources inside their portfolio; single-product companies instead trade resources in the market (Teece 1982; Levy and Haber 1986). Specialized firms affected by a negative (positive) shock would lease (acquire) resources to (from) other firms whose demand has been unaffected. This adjusted resource allocation requires changes in extensive margins, rather than intensive margins, and the balance may depend on the competitive structure.

In this scenario, more fragmented specialized competition could increase the expenses of contracting. The fragmentation of competition into specialized producers increases indeed the recognition and disclosure factors, because every specialized producers own a particular part of information that creates asymmetries, and upsets parity among suppliers (Sorenson, Mcevily, and Roy 2006). This represents the dark side of big number advantage when competitors are not homogenous. As Williamson (1973: 318) states: "a large numbers [of traders] condition […] may be illusory or may not continue into contract renewal stages. The illusion is that implicit homogeneity assumptions may not be satisfied. Non-homogeneity coupled with information impactedness and opportunism pose serious *disclosure* problems. Not only can markets shrink on this account, but they may vanish altogether". Thus, the effects for Hypothesis 1 are replicated: Fragmented single-product competition raises transaction costs for single-

product firms, an increase that multi-niche firms can reduce by reallocating resources internally. Graph 2 displays visually the intuition of our arguments.

Insert Figure 2 about here

Consider again the example of shelf space. A company specializing in beer might experience a fall in demand that reduces its shelf rotation. In a simplified case, the only other seller in the market is a juice firm, which now undergoes a scarcity of shelf space, because even if demand for juice has not gone up, there is a relative higher demand for juice than for beer. This means that allocating some of the beer shelf space to juice increases total sales because consumers are now more likely to buy juice displayed on the shelves than beer displayed in the same racks. As a result the brewer should sign a contract to rent part of the shelf space to the juice seller. Now consider the case in which there are N specialized juice companies owning different types of information about customers and product ingredients. By the same argument, each one of them needs an extra shelf space, and the brewer should split its excess space among different contracts that are subject to different recognition and disclosure issues, slowing down or eliminating these transaction opportunities. Granted, our final set of hypotheses reads:

Hypothesis 2a*: Sales changes in a product niche experiencing adverse demand shocks will be more negative for multi-niche firms than for single-niche firms when single-niche firm competition is more fragmented.*

Hypothesis 2b: *In a market in which a product niche is hit by adverse demand shocks, sales changes in product niches not experiencing these shocks will be more positive for multi-niche firms than for single-niche firms when single-product firm competition is more fragmented.*

3. Empirical Analysis

3.1 Sample

We drew data from Euromonitor Passport, which provides statistics, analyses, and reports on industries, countries, and brands worldwide (Chandrasekaran and Tellis 2008). For 2007–2012, we downloaded data about the drink industry for the seven EU countries with the largest gross domestic product (France, Germany, Italy, Netherlands, Norway, Spain, and Sweden), plus the United Kingdom. A country-level analysis is appropriate because half of the companies in this sample (52.3%) were not international in scope. Also, consumers' tastes and consumption of drinks are subject to strong cultural and national factors (Ghoshal and Nohria 1993). Finally, the managing of shelf space is country specific, and—since this downstream resource is non–scale free and can be deployed across market niches—it should be one of the key drivers of diversification decisions (Brahm et al. 2017; Lieberman et al. 2017; Sakhartov and Folta 2014; Wu 2013), under opportunity cost constraints.

The drink industry spans nine niches, three designated for alcoholic beverages: wine, beers, and spirits. This classification corresponds to a five-digit code in NAICS, within the four-digit code 3121 ("Beverage"); For example, beer has NAICS code 31212; tea has code 31192. Thus, our empirical test-bed accounts mainly for a related intra-industry diversification (Barroso and Giarratana, 2013). For each country, niche, and year, Passport provides sales for all competitors that reach at least 0.1 percent of the country's market share. Table 1 summarizes the data set by niche, indicating sales and number of competitors. A multi-niche company is a company with sales in at least two out of the nine niches. Table 1 classification replicates nicely the structure of category managers in a retailer.

Insert Table 1 about here

3.2 Dependent and Independent Core Variables

Like Zahavi and Lavie (2013) and Tanriverdi and Lee (2008), we take as our dependent variable *Sales Growth*, representing an increase or decrease in sales at time $t + 1$ in country j in niche k for a particular brand z ($Sales\ Growth_{t+1} = Sales_{t+1}/Sales_t$). Sales offer a good proxy for strategic decisions by diversified firms (Hashai 2015), because we can effectively control for unobservable cost synergies with niche and firm fixed effects. Any production synergy across niches (e.g., between beers and colas) is not compromised by resource reallocation, at least in the medium run.

The core independent variable is *Diversification*, namely "1 – Herfindahl index" for company *i* at time *t* in country *j*, calculated as the sum of the square of the shares of the company's sales in all its portfolio niches *k* at time *t* in country *j*. For Carlsberg in Sweden, *Diversification* measures the level of diversification using the portfolio shares in its main niche (beer) plus shares in other niches (water, juice, and sport and energy, in which Carlsberg produces and sells the Imsdal brand).We also replicate the analysis using as independent variable a dummy equal to one if a firm operates in multiple niches and zero otherwise. We obtain stronger results with this dichotomous variable but we prefer to maintain a continuous measure in the main table to allow the full-fledge marginal effect analysis.

A second key covariate is *Tax Alcohol.* Tax changes arguably are exogenous shocks (Flammer 2015), and Cawley et al. (2018) show that in the beverage industry on average, companies fully pass the tax through to consumers. We collect data about tax variations for the alcoholic beverage niches in our sample countries and years from the Excise Duty Tables created by the European General Directorate of Taxation and Customs. Alcoholic beverages are often foci of taxation because of their potential health effects; moreover, there is substantial variation in these taxes both within and across countries. Other taxes (e.g., VAT) exhibit much less variation; if they vary in a given country, they vary for all products at once, making it harder to find sector-specific shocks. A tax increase implies a product price increase that, independently of firm strategies, could reduce demand among the most price-sensitive customers. With this insight in mind, we create a *Tax Alcohol* dummy variable equals 1 if there has been a tax rate increase in a specific alcoholic niche in a country- year, and 0 otherwise. Taxes in our sample do not necessarily affect all alcoholic beverages in a given country at the same time. In about 40% of total cases, the tax change affects only one specific alcoholic beverage niche and not the others; precisely, the average probability that a tax change will affect a single niche (i.e., wine) is 12.05%. In this case, we have variation across alcoholic niches inside a country at time *t*; in the other cases, variation happens only between alcoholic vs. non-alcoholic niches. Given this heterogeneity in tax shocks inside alcoholic niches, we could also run regressions only inside these niches. Estimates present in Tables 6 and 7 are

confirmed and stronger in this case. Table 2 contains the descriptive statistics for alcoholic beverage niches.

Insert Table 2 about here

We test the effects of *Diversification × Tax Alcohol* in four environmental states[1] generated by combining two dummies, *Retailer Concentration* and *Specialized Competition*. To construct *Retailer Concentration* we use the retailer industry structure, which should be independent for identification reasons, at least in the medium term. For each country and year, we download from the BvD Orbis data set the sales of all companies classified under NACE code 4711, "Retail sale in non-specialized stores with food and beverages." Then we calculate concentration as a Herfindahl index that varies for each country and year; to transform this measure into a dummy we split the sample at the median value because we prefer to avoid triple interactions in the regressions.

To construct *Specialized Competition*, we focus on competition by single-product companies within a single niche. The markets in our sample are highly competitive; the mean market share of any brand within a niche is 2 percent, and for any company it is 6.5 percent. We generate "1 – Herfindahl index" for niche *k* in country *j* at time *t* as the sum of the squares of the market shares of all active single-product competitors. We label this measure *Specialized Competition* and, again, transform it into a dummy by splitting the sample at the median value for each country *j* at time *t*. The correlation between *Specialized Competition* and a simple count of the number of specialized competitors is 0.53, and is significant at the 1 percent level. In regressions with country, year, and niche dummies in which the dependent variable is *Specialized Competition* and the independent variable is the number of active specialized competitors, the estimated beta is always positive and significant at 1 percent (t = 11.13). This evidence suggests that specialized competition is driven mainly by entry and exit dynamics.

The combination of *Retailer Concentration* and *Specialized Competition* creates four environmental states. The related regressions refer separately to niches affected by the tax variation and

[1] We prefer this approach over three-factor multiplication.

those not affected. We use ordinary least squares at the niche-firm-country-year level, with the corresponding niche-firm-country-year level fixed effects and robust standard errors. The fixed effect approach mitigates concerns about an omitted variable coming from these factors.

3.3 Controls

To control for internationalization advantages, we introduce Herfindahl indices to proxy for the company's sales dispersion across the eight countries (*Company Internationalization*). Size effects and scale economies are captured by the sum, across all countries and niches, of company *i's* sales, lagged one year (*Company Sales*). For each niche, we control for *Diversified Competition* to identify the extent of competition from diversifieds; this measure equals "1 – Herfindahl index" of the market shares of diversified companies that compete in that niche. We also control for the overall market shares of *White Label* as a proxy for retailers' market power. For every niche *k* and country *j* at time *t*, we sum the sales of each competing brand to construct *Demand* by niche and country; this is an important control because we test the significance of our coefficient on top of niche demand changes. At the country level, we calculate specialized and diversified competition by averaging all niches for a country (*Country Specialized Competition* and *Country Diversified Competition*), revealing overall country competitive pressures in the drink industry. From OECD data sets, we gather *Country FDI inflows* and *outflows* to represent economic internationalization in the form of foreign direct investment (FDI); *Country Health Status* to address drink niches that could raise health concerns, and *Country Price Index* and *Consumption* (private country consumption expenditures) as proxies for purchasing power and actual generic consumption. Table 3 contains the main statistics and correlations.

Insert Table 3 about here

3.4 Measuring redeployment through niche sales growth.

A canonical issue of redeployment research is the lack of direct measures of resource redeployment (Folta et al. 2016). In our case, to understand shelf reallocation decisions by a diversified firm *i*, we adopt a double-proof test to determine (1) the effect of *Diversification* $\times$ *Tax Alcohol* on *Sales Growth* in niches affected by the tax change for a particular brand owned by a diversified firm *i*, and (2) the effect on *Sales*

Growth for the same firm *i* in all the other niches in its portfolio (those not affected by the tax change). For example, we capture how a tax change for Carlsberg in the beer segment in Sweden in 2007 affects Carlsberg's sales growth in the beer niche (i.e., does Carlsberg have more or less sales growth than a specialized beer producer?). Then, we investigate how this shock affects Carlsberg's sales growth in the water, juice, and sport and energy niches, which have not been affected by the tax (i.e., does Carlsberg have more or less sales growth than a specialized water, juice, and sport drink producer?). In this example, Carlsberg's sales growth in Italy in beers in 2007 would constitute a control observation, because it is not affected by a tax change. If after the tax change Carlsberg grew less than single-product companies in the beer niche and more than single-product companies in the water, juice, and sport drink niches, we conclude that Carlsberg was redeploying shelf space from beer to the other niches.

4. Analysis

4.1 Main results

First of all, we perform a niche-based regression to test the effect of the tax shock on some basic niche variables. We collapse all the data at niche, country, and time level and run a fixed-effect regression in which we alternate three of the dependent variables: the logarithms of total niche demand, of the number of multi-niche firms that compete in the focal niche, and of the number of firms with sales in just one niche. Table 4 shows that the tax change decreases total demand within the niche, decreases the number of single-product companies, and does not affect the number of multi-niche competitors.

Insert Table 4 about here

Before describing the regressions, we offer some preliminary evidence consistent with our theoretical predictions. Table 5 contains simple t-tests of the mean differences in *Sales Growth* for subsamples that are high versus low in *Retailer Concentration* and *Specialized Competition* following a switch in the value of *Tax Alcohol* from 1 to 0. We split the sample above and below the median of *Diversification* too. In line with our theory, panel A shows that the effects of tax changes on the affected niches are significant and larger for highly diversified multi-niche companies when *Specialized Competition* and *Retailer Concentration* are high. Panel B confirms the results for niches not affected by a tax shock.

Insert Table 5 about here

Table 6 contains the regression results for the sample of niches affected by the tax change. The focus of our estimation is the coefficient of *Diversification × Tax Alcohol*, which emerges as particularly negative when the retail industry is highly concentrated and specialized competition is acute. The more a firm is diversified, the more its sales growth decreases in the niche hit by a tax increase, especially if specialized competition is acute and retailers are highly concentrated.

Insert Tables 6 and 7 about here

To interpret this result, we move to Table 7, which shows the same regressions for the sample of niches not affected by a tax change. Here, *Diversification × Tax Alcohol* is positive when *Retailer Concentration* is high, and it grows stronger when both retail concentration and specialized competition are high. When a more diversified multi-niche firm experiences a tax change that affects one of its product niches, it experiences greater sales growth in its other portfolio niches that are not affected by the change. When Sweden implemented a tax increase on beer in 2007, compared with specialized beer producers, Carlsberg more rapidly altered its shelf space allocations, replacing beers with water, juice, or sport drinks. Therefore, Carlsberg's sales within the beer niche decreased more than those of a specialized producer, but it captured more of the demand of other products. These data support Hypothesis 1, and we also can confirm Hypothesis 2, under high buyer concentration, while specialized competition is significant only as a moderator.

Among the controls, the sign of *Tax Alcohol* is surprisingly positive. This can be explained because in affected niches, specialized-firm sales are experimenting the impact of two forces of opposite sign. On one hand, the tax increase affects overall demand negatively. On the other hand, multi-niche firms may redeploy resources towards non-affected niches, and this may impact positively sales of specialized firms. The fact that the tax coefficient turns out positive can be explained because the latter force dominates the former. In that regards, we have to keep in mind that we are controlling in our regressions by the overall niche demand; therefore the tax coefficient measures the impact on sales net of

any aggregate demand issue. Moreover, this result is consistent with the selection effect highlighted in Table 4: after the tax change, there is a significant exit of single-product companies. This means that specialized companies that survive will experience sales growth, at least in the short run. Indeed, these companies will benefit not only from the exit of some specialized competitors, but also from the "flight mode" of multi-niche companies that redeploy shelf space away from the affected niche. Company size and levels of internationalization, when significant, also exhibit negative signs in the regressions; if we failed to account for costs, corporate scale would not exert any positive effect at the niche level. Our assumption that markets are basically country specific also is supported. As we expected, significant competition reduces growth.

One could think that our results may be driven by the higher importance of bargaining power for multi-niche firms in getting better conditions in markets with high buyer concentration. If this were the case, then we would observe that multi-niche companies have higher sales both in tax affected and unaffected product niches. What we observe, on the contrary, is that multi-niche firms do worse than specialized firms in tax affected niches, and at the same time multi-niche firms do better than specialized firms in tax unaffected niches. This asymmetric result in treated versus untreated niches is difficult to reconcile under an oligopoly pricing and bargaining argument.

4.2 Economic interpretation of results

Table 8 shows the change in the marginal effects of *Diversification* from 0 to 1 following a switch of *Tax Alcohol*. We also perform a Z test to test the significance of the differences in these marginal effects. When retailer concentration is high and specialized competition is acute, an average multi-niche company sees about two times less *Sales Growth* than a specialized company in the niche affected by the tax surge. The Z test highlights a significance of 5%. When retailer concentration is high but specialized competition is low, the multi-niche company sees a decrease of about 9%, significant at the 10% level. The other quadrants contain no significant results. Moving to the niches not affected, we can see that we have a clear, significant result only when retailer concentration and specialized competition are high. The change is about 45% more for multi-niche firms than for single-niche companies. To conclude, with

marginal effect analysis, we find that only in the high-high quadrant is there a clear evidence that multi-niche companies are redeploying shelf resources.

Insert Table 8 and 9, and Figure 2 about here

Table 9 shows an economic simulation of the results. For an average multi-niche company facing high retailer concentration and high-specialized competition, a negative shock means a loss in the affected niche of about 2 million euros. Simultaneously, the same multi-niche company will experience a sales increase in each other niche in its portfolio of about 170,000 euros. The same table shows the number of product niches needed in the portfolio to break even after a tax change. In the best case, the number is 12—more than the 9 niches available in the sample. This means that on average, for a multi-niche company a tax shock will damage overall corporate sales. However, the more a firm is diversified, the less will be the loss. Indeed, our data show that 24 multi-niche companies, about 3% of the multi-niche companies affected, have an overall corporate increase in sales after a tax shock; among them are super-diversifieds like ABInbev, Unilever, Heineken, Pernod, and SABMiller.

To clarify this dynamic, Figure 3 presents the distribution of predicted values of *Sales Growth* in the high-high quadrant case, for the niche affected by the shock (e.g., beer in Sweden in 2007), and for niches not affected but having at least one multi-niche firm that was hit by shock (e.g., juice in Sweden in 2007). Figure 3 is a visual confirmation of our results. It shows that in niches not affected, single-product companies suffer a decrease in growth rates from 1.08 to 0.54 (T-test = 8.36, significant at 1%). Predicting from regression the growth rate goes down 38.6% for these single-product companies (Z-test = 0.044).

These stylized facts represent key evidence. Another alternative explanation for our results would read that multi-niche firms serve the more price sensitive segments in the market. This could be in line with multi-niche firms suffering a higher decrease in sales in the tax affected product niche. However, the argument has harder time explaining why simultaneously in unaffected niches single product firms have lower sales. Sales decreases by specialized firms in niches unaffected (see Figure 3) by the tax can only be accounted for an increase in competition by multi-niche firms that are redeploying resources away from tax affected niches. The low substitution effects in customers' purchasing decision is also supported:

specialized companies suffer a decrease in sales, because they are under the attack from multi-niche companies with stable sales at their niche level (i.e., few customers migrate from beer to water).

5. Conclusions

Multi-niche firms facing a decrease in demand in a product niche are more likely to reallocate resources when the structure of their downstream buyer's industry is concentrated and when they confront highly fragmented competition from single-product firms. We interpret these two contingencies as factors affecting transaction costs for single-niche companies.

Our results offer both new avenues for research and implications for practitioners. For academics, our theory proposes that the competitive advantage of multi-niche diversifieds lies in their ability to reallocate resources better than the market (Wu 2013; Folta et al. 2016; Lieberman et al. 2017). Inside this neo-Penrosian view (Penrose 1959; Helfat and Eisenhardt 2004), we show the importance of considering transaction costs that affect the market in which the firm competes. Our source of transaction costs is related to vertical value-chain relationships of an industry, because the use of a fungible resource is influenced by different actors along a vertical dimension. In so doing, we stress the importance of moving diversification research away from a self-contained perspective. We thus conclude that theoretical mechanisms similar to Williamson's (1981) vertical scope and external transaction costs (Ghemawat and Khanna 1998; Teece 1980) provide the best explanation of redeployment when external markets are subject to turbulence.

Holding our results, the straightforward question is: where does the advantage of multi-niche companies with no scale-free resource lie? In their ability to apply the best optimization algorithm? Promptness in responding to external shocks? Ability to use diversification to achieve saturated resource capacity at the industry level? This paper cannot tackle all these questions, but it can highlight how transaction costs that affect specializeds could be key to multi-niche diversifieds' success. Multi-niche firms should prosper when there is environmental turbulence across time and across product niches while, simultaneously, external transaction costs prevent single-product firms from acting rapidly. However,

when turbulence is homogenous—that is, all product niches move simultaneously and in the same direction, perhaps owing to a global economic shock—multi-niche firms could be at a disadvantage.

As for managerial implications, we find evidence consistent with that turbulence across niches gives diversifieds the option to execute reallocation advantages. Managers of multi-niche companies might allow new competitors from entering the industry to increase volatility, but block specialized firms to move easily across niches. Low industry entry barriers, but high across-niche barriers would preserve multi-niche firms' competitive advantages, because they could exploit the important benefits of moving resources across niches. At the same time, multi-niche firms might nurture heterogeneous competition by increasing the life and death rates of market niches (Klepper and Thompson 2006), perhaps by moving resources to launch new niches as first movers—a classical strategy of diversified companies like 3M (Canato, Ravasi, and Phillips 2013). As a consequence, this article provides key insights for policy makers, who must evaluate the degree to which resource capacity functions as an entry barrier before making policy changes. Regulators should be skeptical of entry barriers if markets are functioning well, but when markets are affected by transaction costs, control over resource capacity that generates diversification could increase overall efficiency.

This paper applies the theory to multi-niche retailers in which shelf space is a key non-scale free asset. While these industries represent an important part of an economy, could these results be generalized further? Our theory depends on the extent of fungibility of the non-scale free resources, and on the transaction costs derived from the vertical value-chain relationships. The more the resource is fungible (i.e., it could be applied in more product niches), the more our theory acquires strength: more options, more value. We assume that shelf is only fungible inside the drink product niches, but if multi-niche companies could redeploy shelf even across other niches, for example snakes and chips, we should have found even stronger results. Additionally, while the theory on transaction costs is general, their sources could be different from industry to industry. Our two measures could be highly dependent on the retailing industry, but our theory could be tested in other settings when vertical value-chain relationships affect transaction costs. Precisely, good test-beds could be sectors in which transaction costs between

specialized players dealing with a non-scale free resource are higher than the transactions of reallocating this resource within a multi-niche firm. For instance, take a software company with different software services that rent computing space in the cloud to providers like Amazon or Microsoft. Cloud providers offer cloud computing power in different manners. Amazon, for instance, offers so called EC2 reserved services that require the client's financial commitment in advance, and also EC2 spot services that are implemented with an auction mechanism. This means that potential clients must bid for their desired resources and the price of the resources changes over time (Huang 2014). EC2 reserved services would be a non-scale free asset. The multi-niche software company can optimally allocate this computing space in the cloud to its different products or services depending on its needs. Conversely, a single product company that has opted for an EC2 reserved service has to renegotiate the extra space with other specialists and or directly with Amazon or Microsoft. In this latter case, there would be transaction costs that will be lowered by multi-niche companies. As in the case of shelf space, there would be costs of recognition, disclosure and team organization that make this transaction between individual sellers more expensive than the internal transaction within the multi-niche firm. In sum, we also think that our results could be tested for other non–scale free resources, such as inventories (Cachon et al. 2018) or human resources (Tate and Young 2015).

Naturally, this paper has several features that could be upgraded in future work. First of all, better and more comprehensive measures of transaction costs that avoid potential cofounding effects with other variables (i.e, bargain power) is a challenge for future research in this realm. We use tax changes (Flammer 2015) as an exogenous shock, but researchers could test the effect of more unexpected changes that affect supply, demand, or competition levels across sectors or countries (e.g., government funding, natural disasters, etc.). However, only if specialized producers (and not diversifieds) know ex-ante unexpected sector volatility, our results could not hold. In case of high customers' substitution effects, our main predictions should be confirmed, but if specialized producers in non-affected niches grow or suffer will depend on the extent of one-stop-shop advantages, another interesting aspect to add to this analysis. Similarly, our indirect measure of resource reallocation calls for replication studies with a more direct

measure such as actual shelf space; with this precision, one could separate the effect of resources that could be moved together with shelf-space, like advertising and promotion expenditures (Natividad and Sorenson 2015; Brahm et al. 2017). However, under the assumption that we observe optimal decisions, we find that only when transaction costs are quite high (our two conditions satisfied), we can infer a statistical significant redeployment process in action. This evidence is perfectly in line with some substantial redeployment and diversification costs. Finally, further research might relax some of the assumptions we embrace, such as the constraint on the total amount of firm resources (shelf space). By relaxing this constraint, researchers could identify conditions in which it is optimal to increase the level of specific resources, rather than reallocating them across different niches.

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Figure 1: Schematic theory representation. Hypothesis 1.

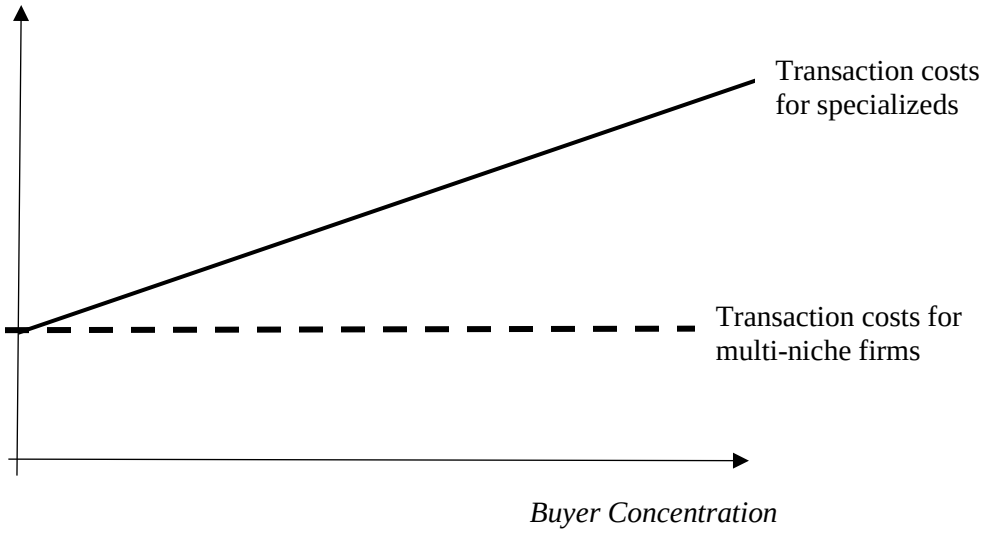


Figure 2: Schematic theory representation. Hypothesis 2.

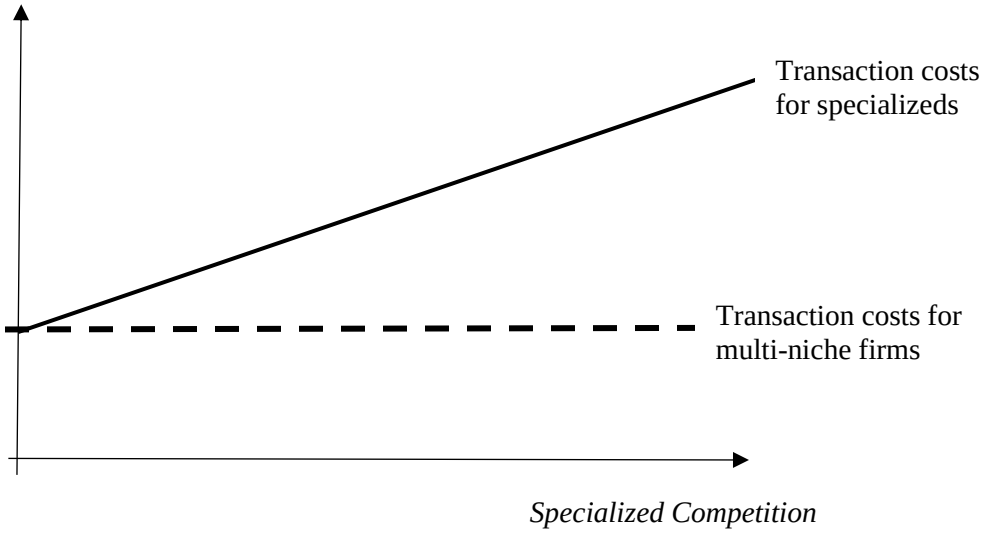
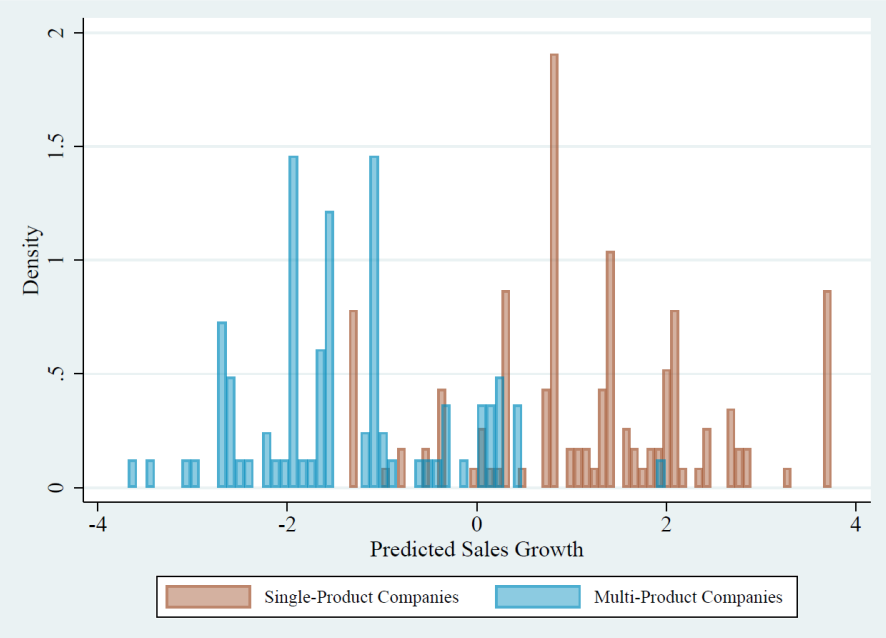
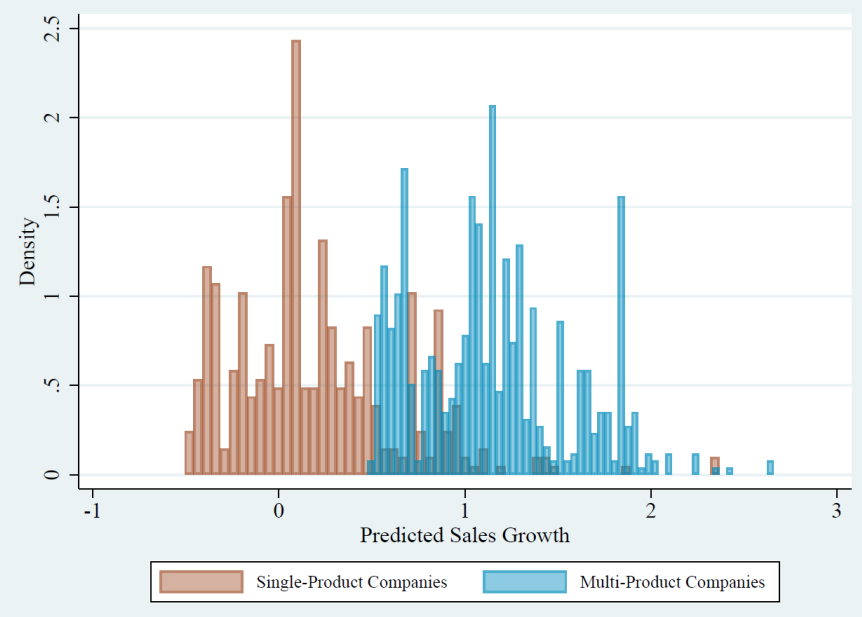


Figure 2: Distribution of predicted *Sales Growth* after a tax shock, for multi-niche (blue) and single-product (orange) companies, under high retailer concentration and high specialized competition.



a) Niches affected



b) Niches not affected

Table 1. Niche descriptions

Main Niche	Niche	Mean Sales (mln Euro)	Number of Companies
Drinks	Tea	23.44	1006.45
	Water	151.9	893.25
	Sports and Energy	6.45	1024.26
	Juice	24.79	972.99
	Coffee	61.14	1051.69
	Carbonates	43.13	949.32
	Alcoholic		
	Wine	164.4	853.33
	Spirits	63.54	865.99
	Beer	167.73	854.55

Table 2. Descriptive statistics for alcoholic beverage niches

	Mean	S.D.	Min	Max	*Tax Beer*	*Tax Wine*	*Tax Spirit*
Tax Beer	0.194	0.391	0	1	1		
Tax Wine	0.189	0.389	0	1	0.62	1	
Tax Spirit	0.190	0.392	0	1	0.55	0.6	1

Table 3. Descriptive statistics

		Mean	S.D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	*Sales Growth*	1.76	26.18	1.00															
2	*Diversification*	0.51	0.44	0.02	1.00														
3	*Tax Alcohol*	0.35	0.48	-0.03	0.09	1.00													
4	*Retailer Concentration*	0.56	0.50	0.00	-0.02	0.02	1.00												
5	*Specialized Competition*	0.51	0.50	-0.01	0.01	-0.01	0.03	1.00											
6	*Company Internationalization*	0.80	0.31	0.01	0.38	0.17	-0.02	-0.01	1.00										
7	*Company Sales*	5684	21067	-0.01	0.16	0.34	0.00	0.08	0.16	1.00									
8	*Country Specialized Competition*	0.53	0.10	-0.04	0.16	0.13	-0.05	-0.04	0.06	-0.01	1.00								
9	*Diversified Competition*	0.98	0.04	0.00	-0.16	-0.10	0.00	-0.03	-0.02	-0.03	-0.11	1.00							
10	*Country Diversified Competition*	0.62	0.05	-0.01	-0.05	0.01	0.06	-0.03	0.01	0.01	0.15	0.31	1.00						
11	*White Labels*	0.17	0.12	0.01	-0.18	-0.03	0.01	0.06	-0.10	-0.02	-0.24	0.27	-0.01	1.00					
12	*Country FDI inflows*	35603	36863	0.01	0.01	0.30	0.01	-0.10	0.01	0.01	-0.12	0.05	-0.11	0.03	1.00				
13	*Country FDI outflows*	60526	59739	0.02	0.00	0.23	0.18	0.01	0.00	0.02	-0.29	0.04	-0.05	0.08	0.80	1.00			
14	*Demand*	3529	4398	0.06	-0.13	-0.06	-0.03	-0.03	0.00	-0.02	-0.63	-0.06	-0.15	0.15	0.29	0.36	1.00		
15	*Country Health Status*	73.11	5.86	0.00	0.10	-0.01	-0.10	0.01	0.07	-0.03	0.59	0.00	-0.01	-0.21	0.04	-0.18	-0.28	1.00	
16	*Country Price Index*	1.03	0.07	0.01	-0.08	-0.27	-0.10	-0.01	-0.06	0.04	-0.65	0.02	-0.04	0.15	-0.21	-0.10	0.22	-0.64	1.00
17	*Consumption*	1019912	401378	0.00	0.05	0.00	0.06	0.00	0.02	-0.03	0.10	-0.05	0.28	-0.03	-0.11	-0.02	0.00	0.08	-0.36

Table 4. Niche-based regression. Effect of tax changes on main niche variables.

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	Dependent Variable		
	Number of Single-product Firms (log)	Number of Multi-niche Firms (log)	Total Niche Demand (log)
Tax Alcohol	-0.00101**	-0.00101	-0.0437***
	(0.000494)	(0.000643)	(0.00819)
Constant	2.900***	2.900***	5.871***
	(0.000212)	(0.0704)	(0.197)
Time, Country, Niche FE	Yes	Yes	Yes
Observations	1,296	1,296	1,296
R-squared	0.004	0.004	0.039

Notes: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 5. Absolute values of t-test of mean differences for *Sales Growth*

	a. Niche affected by tax changes					
	Diversification above median value	Diversification below median value		Diversification above median value	Diversification below median value	
Tax Alcohol Switch	-4.20*	2.32***	Specialized competition above median	-6.71**	4.24**	Retailer concentration above median
	-2.76	3.55	Specialized competition below median	-1.37	1.17**	Retailer concentration below median
	b. Niches not affected by tax changes					
	2.20***	1.17***	Specialized competition above median	2.51***	1.74***	Retailer concentration above median
	1.38***	1.57***	Specialized competition below median	1.09***	1.12***	Retailer concentration below median

Notes: Mean differences in *Sales Growth* given a switch in value from 1 to 0 of *Tax Alcohol*. *p < 10%, **p < 5%, ***p < 1%.

Table 6. Ordinary least square regressions for taxed niches, with robust standard errors and fixed effects

	(1) All Sample	(2) Retailer concentration high	(3) Retailer concentration low	(4) Specialized competition low	(5) Specialized competition high	(4) & (2)	(4) & (3)	(5) & (2)	(5) & (3)
Diversification × Tax Alcohol	-31.07***	-50.07**	-5.791**	-26.18**	-74.44**	0.145	2.630	-48.82**	-32.68***
	(9.421)	(22.80)	(2.804)	(10.71)	(30.86)	(0.0931)	(2.085)	(24.39)	(11.86)
Diversification	-0.197	-15.36	-8.078***	-10.41	2.297	-15.49***	-20.89**	-20.18	12.50
	(6.434)	(11.60)	(2.971)	(11.33)	(12.16)	(4.752)	(8.582)	(34.64)	(10.80)
Tax Alcohol	7.779***	7.484***	4.434***	1.629	9.195**	0.342**	2.749	0.707	7.658*
	(2.493)	(2.226)	(1.606)	(3.364)	(3.852)	(0.136)	(3.104)	(3.626)	(4.298)
Company Internationalization	-12.28	-12.93	-30.25*	-58.75**	0.519	-0.523	-12.54*	-28.45	-47.89
	(9.126)	(9.403)	(17.33)	(23.04)	(15.30)	(9.556)	(6.676)	(19.62)	(57.63)
Company Sales	-0.0105***	-0.00666***	-0.00454**	-0.00926***	-0.0120***	-0.00311*	-0.00101	-0.0106***	-0.0469***
	(0.00290)	(0.00182)	(0.00214)	(0.00281)	(0.00423)	(0.00167)	(0.00134)	(0.00347)	(0.0168)
Specialized Competition	-2,226	197.2	-2,270**	9,686**	-3,334	-2,502	-3,548	10,913*	11,598***
	(1,360)	(1,124)	(924.2)	(4,289)	(2,503)	(3,221)	(3,962)	(6,415)	(3,702)
Diversified Competition	-795,557***	-724,743	-164,961	-839,594	-164,961	-164,961	-164,961	1.260e+07*	-99,232
	(240,001)	(807,073)	(841,315)	(573,102)	(841,315)	(841,315)	(841,315)	(7.161e+06)	(147,108)
Country Specialized Competition	-453.0***	-605.3**	825.7**	-190.8	327.4	-768.5	-1,342	-980.8	972.8***
	(115.4)	(298.4)	(364.3)	(483.3)	(199.2)	(596.8)	(1,912)	(1,595)	(365.0)
Country Diversified Competition	-50.11	-959.3**	-1,404**	-1,011**	463.4*	-401.1	632.0	-1,522	2,830***
	(128.7)	(416.5)	(572.7)	(417.2)	(242.8)	(322.3)	(1,028)	(1,078)	(1,070)
White Labels	63.12	-42.24	-46.69*	-149.1**	-100.7	-21.66	45.66	-395.7	-1,038***
	(47.83)	(135.5)	(26.59)	(69.74)	(143.0)	(70.85)	(142.1)	(325.2)	(341.3)
Demand	0.0159**	0.00534	-0.00794***	0.0152***	0.0117**	0.00549	-0.00507	0.0146	0.0173**
	(0.00622)	(0.00703)	(0.00277)	(0.00532)	(0.00502)	(0.00780)	(0.00695)	(0.0289)	(0.00692)
Country FDI inflows	0.000101**	-2.53e-05	5.56e-05**	9.58e-05	-7.77e-06	-8.00e-05	0.000120	-0.000121*	0.000123**
	(4.70e-05)	(4.72e-05)	(2.38e-05)	(7.69e-05)	(3.03e-05)	(5.74e-05)	(0.000109)	(6.45e-05)	(6.08e-05)
Country FDI outflows	-2.19e-06	0.000108**	0.000137***	-5.46e-05	5.44e-05	0.000183**	-0.000298	-4.19e-05	1.52e-05
	(2.55e-05)	(4.99e-05)	(4.62e-05)	(6.03e-05)	(3.97e-05)	(7.17e-05)	(0.000722)	(0.000361)	(3.29e-05)
Country Health Status	2.065**	1.790**	-5.609**	5.542**	0.0878	2.291*	9.323	7.731	2.173**
	(0.916)	(0.876)	(2.627)	(2.280)	(0.459)	(1.207)	(11.89)	(5.032)	(1.070)
Country Price Index	-97.97**	165.1	147.5***	-33.40	-84.86**	346.3*	27.49	142.8	-105.1*

	(47.35)	(125.4)	(55.18)	(125.6)	(40.48)	(189.9)	(157.6)	(327.6)	(55.54)
Consumption	-0.000229***	-0.000588**	-0.000132**	-0.000953***	-3.28e-05	-0.000851**	0.000321	-0.000368	-0.000243***
	(7.33e-05)	(0.000288)	(5.57e-05)	(0.000294)	(3.18e-05)	(0.000409)	(0.000742)	(0.00118)	(8.48e-05)
Constant	797,993***	725,598	3,227**	831,298	167,863	3,039	2,693	-1.261e+07*	-12,947***
	(240,245)	(807,969)	(1,252)	(572,152)	(840,195)	(3,597)	(2,848)	(7.167e+06)	(4,143)
Observations	6,030	3,143	2,887	2,855	3,175	1,180	1,995	1,963	892
R-squared	0.087	0.095	0.050	0.096	0.117	0.162	0.064	0.123	0.294

Notes: Robust standard errors are in parentheses. All regressions contain year, firm, country, and brand fixed effects.
*p < 10%, **p < 5%, ***p < 1%.

Table 7. Ordinary least square regression for non-taxed niches, with robust standard errors and fixed effects

	(1)	(2)	(3)	(4)	(5)	(4) & (2)	(4) & (3)	(5) & (2)	(5) & (3)
	All Sample	Retailer concentration high	Retailer concentration low	Specialized competition low	Specialized competition high				
Diversification × Tax Alcohol	0.460	1.137***	0.401	-0.528	0.247	-0.765	3.053	2.662**	-3.189
	(0.598)	(0.414)	(1.141)	(1.007)	(0.812)	(1.193)	(3.054)	(1.194)	(2.935)
Diversification	-3.166***	-2.189***	-4.034***	-2.228***	-2.339***	-0.617	-5.157**	-3.585**	-0.799
	(0.574)	(0.610)	(1.130)	(0.755)	(0.646)	(0.521)	(2.515)	(1.453)	(1.872)
Tax Alcohol	-0.970**	-0.222	-4.003***	-0.336	-0.0400	0.220	-5.979**	-0.398	4.450*
	(0.449)	(0.325)	(1.166)	(0.948)	(0.599)	(0.866)	(2.511)	(0.760)	(2.372)
Company Internationalization	-15.09**	-7.092	-30.18*	-21.03	-10.50	-11.83	-15.76	1.493	-58.52
	(6.004)	(8.771)	(17.69)	(12.79)	(6.411)	(34.25)	(13.07)	(3.718)	(41.88)
Company Sales	-0.000564***	-0.000360***	-0.00180***	-0.00133***	-0.000355***	-0.000795**	-0.00209***	-0.000366***	-0.00107**
	(8.24e-05)	(5.84e-05)	(0.000343)	(0.000276)	(0.000124)	(0.000326)	(0.000482)	(0.000141)	(0.000458)
Specialized Competition	14.75	11.04	92.91	-14.42	28.77	29.21	40.28	5.143	86.22
	(21.71)	(30.09)	(78.05)	(41.88)	(54.39)	(167.7)	(70.18)	(41.00)	(188.8)
Diversified Competition	33.62*	6.350	-173.3	76.38	-26.82	136.7	-402.7	15.45	-821.1*
	(20.36)	(19.31)	(191.9)	(48.78)	(23.68)	(106.6)	(299.4)	(24.14)	(478.7)
Country Specialized Competition	6.697	111.0***	-835.2***	-57.19	-10.37	139.5	-1,785***	185.7***	-963.9
	(13.13)	(28.45)	(215.0)	(54.29)	(20.72)	(117.3)	(656.4)	(54.89)	(685.0)
Country Diversified Competition	-25.92**	53.72	338.3***	-98.44***	-45.41**	12.39	763.9*	-0.111	674.3
	(12.76)	(39.80)	(129.3)	(38.08)	(19.59)	(111.5)	(442.3)	(76.64)	(482.9)
White Labels	-0.549	-20.92	5.649	-27.92*	-4.925	-19.42	-25.35	-14.92	51.18
	(8.139)	(13.23)	(28.13)	(15.01)	(13.38)	(19.39)	(53.93)	(47.80)	(67.12)
Demand	0.000804	0.00548**	0.00160	-0.000385	7.16e-05	0.0167*	0.000346	0.00139	0.00161
	(0.000588)	(0.00277)	(0.00115)	(0.00111)	(0.000825)	(0.00948)	(0.00191)	(0.00227)	(0.00159)
Country FDI Inflows	1.21e-05	-1.12e-05	0.000162***	6.41e-05***	-1.12e-05	1.93e-05	0.000230***	3.00e-05*	3.93e-05
	(8.41e-06)	(9.64e-06)	(3.23e-05)	(2.31e-05)	(1.37e-05)	(5.83e-05)	(5.27e-05)	(1.72e-05)	(4.98e-05)
Country FDI Outflows	1.54e-07	1.45e-05*	9.78e-05***	-1.99e-05	1.81e-05*	-3.06e-05	-3.39e-06	-5.50e-06	7.89e-05*
	(6.64e-06)	(8.66e-06)	(1.67e-05)	(2.14e-05)	(1.03e-05)	(5.28e-05)	(0.000139)	(2.26e-05)	(4.62e-05)
Country Health Status	0.0206	0.172	7.749***	0.590**	-0.200	0.827	16.18***	0.951	0.314
	(0.0971)	(0.160)	(1.745)	(0.252)	(0.144)	(0.847)	(4.720)	(0.591)	(3.023)

Country Price Index	14.31**	-12.56	131.0***	15.75	24.17***	-22.47	232.4***	0.641	-145.6
	(6.744)	(11.36)	(33.80)	(11.34)	(7.249)	(53.32)	(80.86)	(20.20)	(105.1)
Consumption	-5.73e-06	2.07e-05**	-0.000131***	9.05e-06	-2.57e-05***	7.95e-06	-3.13e-06	8.27e-05***	-5.05e-05
	(4.99e-06)	(9.00e-06)	(3.23e-05)	(9.93e-06)	(8.14e-06)	(2.00e-05)	(0.000158)	(3.05e-05)	(3.50e-05)
Constant	-28.83	-134.6**	-227.6	-5.536	61.59	-316.0	-573.0*	-267.0***	1,097*
	(36.02)	(54.96)	(241.4)	(86.36)	(65.84)	(272.4)	(298.8)	(100.0)	(649.0)
Observations	15,150	8,367	6,783	8,034	7,116	4,010	4,024	4,357	2,759
R-squared	0.06	0.08	0.049	0.017	0.017	0.017	0.059	0.018	0.054

Notes: Robust standard errors are in parentheses. All regressions contain year, firm, country, and brand fixed effects.
*p < 10%, **p < 5%, ***p < 1%.

Table 8. Changes in marginal effects of *Diversification* after tax changes from Tables 5 and 6, column (5) & (2)

	Niche Affected	
	Specialized competition high	Specialized competition low
Retailer concentration high	-2.420**	-0.090*
(Z test)	(2.227)	(2.018)
Retailer concentration low	-2.616	0.126
(Z test)	(0.022)	(0.306)
	Niches Not Affected	
Retailer concentration high	0.451**	0.367
(Z test)	(2.067)	(0.861)
Retailer concentration low	-0.872	0.327
(Z test)	(0.284)	(0.535)

*p < 10%, **p < 5%, ***p < 1%.

Table 9. Monetary prediction of mean results, in thousands Euros.

	Niche Affected	
	Specialized competition high	Specialized competition low
Retailer concentration high	-2,215.89	-2,102.20
Retailer concentration low	-1,249.45	Baseline
	Niches Not Affected	
Retailer concentration high	171.73	49.34
Retailer concentration low	58.31	Baseline
	Niches not affected that the portfolio would need to break even	
Retailer concentration high	12	42
Retailer concentration low	21	Baseline