

Business and Politics

Volume 6, Issue 2

2004

Article 4

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Alan E. Wiseman and Jerry Ellig

Abstract

We discuss the political and legal environment surrounding Internet wine sales, and consider the arguments in the debate over direct shipment bans on wine by investigating the wine market in the Northern Virginia suburbs of Washington, DC. Using a sample of wines identified by Wine and Spirits magazine's annual restaurant poll, we find that 15 percent of wines available online were not available from retail wine stores within 10 miles of McLean, Virginia during the month the data were collected. Our results also indicate that Virginia's direct shipment ban, which was in place until 2003, prevented consumers from purchasing some premium wines at lower prices online. Aggregate cost savings depends on the consumer's shopping strategy, the price per bottle, the quantity of wine ordered, and the shipping method chosen. For the entire sample, online purchase could result in an average savings of as much as 3.6 percent or an average premium of as much as 48 percent. A comparison shopper who considers both online and offline retailers could save an average of 1.6-9.7 percent. These results help explain why consumers and producers have found it worthwhile to challenge interstate direct shipment bans, which tend to benefit wine wholesalers.

KEYWORDS: Electronic Commerce, Wine, State Regulation, Interest Group Politics, 21st Amendment

As the Internet and electronic commerce have evolved to encompass virtually every aspect of conventional transactions, firms have ambitiously experimented with widely diverse business models to carve out their niche in the Internet economy. Lawmakers and politicians have encouraged entrepreneurs to spur Internet penetration and electronic commerce. Although many “legacy” laws and regulations may hamper electronic commerce in particular industries (FTC 2002), it is rare for policymakers to argue that limiting electronic commerce is inherently good—unless one considers the market for wine.

Internet wine sales have provoked considerable debate in recent years. The prospects of a virtual vineyard have been viewed favorably by consumers and producers, who see the potential for bargains and a wide expansion of product availability. Alternatively, incumbent distribution interests have viewed the Internet as eroding their control of alcohol sales, and have argued that it will contribute to a variety of social and fiscal problems for states and localities. Given the diverse landscape of state regulations that govern alcohol sales, a variety of barriers limit the potential development of a thriving online market for wine. Officials in states that curb online wine sales often side with the distributors in defending these barriers.

Why is wine different than any other product that might be sold online? What are the arguments for and against the current legal system governing alcohol sales, and are these arguments valid? We address these questions by discussing the history and politics behind this contentious issue, and then investigating how restrictive alcohol distribution laws may affect consumers in one particular geographic market -- the suburban area within a 10-mile radius of McLean, Virginia. Northern Virginia is an affluent area with a diverse mix of wine retailers; therefore, it provides a challenging test of the hypothesis that interstate direct shipment bans harm consumers by depriving them of price and variety options that they could only obtain online.

The paper is organized as follows. Section 1 provides a brief discussion of the history and politics behind the direct shipment debate and how it applies to electronic commerce and Internet wine sales. Section 2 outlines economic theories that predict the differences one might observe between online and offline wine prices and availability. Section 3 discusses the data collection methods employed for our price and product variety comparison between online and offline retail channels, and Section 4 presents the findings. Section 5 concludes with a summary, some caveats, and a brief discussion of prospects for future research.

Section 1. History and Background

The current status of Internet wine sales, and interstate alcohol sales more broadly, is the culmination of a legal and political debate that has evolved over the past 100 years, and deals with a diverse range of issues including standards of public morality, states' rights, and the supremacy of the national constitution. As early as the late 19th century, individual states and localities were concerned with how they could regulate the consumption and use of alcohol within their borders. In an effort to provide the states with statutory authority that did not run counter to the commerce clause (U.S. Constitution, Article I, sec. 8), the U.S. Congress passed the Webb-Kenyon Act in 1913, which explicitly stated, "The shipment or transportation ... of any spiritous, vinous, malted, fermented, or other intoxicating liquor of any kind, from one State, Territory, or District of the United States, ..., into any other State, Territory, or District of the United States, ... , in violation of any law of such State, Territory, or District of the United States, ..., is hereby prohibited."

Hence, Congress effectively delegated to states the legal foundations with which to set up various regulatory structures for dealing with alcohol, including the possibility of barring interstate shipment altogether. The 18th amendment, ratified in 1919, obviously changed the legal landscape of such transactions, as "manufacture, sale or transportation of intoxicating liquors within [the] United States" became illegal.

In 1933, however, with the ratification of the 21st amendment, states (and producers and consumers) found themselves in a legal position very similar to where they had been in 1913. The 21st amendment, as is well-known, repealed the 18th amendment. What is less well-known, however, is the effect of Section 2 of the 21st Amendment, which states, "The transportation or importation into any State, Territory, or possession of the United States for delivery or use therein of intoxicating liquors, in violation of the laws thereof, is hereby prohibited." On its face, Section 2 "makes an already-illegal action also an unconstitutional action." In practice, it gives states a great deal of latitude – but not total latitude – to interfere with interstate commerce in alcohol.¹

Following the passage of the 21st amendment, states quickly moved to establish legal and regulatory frameworks for handling the distribution and sale of alcohol within and across state lines. The pattern that most states adopted has come to be known as the "three-tier" system. Under this system, all alcohol coming into a state would have to come from the producer (tier one) to a distributor (tier two) and finally to a retailer (tier three) before arriving in the hands of any potential consumers. Vertical integration between the tiers was

¹ *Bainbridge v. Turner*, 311 F.3d 1004 (2002), § III.

generally prohibited; a winery could not set up its own distribution network or establish its own retail centers that bypassed existing distribution systems.² By the 1980s, almost every state in the U.S. had adopted some variant of the three-tier distribution system, and with the exception of Alaska, California, and Rhode Island, interstate direct shipments of wine (meaning shipments directly to consumers across state lines) were generally illegal.

The legal landscape of direct shipment changed dramatically in 1986 when the state of California passed legislation prohibiting direct shipment of wine from other states to California residents, unless exporting states allowed their residents to receive direct shipments from California wineries. This legislation paved the way for the current “reciprocity” agreements between 13 states for direct interstate shipments of wine from producer and/or retailer to consumer.³ Besides the 13 reciprocity states, 14 other states (and the District of Columbia) eventually relaxed their prohibitions on interstate direct shipments to allow limited quantities of wine and alcohol to be imported without going through the state sanctioned (or administered) distribution system.⁴ At the same time, several other states have altered their direct shipping laws so that as of 2003, 24 states had bans on direct shipments, including five states where direct shipment was a felony.

Interest group politics and state regulation

Although alcohol regulation has some unique attributes, the case of interstate wine sales and direct shipment bans could arguably be viewed as a textbook example of interest-group rent-seeking (e.g., Peltzman 1976, Posner 1974, and Stigler 1971). Distributors, wholesalers, and other private interests have arguably applied political pressure to generate regulatory structures that benefit them. Riekhof and Sykuta (2003), for example, have analyzed the changes in direct shipment laws since 1986 and found that private economic interests, more so than public welfare concerns, seem to have driven most of the changes in direct shipment bans.

² There are some exceptions to this ban on vertical integration. In certain states, state-owned liquor stores also perform the wholesaling function, receiving shipments direct from distillers. Many states permit wineries and breweries to sell to the public for on- or off-premises consumption in tasting rooms, brew-pubs, or at festivals, but this exception is not broad enough to permit them to establish their own retail networks. Finally, some states, such as California, allow wineries to bypass the distributors and deal directly with retailers.

³ All reciprocity states recognize two-way shipping rights between each other. The particular shipping rights depend on the kind of wines being shipped, relative alcohol contents, etc.

⁴ Non-reciprocity states that still allow limited interstate direct wine shipment typically do so under personal importation laws that allow consumers to receive wine from another state, subject to specific constraints.

Following the passage of the 21st amendment, and particularly in recent years, distribution interests have lobbied state legislatures to pass laws that maintain their privileged positions in the wine market. In many cases, these proposed laws obviously restrict competition in a manner that would not normally withstand constitutional scrutiny were it any other industry. Fortunately for distribution interests, however, the courts (until recently) ruled that wine and alcohol, due to their status under the 21st amendment, are not like any other industry. As a result, state legislatures could pass laws that effectively restricted interstate commerce by barring the importation of products from other states and/or establishing something tantamount to state-specific protectionist trade regimes.

Stark examples occurred in states such as Virginia, Texas, Michigan, North Carolina, and New York, where legislation prohibited direct interstate wine shipments, yet allowed direct intrastate shipments. In other words, while it was illegal for Virginia consumers to receive wine directly from a California winery prior to July 2003, it was completely legal for them to receive door-to-door shipments from a Virginia winery. The rationale behind this and similar legislation was often couched in terms pertaining to public safety and tax enforcement. In-state retailers and producers would presumably be easier to monitor than out of state retailers to ensure collection and remission of sales taxes, as well as the restriction of underage purchase and consumption. In reality, however, court documents in recent litigation have identified that another rationale behind these laws was an effort to try to tilt the playing field in the favor of domestic state industries, and effectively insulate them from the threat of out-of-state competition.⁵

While some states have started to tighten up their alcohol regulations in recent years, the wine industry as a whole has undergone dramatic changes. According to the American Vintners Association (AVA), an industry group representing 650 wineries across 48 states, there are currently nearly 2,700 bonded wineries in the United States, nearly 80% of which are “cottage businesses” producing less than 25,000 cases a year. This sizable market follows from a 500% increase in the number of wineries over the past 30 years.⁶ While

⁵ For example, until it was struck down as unconstitutional by the 5th circuit, portions of the Texas Alcoholic Beverage Code strictly prohibited direct shipment across state lines, yet allowed Texas wineries to ship up to 25,000 gallons per year directly to Texas consumers. The Texas regulations also provided for various promotional giveaways that were unavailable to non-Texas wine producers or retailers. As noted in Judge Wiener’s decision, the intention behind such legislation was clearly stated within the legislative intent accompanying the Texas Wine Marketing Act: “to assist the Texas wine industry in promoting and marketing Texas wines and educating the public about the Texas wine industry.”

⁶ Statistics on recent industry trends are provided by “Free the Grapes.” The “Free the Grapes” website was accessed on June 2, 2004: <<<http://www.freethegrapes.com/research.html>>>.

production has expanded, there has been a dramatic consolidation on the distribution side of the business, from nearly 5,000 distributors in the 1950s to approximately 400 wholesalers in 2002. It is not clear whether this consolidation reflects increased concentration in relevant geographic markets, or if local businesses have simply combined to become regional, statewide, or national businesses (FTC 2003, 6).

With the expansion of production, and the contraction in distribution, in conjunction with the rise of electronic commerce, various tensions have emerged. First, producers have alleged that the current distribution framework is simply unable to meet their needs. While it is true that distributors are located in every state, the nature of the industry (e.g., the time and resources necessary for product promotion), makes it difficult, if not impossible, for smaller volume “boutique” wineries to find the necessary representation that would enable their penetration into the retail market. According to the AVA, less than half of the current wholesalers actually have access to markets in all 50 states, and despite the presence of 2,700 wineries in the U.S. only the 50 to 100 largest wineries are able to secure widespread representation in distribution networks. Reinforcing this claim, a 1998 member survey conducted by the Wine Institute reported that only 17% of the 600 member-wineries had secured distribution in all 50 states (Gross 2002).

A second tension comes from consumers who are seeking wines from smaller-production vineyards, but who live in jurisdictions where direct shipment is illegal. In such situations, consumer options are limited. They obviously cannot have the wine directly shipped to them from the producer (or an out of state retailer), because such action would constitute a misdemeanor (at least) in most jurisdictions. Furthermore, as noted above, because many smaller-production vineyards either do not find it worthwhile to acquire distributor representation (or cannot get it because the distributor doesn’t find it worthwhile), it is simply impossible to get certain wines from any location outside of the wineries’ tasting rooms. Hence, if a consumer from Ohio, for example, were to find a new favorite wine on a tourist trip to Napa Valley, but the winery did not have a distributor in Ohio the tourist would be out of luck.⁷

A third tension comes from distributors and wholesalers, who in light of recent consumer and producer mobilization, combined with the prospects of an Internet facilitated virtual wine market, have started to fear that their control of distribution might be eroding. This fear has arguably contributed to wholesaler efforts to toughen up state regulations on alcohol importation in the past several years, as well as focusing on legislative initiatives. Proponents of direct shipping are quick to note, for example, how distributor interests, led primarily by

⁷ Ohio currently prohibits direct shipment.

Southern Wine and Spirits, notably stepped up their lobbying and campaign contribution activities in Florida in the mid-1990s. This increase in activity culminated in the passage of Florida's tougher direct shipment laws making direct shipment a felony.⁸ More recently, in response to the growth of electronic commerce and the launching of online winesellers, distributor interests pressed the U.S. Congress to pass the 21st Amendment Enforcement Act. The law was signed by President Clinton in October 2000 and provided state attorneys general with access to the federal courts to enforce state alcohol distribution laws.⁹

While wholesale and distributor interests have sought support from legislatures to maintain the status quo, consumer and producer interests have adopted a litigation strategy, followed by legislative lobbying when appropriate, to advance their policy goals. The Coalition for Free Trade, a non-profit legal foundation founded in 1997 to advance the legalization of direct shipment, has combined its efforts with disgruntled wine drinkers, producers, organized interest groups such as Free the Grapes, and public interest litigation firms such as the Institute for Justice to file several lawsuits challenging various bans. Among the states whose laws have been targeted for challenge were Michigan, Florida, New York, North Carolina, Texas, and Virginia—all of which had laws that banned interstate direct shipments, but allowed intrastate direct shipments. The legal debate gained significant prominence in policy and trade circles in March 2003, when former Solicitor General Kenneth W. Starr, claiming that existing direct shipment bans were “naked protectionism” was retained by the Coalition for Free Trade to press its cases forward.¹⁰ The wine wholesalers, for their part, have retained constitutional scholar Robert Bork and C. Boyden Gray, former White House counsel to President George H. W. Bush.

A detailed treatment of the constitutional issues is outside the scope of this paper. A reader may well wonder, however, why the free trade boosters believe they have a case, given that the 21st amendment left regulation of interstate alcohol shipment to the states. There are two principal answers. First, proponents

⁸ As reported in the Wall Street Journal in 1999, Southern Wine and Spirits gave nearly 60,000 to Florida politicians in the 18 months prior to the new law's passage. The legislation that emerged from the Florida legislature provided for up to a five-year prison term for those participating in direct shipment of alcohol into Florida. The Wall Street Journal, 4 October 1999, p. A-1. The law caused Florida a certain amount of national embarrassment when Gov. Jeb Bush discovered that the direct shipping law prevented him from collecting a case of cabernet sauvignon that he won from California Governor Gray Davis in a bet on Super Bowl XXXVII. San Francisco Chronicle, 30 January 2003, p. A-2.

⁹ Also related to these issues is legislation that was passed in response to post September 11th restrictions that made it difficult for travelers to bring wine home on airplanes. Under 27 U.S.C. § 124 (2002), individuals can place an order in person at a winery to ship wine to their residences, so long as it is the same amount of wine that their state law would permit them to physically carry into the state.

¹⁰ New York Times, 24 August, 2003, Section 3, p. 4.

of free trade argue that the “Dormant Commerce Clause” prohibits, or at least constrains, economic protectionism that favors in-state interests, and thus circumscribes how states can regulate interstate commerce in alcohol under the 21st amendment.¹¹ Second, some of the litigants also argue that state direct shipment bans violate the Constitution’s “Privileges and Immunities Clause,” which they believe protects the rights of individuals (including winemakers) “to pursue their chosen livelihoods free from arbitrary and discriminatory burdens.”¹² The general theme is that while the 21st Amendment allows states to regulate interstate alcohol shipment, they may not violate other parts of the U.S. Constitution in the process.

Thus far, the decisions in these lawsuits have been mixed. Florida’s case was remanded to the district court for further fact-finding.¹³ For Michigan, Texas, North Carolina, and Virginia, federal courts decided in 2002 and 2003 that these states’ alcohol restrictions violated the commerce clause, and seemed aimed more at protecting domestic economic interests, rather than promoting temperance as was the (presumed) intention of Section 2 of the 21st amendment.¹⁴ Following the Virginia decision, the court granted a stay in order to give the state legislature an opportunity to correct provisions of the law found to be unconstitutional. The battle moved into the General Assembly where a coalition of Virginia wineries, combined with wine industry groups including the Wine Institute and Wine America (formerly the American Vintners’ Association) lobbied the legislature for changes in the existing law to allow for direct interstate shipments. Besides allowing Virginia consumers easier access to out-of-state products, industry interests appealed to legislators’ desires to propel state economic development by arguing that such measures were necessary if Virginia was ever to achieve its potential as one of the great wine regions in the United States. As noted by one Virginia vintner who produced a rare white wine called Traminette, there was little nationwide demand for some of Virginia’s smaller production wines, which prevented out-of-state distribution. However “if we build a consumer demand for

¹¹ See, e.g. *Bainbridge v. Turner*, 311 F.3d 1104 (2002).

¹² *Swedenburg v. Kelly* 232 F.Supp. 2d 135 (S.D.N.Y 2002), § V.D. Similar to this argument, in the Michigan case two wine journalists claimed that the direct shipment ban interfered with their right to make a living as wine journalists because they could not obtain many out-of-state wines for review. See *Heald v. Engler*, No. 00-CV-71438-DT (E.D. Mich. Sept. 28, 2001).

¹³ Florida permits intrastate direct shipment but prohibits shipment of alcohol via common carrier. Consequently, even if wineries won their case in Florida, they could engage in direct shipment only by using their own vehicles, which would still place most of them at a distinct disadvantage versus Florida retailers.

¹⁴ Indiana statutes barring interstate direct shipments were also challenged but were upheld by federal courts. Unlike the states considered above, Indiana banned all direct shipments, both within and across state lines. Hence, arguments about economic discrimination held little water.

it nationwide, ultimately it'll flow through distribution systems."¹⁵ It was the intention that modification of the existing sales ban would lead to reciprocity agreements with other states.

With counteractive lobbying on the part of the wholesaler and distributor interests, the debate came down to a choice between two legislative vehicles. The first bill, endorsed by producers, retailers and consumers allowed direct shipment of wine to consumers' doors. The second option, which was endorsed by wholesaler interests, allowed direct shipment of wine and beer (the previous option initially did not account for beer), but only after the product passed through a state-administered Alcoholic Beverage Control store. Embracing conventional arguments for their role in the three-tier system, wholesalers justified the more restrictive bill by claiming that their participation would facilitate tax collection and age verification of purchasers. Proponents of direct shipments had anticipated such arguments, however, as the producer-friendly bill required that a person over 21 sign for delivery, and that wineries collect any taxes from sales. The differences between these bills were worked out so that the legislation that was signed into law in April 2003 allowed door-to-door shipment of both beer and wine, if out-of-state firms obtained a permit and remitted the relevant taxes. The out of state firm would also have to use a common carrier that registered with the Virginia Department of Alcoholic Beverage Control for shipment.

In contrast to the Virginia outcome, the 2nd circuit decided to uphold New York's law that banned direct shipments from out of state, but allowed New York wineries to deliver directly to New York residents and consumers. The contradiction in these decisions, combined with the pressure from Michigan officials to have their case appealed, led to the Supreme Court granting *cert* in May 2004 to hear the cases sometime in the 2004-05 session.

In the event that the Supreme Court rules that such laws banning interstate, yet allowing intrastate, direct shipments are constitutional it will be up to state legislatures to decide whether to alter existing regulatory frameworks. Indeed, in addition to Virginia, the legislatures of most states involved in the lawsuits have seriously considered changing their direct shipping laws as a result of the court decisions. Regardless of what the Supreme Court rules, there are still states that prohibit all direct shipment, and it will still be at the discretion of their legislatures whether to change the playing field for, or against, direct shipment. Any decisions will have profound effects on the development of electronic commerce in the market for wine.

Both sides in this debate obviously have private economic and political interests driving their actions and they have offered a variety of public interest claims to justify their perspectives on whether or not to maintain the status quo.

¹⁵ The Washington Post, 6 February 2003, p. B.07.

A 2002 workshop at the Federal Trade Commission on potential barriers to electronic commerce set the stage for these arguments.¹⁶ The public interest arguments that were articulated regarding direct shipment revolve primarily around social regulation of alcohol, taxation, product variety, and product prices. Proponents of these laws argue that the economic harm to consumers is slight, and that these laws are necessary to promote temperance, collect alcohol taxes, and prevent underage drinking (Gray 2002, Hurd 2002, Mead 2002, Painter 2002). Opponents claim that consumers suffer significant harm with respect to product prices and availability, and that legitimate concerns about taxation and alcoholic beverage control can be addressed through policies that are less restrictive than an outright ban on direct shipment (Genesen 2002, Gross 2002, McFadden 2002, Sloane 2002).

While we will not consider the effects of these laws on inhibiting or facilitating underage access to alcohol or tax evasion, we can address the latter two points of debate. Drawing on data from the wine market in McLean, Virginia, we attempt to assess whether direct shipment bans might negatively impact consumers by limiting product variety and preventing access to less expensive products.

Section 2: Potential Effects of E-Commerce on Price and Variety

A growing body of research considers whether consumers can realize nontrivial benefits by shopping online in place of, or in addition to, bricks-and-mortar outlets. Empirical findings are mixed. In auto retailing, for example, users of a referral site that facilitates price competition among dealers (autobytel.com) pay lower prices than they otherwise would have paid (Scott Morton, Zettlemeyer, and Silva-Risso 2001; Zettlemeyer, Scott Morton, and Silva-Risso 2001). Holt (2003) suggests that the Internet can lower auto prices by reducing search costs, enhancing consumers' bargaining power, and increasing competition. Some studies of online auto auctions, CDs, books, and software, in contrast, have found that prices are higher online (Lee 1997, Bailey 1998a, b), yet a more recent study of books and CDs found that online prices are lower (Brynjolfsson and Smith 2000).

Laws that permit direct shipment of wine allow wineries and other merchants to compete with in-state bricks-and-mortar retailers who are supplied by wholesalers under the three-tier system. Economic theory suggests that online prices may be higher or lower, and online variety may be greater or less, than offline prices and variety.¹⁷

¹⁶ See <http://www.ftc.gov/opp/e-commerce/anticompetitive/index.htm>.

¹⁷ For a more extensive explication of these theories, see Wiseman and Ellig (2003).

Potential price effects

Smith, Bailey, and Brynjolfsson (1999) suggest four main reasons why online prices generally (and wine prices by implication) might be lower than offline prices: the presence of many more sellers, lower search costs, less market power, and general lower cost of the online sales channel. Legalized direct shipping offers consumers access to hundreds of wineries and retailers across the nation, rather than the limited number that a typical consumer would likely seek out and visit in the course of shopping offline.¹⁸

E-commerce could also lead to lower retail margins and prices online by reducing the cost of searching price and nonprice attributes (Bakos 1997, 2001:71; Wiseman 2000: 40-41).¹⁹ Online wine sellers might also charge lower prices if the three-tier system creates market power by erecting barriers to entry into wholesaling or limiting intrabrand competition (Gross 2002:3; Sloane 2002:2). Finally, an Internet retailer or winery may simply have a fundamentally different business model that incurs less of the traditional retail costs, creates efficiencies through vertical integration,²⁰ or avoids transaction cost inefficiencies created by state alcohol franchise laws, which often make it prohibitively costly for a winery to switch wholesalers.²¹

¹⁸ For example, the online shopbot we used to gather wine prices, Winesearcher.com, can access more than 700 online retailers and a number of wineries – many more than a consumer likely would visit in person. Even if average prices were the same online and offline, the opportunity to search many more retailers online means that the consumer is more likely to encounter a lower price.

¹⁹ It is plausible that whatever price differentials would ordinarily favor offline vs. online shopping might be exacerbated further by offline stores actually raising their prices in response to the proliferation of online wine stores. As argued generally by Salop and Stiglitz (1977) when retailers face consumers with different price elasticities of demands, they will charge different prices in equilibrium. In states where online wine sales are legal, one might envision the retail market for wine as actually two segmented markets (one online and one offline). Offline merchants, knowing that the majority of their consumers are less price sensitive than the typical online consumer, might be able to exploit this differential by raising prices. Milyo and Waldfoegel (1999) considered issues such as these in their study of the effects of the 44 Liquormart decision, which eliminated Rhode Island's ban on liquor price advertising.

²⁰ Gertner and Stillman (2001) suggest that vertically integrated retailers are more likely to sell direct online because vertical integration can lower coordination costs, help solve externality problems, and mitigate channel conflict. If vertical integration produces transaction cost efficiencies for wineries, it is also plausible that some of those efficiencies may be passed through to consumers in the form of lower prices.

²¹ On this point, Virginia law specified a variety of cumbersome regulations delineating the business relationships between retailers and wholesalers. To the extent that such restrictions increased risk and costs, and reduced distribution flexibility, Internet wine retailers might have had a cost advantage if they could have obtained wine from wholesalers in states with less burdensome

The literature on e-commerce offers two hypotheses suggesting why online prices could be higher than offline prices: the value of consumers' time, and reduced search costs for quality attributes. If Internet wine sellers are not the lowest-cost suppliers, they may charge a higher price and survive because their customers find the convenience worth the extra cost (Smith, Bailey, and Brynjolffson (1999: 109)). Alternatively, by reducing the cost of obtaining information on quality attributes, online sales could increase customers' ability to perceive differences between different varieties of wine, and online sellers could charge higher prices that reflect these perceived differences (Lynch and Ariely 2000).

Potential variety effects

There are three principal reasons that consumers may have access to a greater variety of wines online: larger numbers of retailers, intentional product differentiation, and lower fixed costs of marketing and distribution. One would expect that access to a substantially larger number of retailers would expand the variety of products from which a consumer could choose. In addition, retailers might engage in product differentiation as a possible strategy for muting price competition (Bakos 1997; 2001:71-72; Lynch and Ariely 2000; Wiseman 2000: 43), which might also increase the available number of labels and lead to greater product variety online.²² Finally, even if wineries and e-retailers do not consciously seek to increase differentiation in order to reduce price competition, online wine sales could increase variety simply by reducing the fixed cost of marketing a wine to a national clientele (McFadden 2002:1; Bakos 2001: 71).

Contrary to these arguments, wine wholesalers and alcoholic beverage regulators have consistently argued that there should not be any online vs. offline difference with respect to product variety – effectively arguing that any product for which there is customer demand can make it into the existing distribution system.²³ Implicitly, these parties are suggesting that fixed costs of getting a particular label into the three-tier system are not high enough to reduce variety to any meaningful extent.

regulations. Alternatively, the wineries could avoid the regulatory costs created by wine wholesale franchise laws by selling direct via the Internet.

²² For example, online merchants could seek out more obscure labels that were not previously available through bricks-and-mortar stores, or lesser-known labels could become available if wineries found that consumers attached greater cachet to wines ordered direct from the winery.

²³ As noted by Boyden Gray (2002), representing the Wine and Spirits Wholesalers of America (WSWA) at the 2002 FTC workshop, “no wholesaler worth his salt would fail to market any quality product for which a demand can be demonstrated.”

Section 3: Data Sources and Calculations

Economic theory and the competing political interests obviously offer conflicting arguments about whether we might expect price and variety differences in online vs. offline markets. Opponents of direct shipment bans have argued that current distribution and sales practices limit consumer choices and force them to pay higher prices than they could pay online. Alternatively, proponents of the sales bans have consistently argued that the current distribution system allows all highly desired wines to find their ways onto bricks-and-mortar shelves, and that “the alleged cost savings from direct shipping are nonexistent” (Gray 2002; 4). We evaluate the merits of these claims by analyzing the prices and wine selections offered by wine retailers in the greater McLean, Virginia, area for a pre-identified market bundle of popular wines, in comparison to what is available online.

McLean was chosen as the relevant retail area for several reasons. First, at the time that the data were collected, Virginia banned interstate direct shipment, and hence it was an appropriate state in which to consider the effects of direct sales laws on product selection and price.²⁴ Second, given the socio-economic status of many residents in McLean (and Northern Virginia, generally), it seemed likely that several bricks-and-mortar outlets could be found locally that catered to the needs of a sophisticated wine drinking population. As a result, any estimate of the “variety effect” would likely be conservative and could not be dismissed as driven by the choice of a location where few fine wines would likely be available.²⁵

At the time of our study, licensing might have created barriers to entry into the Virginia wine market in several ways that could have affected wine prices and selection. One type of entrant -- the out-of-state business -- simply could not obtain a Virginia wine wholesaler’s license. In addition, the Alcoholic Beverage Control Board might have declined to grant any type of alcohol license for a variety of reasons, including one that appeared to grant substantial discretion; a license could have been denied if “The number of licenses existent in the locality is such that the granting of a license is detrimental to the interest, morals, safety or welfare of the public.” (VA Code Sec. 4.1-222 A.3)

²⁴ The direct shipment law that was signed by the Virginia Governor in April 2003 went into effect on July 1, 2003. Direct shipment from out-of-state was thus illegal at the time the data for this study were gathered.

²⁵ While McLean was chosen, any community in Northern Virginia that was reasonably close to Washington, DC, would be equally appropriate for this study. Given the nature of the data being considered, it is doubtful that the results presented below would differ appreciably if the market being studied was somewhere other than McLean (with the possible exception that the more-expensive wines might be more difficult to find in less affluent areas).

While Virginia law banned exclusive territories, it did require the winery to designate a “primary area of responsibility” for each wholesaler to whom it sold, and the winery could only have one distributor in each territory for a single established brand. Such arrangements might contribute to high prices, conventionally associated with exclusive territories (e.g., Jordan and Jaffee 1987, Culbertson and Bradford 1991, Sass and Saurman 1996), if wholesalers generally refrained from selling to retailers outside of their primary area of responsibility.

The wine sample

In an effort to select an unbiased sample of wines that are likely to be popular among wine drinkers who might frequent wine stores, the data for this study was drawn from the 13th Annual Restaurant Poll conducted by *Wine and Spirits* magazine. The findings from this poll were published in their April 2002 issue, which identified the “Top 50 Wines”. One of the benefits of using the *Wine and Spirits* list, rather than a list compiled by a different publication, is that *Wine and Spirits* actually incorporates consumer demand for individual wines in compiling their rankings, rather than “expert” opinions, which may be unrepresentative of the wine-drinking public. More specifically, to determine the “Top 50,” the publishers sent out a questionnaire on wine sales to 1,995 restaurants in the United States; 381 restaurants responded. The survey asked (among other questions) what each restaurant’s top ten selling wines were in the last quarter of 2001. For each of the ten wines listed on a restaurant’s response, *Wine and Spirits* assigned a point value ranging from ten (for the best selling wine) to one (for the tenth best selling wine), which contributed towards its list of the most popular wines (which were arranged by varietal). For example, if Winery X held spots 1-3 on Restaurant Y’s wine list for its Chardonnay, Cabernet Sauvignon, and Merlot, respectively, then its Chardonnay would receive 10 points, its Cabernet would receive 9 points, and its Merlot would receive 8 points, respectively. The ranking of each wine was determined, then, by summing the scores across all respondents.

A second, related, benefit with using the *Wine and Spirits* list is that by considering wines that are obviously generally desirable, we consider a sample that should most likely be found in offline retail outlets. It would be a straw man fallacy to argue that anything found online should be found in offline stores, given the nontrivial distribution complications for smaller vineyards noted above. By focusing our attention of the *Wine and Spirits* list, we can more readily assess the veracity of the wholesalers’ interests claim: the most heavily-demanded wines can

easily be found offline “because no wholesaler worth his salt” would let such a business opportunity fall by the wayside.²⁶

Given the list of most popular wines, arranged by varietal, the 50 highest point recipients were selected for price comparisons from the collection of Sauvignon Blancs, Chardonnays, Cabernet Sauvignons, Merlots, Pinot Noirs, and Zinfandels produced by American winemakers. The highest ranked wine in this sample is the Sonoma-Cutrer Vineyards Chardonnay, with 464 points, while the 50th-most popular wine is a five-way tie between Caymus Vineyards’ and Kendall Jackson Vineyards’ Cabernet Sauvignon, Rodney Strong Vineyards’ Merlot, La Crema’s Pinot Noir, and Murphy-Goode’s Sauvignon Blanc with 41 points each. Focusing our attention on the top 50 point recipients actually identifies 83 individual bottles. The difference between ordinal rankings (the Top 50) and sample size (83) follows from the fact that *Wine and Spirits* recognizes all relevant bottles that fall under a given winery’s varietal when it identifies the most popular Chardonnays, Merlots, etc.²⁷

Taking this list of 83 bottles, the relevant wineries were contacted, either by phone or Internet, to determine whether all bottlings were available for retail sale, as well as the year of the most recent vintage. Four bottles were found to be either unavailable for retail sale to consumers (i.e., they were only sold to restaurants), had been misnamed by *Wine and Spirits*, or could otherwise not be found online. The remaining 79 bottles, which were identified as being currently available vintages, were used for price comparisons between offline and online retail channels.

Price and variety searches

We designed our data collection to simulate how a serious wine consumer might shop. The online shopper, of course, can access hundreds of retailers and wineries, and we assumed that legalized direct shipping would permit the McLean consumer to order from any of these online sources.

²⁶ One potential concern with using the *Wine and Spirits* list is that it suffers from endogeneity in that restaurants’ wine selections are limited due to the nature of the distribution system. While this might be the case, we feel that it’s effects on our study should be of limited concern. Because the results of the Wine and Spirits poll were compiled from responses from restaurants in more than 30 states, in every region (including restaurants in Washington DC, Maryland, and Virginia), the “top 50” wines that emerge should reflect, to some degree, the general desirability of this (potentially constrained) list compared to the entire wine market. Hence, we argue that it is a useful sample to use in our comparison.

²⁷ For example, Cakebread’s chardonnay received 244 points, making it the third most popular wine overall, but Wine and Spirits recognized two bottles, the “Napa Valley” and the “Napa Valley Reserve,” as “Cakebread Chardonnay,” and hence both were included in our sample. See Wiseman and Ellig (2003) for a complete list of the wines in our sample.

For offline shopping, it is doubtful that a consumer would physically visit (or even phone) every possible source of wine in the area. Consulting “Yahoo! Yellow Pages,” we collected a list of every store identifying itself as a “wine retailer” located in Virginia within a ten-mile radius of McLean.²⁸ The list that emerged consisted of 13 retail outlets of varying sizes. Our sample does not include general grocery stores (e.g., Giant, Safeway) or club stores (e.g., Costco). However, two of the bricks-and-mortar stores searched were beverage megastores known for carrying very large selections at competitive prices. In the personal shopping experience of the authors and several earlier reviewers of this paper, these megastores’ everyday prices tend to be lower than or equal to those of grocery stores, but the grocery stores often beat the megastores’ prices on lower-priced wines advertised as weekly specials. Hence, if the exclusion of grocery stores affects our price data, it likely overstates the offline prices for some of the less expensive wines that may have been offered by a grocer at a special, lower price at some point during the period when we collected our data.²⁹

The first step in collecting price information was to contact the wineries directly and find out what prices they charged. It is obvious, however, that there may be other online retail channels that might sell wine for prices lower than those available at wineries. To collect price data from other Internet-based stores, we engaged the shopbot Winesearcher.com, which had access to price and inventory data from more than 700 wine stores and wineries with online inventories. The store name where each lowest retail-priced bottle was found, as well as its zip code, was also collected and used in calculating transportation costs. Comparing the Winesearcher.com price and the prices collected directly from the wineries, the least expensive price for each bottle was identified as the “best online price” at the time of data collection.

After collecting price data from out-of-state vendors, our next step was to collect price data from the 13 bricks-and-mortar stores. Where the retail outlet had an Internet presence that listed its inventory and respective prices, price data were collected online. While these prices were not checked against physical inventory through on-site visits, for the purposes of this study it was assumed that

²⁸ Because Virginia state law expressly bans the importation of alcohol from other states, we only focused our attention on those stores within the ten-mile radius that were located in Virginia. Several earlier reviewers of this paper who drink wine and live in Northern Virginia doubted that a wine consumer would search all 13 wine retailers we identified. If they are correct, then our price and variety findings likely under-estimate the potential benefits of legalized direct shipping.

²⁹ To assess whether the absence of grocery stores affects our results on variety, we made followup visits to several large grocery stores in McLean to see if they carried any of the wines that were unavailable at the stores in our sample that were listed as wine retailers in the Yellow Pages. They did not.

the prices are identical to those in the store.³⁰ Alternatively, for the remaining 10 stores, price data were collected through actual store visits in early July 2002. All price data (on and offline) were collected between early June and early July 2002.³¹

Taxes and transportation costs

Retail sales and excise tax differentials could affect our price comparisons. We opted to compare all prices without sales taxes, to ensure that tax differences do not drive our results.³² Excise taxes may also create price differentials if there are significant differences across states or if other states (e.g., California) decline to charge excise taxes on wine exported to Virginia. We declined to include Virginia's 40 cents/liter excise tax after discovering that a tax that small does not significantly change the results. Some of the online prices may include excise taxes imposed by other states, depending on the particular policy of the state where the wine exporter is located.

To address transportation (i.e., shipping and handling) costs, the following procedure was used. For each bottle that would be purchased online, data were collected from the United Parcel Service website (www.ups.com) on the costs of shipping boxes of the appropriate size and weight to represent a single bottle, a half case, and a case of wine from the zip code where the online vendor was located (using a daily pickup service) into McLean, Virginia, under a variety of

³⁰ This assumption has been employed in similar price-comparison studies (e.g., Bailey (1998a)). After an earlier draft of this study was completed, follow-up calls were made to the three Virginia wine stores that had Internet shopping sites to ensure that online price and variety data accurately reflected in-store inventories. Both price and product availability data were generally accurate. To the extent that there were differences, they dealt with variety (Internet inventories are not updated in real-time when products sell out). Hence, our findings might actually understate the benefits available from online shopping, in that three of our offline stores might not carry all of their products listed at any particular time.

³¹ A critic might argue that special "sale" pricing during the month over which data were gathered may have distorted our online vs. offline price comparisons. With a search of more than 700 online stores versus 13 offline stores, the probability of finding a wine available at a sale price online may be greater than the probability of finding the same wine at a sale price offline. Our findings thus may overstate price savings for the customer who is content to wait until a sought-after wine comes on sale in a bricks-and-mortar store. On the other hand, any portion of our results that may stem from the increased probability of finding a wine on sale online counts as a legitimate cost saving for the customer who is unwilling to "time the market" and wait until a desired wine comes on sale offline.

³² While it is possible that shoppers in Virginia would try to evade sales taxes if they were allowed to buy online from out-of-state vendors, legislation considered in Virginia to remove its direct shipment ban requires shippers to obtain a state permit and remit applicable taxes. Wine industry representatives have also stated that they are more than willing to remit taxes to states that permit them to ship directly to consumers (See FTC 2002: 229).

shipping options.³³ We collected cost data on shipping larger quantities than a single bottle because an online shopper likely would purchase several bottles or an entire case of a given vintage, and there are large economies of scale in shipping.

This method may either over- or under-state shipping costs for several reasons. First, because our search process found the least expensive bottle, and we then calculated the cost of shipping it to McLean, it is possible that we overlooked less expensive bottle price/shipping price combinations. For example, if a slightly more expensive bottle was identified, but it was closer to McLean, so it was much less expensive to ship than a bottle from a more distant location, our selection method would not identify this bottle for analysis. Second, this method ignores the possibility that a single retailer might be the lowest-cost seller of more than one wine, and so even a customer who wanted only one or two bottles of a particular wine might reap economies of scale in shipping by ordering several different wines simultaneously from the same seller.³⁴

The calculation method also ignores the possibility that online wine retailers might impose handling charges in addition to the shipping costs. Since Virginia banned direct shipment at the time we gathered our data, most of the online retailers did not quote shipping rates to McLean. For those few sites that do post shipping and handling information that is accessible without placing an order, we checked the shipping and handling costs for ground delivery to Washington, DC, the jurisdiction closest to Northern Virginia that permits some direct shipment. None of the online vendors in our sample who post such information imposes an additional handling charge.³⁵ In addition, a random search of online retailers listed in the WineSearcher.com database revealed several that did not charge a significant premium above UPS rates when shipping to the reciprocity states. Thus, it is possible that some online retailers charge more for shipping than our estimates indicate, but this may be offset by the other two factors that tend to inflate our online cost estimates. To the extent that there is a

³³ The weight and box dimension specifications were based on one of the authors' personal experience, in a political jurisdiction where direct shipping is legal, with out-of-state wine clubs that used packaging of these dimensions and weight for the bottles that they shipped.

³⁴ An earlier version of this manuscript analyzed the price differences between online and offline merchants for a consumer who wanted to purchase of one bottle of each of the "top 50" and combined orders, where appropriate, from the least-cost sellers. The results of this analysis were substantively similar to the results in this paper.

³⁵ Some quote shipping charges that are higher than our estimate, which may indicate that a handling charge is bundled with the shipping charges as a markup. The typical shipping charge posted on web sites exceeds our single-bottle and six-bottle estimate by about \$4-\$5. Variances between posted and estimated 12-bottle shipping charges vary widely, from \$16 below our estimate to \$14 above, with a median of approximately \$5. Unfortunately, we do not know whether these figures are typical for all online wine retailers in our sample, given that shipping data was published on only six retailer web sites.

handling premium that we are not accounting for (and is not being offset by these two factors), we concede that it might detract from our findings, but if our sample of the retail market is representative of the entire retail market, the per-bottle difference should still not be very large for six- and 12-bottle orders.

For bricks-and-mortar stores, transportation costs were calculated using the standard government reimbursement for automobile travel (\$0.365 per mile), multiplied by the round-trip distance of the store from McLean, Virginia, as indicated by Yahoo! Maps. These costs were divided by the various numbers of bottles (1, 6, or 12) we assumed the customer purchases. Readers might argue that this method also might overstate transportation costs because consumers might combine their shopping trips for wine with other errands. While this concern may be valid, it is our belief that this method might actually *understate* the relative costs associated with driving around Northern Virginia (especially in peak travel times, such as rush hour). It goes without saying that this method for calculating transportation costs does not account for the opportunity costs associated with visiting numerous wine stores and searching for the lowest-priced wines. Research in transportation economics suggests that individuals attach widely varying valuations to travel time, suggesting that opportunity costs of visiting bricks-and-mortar wine stores may vary widely across customers (Small, Winston, and Yan 2002).

These weaknesses aside, calculating travel costs solely based on mileage reimbursement seemed like the most systematic method to determine the additional expense associated with purchases made at local retailers. To the extent that this procedure understates the true expenses associated with transporting wines in Northern Virginia, the reader should take this matter into account when considering the following results. Using this imputed transportation cost data, we were able to calculate the total price for each bottle on our list, purchased in various quantities.³⁶ The total price is the sum of the lowest retail price (online or offline) and the relevant transportation cost associated with delivering it to a home residence (shipping or driving reimbursement). Descriptive statistics for wine prices and transportation costs are presented in Table 1.³⁷

³⁶ We ignore quantity discounts, based on our experience that online and offline retailers usually offer similar quantity discounts for purchase of a whole case.

³⁷ An interesting feature of the data is that the lowest online prices overwhelmingly come not from wineries, but from out-of-state retail outlets that have web-accessible inventories and are listed on wineseacher.com.

Table 1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max	Obs.
Lowest Online Price	25.969	20.980	7.970	129.990	79
Lowest Offline Price	28.290	23.916	8.490	169.990	68
Transportation Costs (Buying 1 Bottle)	1.655	2.512	0.073	7.3	68
Transportation Costs per Bottle (Buying 6 Bottles)	0.276	0.419	0.122	1.217	68
Transportation Costs per Bottle (Buying 12 Bottles)	0.138	0.209	0.006	0.608	68
Ground Shipment Costs (Buying 1 Bottle)	5.960	0.583	4.530	6.300	79
3 rd Day Air Shipment Costs (Buying 1 Bottle)	9.985	1.714	6.350	10.980	79
2 nd Day Air Shipment Costs (Buying 1 Bottle)	13.215	1.943	8.560	14.310	79
Ground Shipment Costs per Bottle (Buying 6 Bottles)	2.834	0.685	1.493	3.248	79
3 rd Day Air Shipment Costs per Bottle (Buying 6 Bottles)	5.532	1.294	2.557	6.287	79
2 nd Day Air Shipment Costs per Bottle (Buying 6 Bottles)	7.033	1.617	3.232	7.940	79
Ground Shipment Costs per Bottle (Buying 12 Bottles)	2.504	0.711	1.051	2.932	79
3 rd Day Air Shipment Costs per Bottle (Buying 12 Bottles)	4.737	1.150	2.072	5.404	79
2 nd Day Air Shipment Costs per Bottle (Buying 12 Bottles)	6.115	1.532	2.594	6.982	79

Section 4: Findings

While the price and variety data do not permit us to make a comprehensive analysis of the effect of the direct shipment ban on consumer welfare, they do help us assess whether Virginia's direct shipping ban prevented consumers (in the short run) from accessing various wines or prices they could not otherwise

obtain.³⁸ In that sense, our study is similar to the pre-deregulation studies that compared air fares in unregulated intrastate markets with regulated interstate fares for flights of similar length. (See, e.g., Levine 1965.) Hence, our results should be interpreted as an indicator of the potential for direct shipment to offer price and variety benefits to consumers, rather than a quantitative prediction of the size of these benefits if the direct shipment ban were lifted.

Selection

While we are considering a relatively small product sample, it is still instructive to investigate whether consumers' choices are limited because they are not able to shop online for wine from out-of-state vendors.

Table 2 lists the wines that were unavailable in Virginia bricks-and-mortar wine retailers within a 10-mile radius of McLean. In total, 15 of the 83 wines in our sample (approximately 18 percent) were unavailable through the Virginia retail outlets searched. In comparison, only four of the 83 wines in our sample (approximately 5 percent) could not be found through retail channels online. When excluding from consideration the one wine unavailable online and the three wines that could not be found online or offline, we find that 12 of the 79 wines available online (15 percent) are not available in bricks-and-mortar stores within ten miles of McLean.³⁹

An additional issue emerges when considering the characteristics of some of the bottles that are unavailable in the McLean vicinity. The last column of Table 2 presents the *Wine and Spirits* popularity ranking for each bottle. For the bottles that are unavailable in the McLean vicinity, eight out of 15 (approximately 53 percent) come from among the 20 most popular bottles, according to *Wine and Spirits'* restaurant poll. Perhaps some wineries have neglected to gain state approval for sale of popular labels in Virginia, or wholesalers or retailers in McLean have neglected to carry some wines that would be popular with the region's consumers. Alternatively, maybe this finding simply follows from regional differences in demand for various wines.

³⁸ A comprehensive welfare analysis would require quantity data that are not available, data on factors other than price and variety that consumers value, and data on consumer search patterns.

³⁹ The fact that one wine (Rombauer Vineyards' Napa Valley Chardonnay) could not be found online but could be found offline is interesting in its own right. This finding might indicate potential limitations to online marketing. Given that other Rombauer wines in the sample were easily found online, including the similarly priced (in the offline market) Napa Valley Carneros Chardonnay, we find this argument unlikely. The fact that the offline store that carried the Napa Valley Chardonnay was a Total Beverage "mega" store though, points to potential differences in inventory practices between boutique wine retailers and mega stores that might warrant further investigation.

Table 2: Wines Unavailable at Bricks and Mortar Retail Outlets

Winery	Varietal ⁴⁰	Wine Label	Bottle Rank
Cakebread Cellars	CA	Napa Valley	16
Caymus Vineyards	CA	Napa Valley Special Selection	49
Duckhorn Vineyards	M	Three Palms	8
Ferrari-Carano Winery	CH	Alexander Vly. Reserve	7
Ferrari-Carano Winery	M	Alexander Valley	22
Ferrari-Carano Winery	SB	Alexander Valley Fume	40
Jordan Vineyard & Winery	CA	Alexander Valley Estate	24
Kendall-Jackson Vineyards*	CA	Calif. Proprietors Reserve	49
Kendall-Jackson Vineyards*	M	Calif. Proprietors Reserve	15
La Crema (Kendall-Jackson)	P	Russian River Valley	49
Murphy Goode Estate	SB	Fume Reserve	49
Robert Mondavi Winery	CA	Napa Valley	19
Stag's Leap Wine Cellars	CA	SLD Fay	11
Sterling Vineyards*	M	Central Coast – Vintners Collection	6
The Hess Collection	CA	Napa Valley (Mt. Veeder)	9

Regardless of the reason for this difference, McLean consumers who want to purchase these wines are adversely affected by the direct sales ban. For McLean consumers to acquire these bottles, they would have to either widen their search perimeter beyond the 10-mile radius employed here, request special orders through their local retailers (if such arrangements could be made), or risk breaking the law. Regardless of which avenue they chose, it likely would be less

⁴⁰ The abbreviations for varietals are as follows: CH = Chardonnay; CA= Cabernet Sauvignon; SB = Sauvignon Blanc, M = Merlot; P = Pinot Noir; Z = Zinfandel. An asterisk (*) indicates that the bottle could not be found in any Internet inventories.

convenient for consumers (from a search cost standpoint) to acquire these bottles through bricks-and-mortar outlets than to use the Internet. And even given the small sample size, these findings run counter to the claims of the wholesaler interests that the existing distribution and legal framework easily facilitates offline access to all heavily demanded products.

Price

To assess the price differences between shopping online and offline, Table 3a presents the average cost savings and/or cost penalties from shopping online for the entire sample of 67 wines that could be found in Virginia bricks-and-mortar outlets. Cost differences were calculated first as the difference between the lowest offline price and the lowest online price found via *winesearcher.com*, or at a given winery's website. We then recalculated cost differences including transportation costs for a variety of shipping options and transportation costs for travel to bricks-and-mortar stores in Virginia.

The average figures reported in the tables usually reflect a combination of cost savings and penalties for online purchase of various bottles in the bundle. Except for the tables reporting results for the most expensive wines, there are always at least a few wines that are cheaper offline, regardless of shipping method. As is evident from Table 3a, price comparisons between the Internet and bricks-and-mortar stores favor the Internet, where the average price of a bottle in the sample (not accounting for transportation/shipping and handling costs) is \$5.84 less if purchased online. The picture changes, however, if one considers shipping expenses, and the lowest-cost option depends on the quantity ordered and shipping method. Depending on the quantity and shipping method, an online customer might save as much as \$3.54 per bottle (3.6 percent) on average when buying a whole case and shipping via ground, or pay as much as \$7.26 per bottle (48 percent) more on average if shipping a single bottle via 2nd Day Air. For the most likely quantities – 6 or 12 bottles – the online consumer saves several dollars per bottle if shipping via ground, but the cost difference when shipping via air is not statistically significant.

Table 3a: Cost Savings (Extra Expenses) per Bottle When Shopping Online for Entire Sample⁴¹

Category	Mean	Std. Dev.	Min.	Max.	Obs.
Online Savings (No Transportation Costs)	5.838**	10.579	-2.200	83.000	67
Online Savings (UPS Ground Service, Buying 1 Bottle)	1.507	11.560	-8.427	82.686	67
Online Savings (UPS 3 rd Day Air, 1 Bottle)	-2.443*	11.518	13.107	78.006	67
Online Savings (UPS 2 nd Day Air, 1 Bottle)	-7.256**	10.556	16.510	68.690	67
Online Savings per Bottle (UPS Ground Service, 6 Bottles)	3.342**	10.701	-5.436	80.749	67
Online Savings per Bottle (UPS 3 rd Day Air, 6 Bottles)	0.7066	10.720	-8.475	77.711	67
Online Savings per Bottle (UPS 2 nd Day Air, 6 Bottles)	-0.767	10.748	-10.128	76.058	67
Online Savings per Bottle (UPS Ground Service, 12 Bottles)	3.543**	10.633	-5.126	80.567	67
Online Savings per Bottle (UPS 3 rd Day Air, 12 Bottles)	1.353	10.644	-7.598	78.095	67
Online Savings per Bottle (UPS 2 nd Day Air, 12 Bottles)	0.11	10.668	-9.176	76.517	67

Given that wine is a somewhat perishable product it is likely that many shipments would occur through the faster shipping channels such as 3rd Day or 2nd Day Air, in comparison to standard ground service. Hence, while consumers could obviously acquire some wine cheaper online, the incorporation of transportation costs makes it less clear which channel is dominant for consumers who wish to acquire all of the wines in our sample. Nevertheless, it is worth noting that consumers consistently pay more online only when ordering single bottles.

Another perspective can be gained by considering the cost differences between online and offline sales for the more expensive bottles in the sample. Tables 3b and 3c present the average cost savings from shopping online for wines

⁴¹ For Tables 3a, 3b, 3c, 3d, and 4, a double asterisk (**) indicates significance greater than the 95% confidence level. A single asterisk (*) indicates significance greater than the 90% confidence level (two-tailed test).

that have offline retail prices greater than or equal to \$20.00 and \$40.00, respectively. While the sample size decreases when considering these sub samples, dropping from 67 to 36 for bottles equal to or greater than \$20.00, and from 36 to 9 for bottles greater than or equal to \$40.00, the potential gains from shopping online increase.

Table 3b: Cost Savings (Extra Expenses) per Bottle When Shopping Online for Wines Greater or Equal to \$20.00 (Offline Price)

Category	Mean	Std. Dev.	Min.	Max.	Obs.
Online Savings (No Transportation Costs)	9.435**	13.376	-2.000	83.000	36
Online Savings (UPS Ground Service, 1 Bottle)	5.512**	14.348	-8.008	82.686	36
Online Savings (UPS 3 rd Day Air, 1 Bottle)	1.526	14.268	-12.688	78.006	36
Online Savings (UPS 2 nd Day Air, 1 Bottle)	-3.693	13.234	-16.310	68.690	36
Online Savings per Bottle (UPS Ground Service, 6 Bottles)	7.027**	13.446	-5.200	80.749	36
Online Savings per Bottle (UPS 3 rd Day Air, 6 Bottles)	4.396*	13.432	-8.238	77.711	36
Online Savings per Bottle (UPS 2 nd Day Air, 6 Bottles)	2.912	13.45	-9.891	76.058	36
Online Savings per Bottle (UPS Ground Service, 12 Bottles)	7.194**	13.371	-4.907	80.567	36
Online Savings per Bottle (UPS 3 rd Day Air, 12 Bottles)	5.005**	13.361	-7.380	78.095	36
Online Savings per Bottle (UPS 2 nd Day Air, 12 Bottles)	3.654	13.367	-8.957	76.517	36

For the sample of bottles greater than or equal to \$20.00, a McLean consumer has the opportunity to save anywhere from \$4.40 to \$7.19 per bottle (5-13 percent) on average by shopping online, depending on the quantity purchased and shipping method employed. Cost differences for 2nd Day Air, and for purchase of a single bottle via 3d Day Air, are not significantly different from zero.

Alternatively, for bottles that are greater than or equal to \$40.00, a McLean consumer can save an average of between \$15.00 and \$18.45 (15-21 percent) per bottle by shopping online if he ships via ground service or purchases

large quantities of wine and ships them via more expensive methods. All of the wines priced at or above \$40 are less expensive by the case when purchased online, regardless of shipping method. As with the “Over \$20” sample, cost differences for 2nd Day Air are not significantly different from zero, except for purchase of a whole case. Hence, it seems clear that at least for the more expensive products, the ban deprived consumers of some significant savings.

Table 3c: Cost Savings (Extra Expenses) per Bottle When Shopping Online for Wines Greater or Equal to \$40.00 (Offline Price)

Category	Mean	Std. Dev.	Min.	Max.	Obs.
Online Savings (No Transportation Costs)	20.607**	23.817	7.000	83.000	9
Online Savings (UPS Ground Service, 1 Bottle)	17.881*	24.827	2.263	82.686	9
Online Savings (UPS 3 rd Day Air, 1 Bottle)	13.573	24.596	-1.678	78.006	9
Online Savings (UPS 2 nd Day Air, 1 Bottle)	6.969	23.461	-6.310	68.690	9
Online Savings per Bottle (UPS Ground Service, 6 Bottles)	18.388**	23.804	5.376	80.749	9
Online Savings per Bottle (UPS 3 rd Day Air, 6 Bottles)	15.762*	23.683	2.772	77.771	9
Online Savings per Bottle (UPS 2 nd Day Air, 6 Bottles)	14.28	23.648	1.119	76.057	9
Online Savings per Bottle (UPS Ground Service, 12 Bottles)	18.448**	23.711	5.677	80.567	9
Online Savings per Bottle (UPS 3 rd Day Air, 12 Bottles)	16.262*	23.628	3.204	78.095	9
Online Savings per Bottle (UPS 2 nd Day Air, 12 Bottles)	14.990*	23.572	1.627	76.517	9

The fact that removing direct shipment bans would favor those consumers who are in the market for more expensive wines is further supported by considering Table 3d, which presents the cost savings and extra expenses from shopping online for only those bottles that are less expensive than \$20.00. While average online prices are \$1.66 lower than average offline prices, these savings quickly wash away when incorporating the relevant shipping and handling charges.

Depending on the quantity and shipping method, consumers stand to pay an average of between \$0.94 and \$11.39 (8-10 percent) more per bottle by shopping online rather than in bricks-and-mortar stores.

Table 3d: Cost Savings (Extra Expenses) per Bottle When Shopping Online for Wines Less than \$20.00 (Offline Price)

Category	Mean	Std. Dev.	Min.	Max.	Obs.
Online Savings (No Transportation Costs)	1.661**	2.183	-2.200	6.000	31
Online Savings (UPS Ground Service, 1 Bottle)	-3.144**	3.496	-8.427	6.000	31
Online Savings (UPS 3 rd Day Air, 1 Bottle)	-7.053**	3.67	-13.107	1.32	31
Online Savings (UPS 2 nd Day Air, 1 Bottle)	-11.393**	2.807	-16.510	-5.580	31
Online Savings per Bottle (UPS Ground Service, 6 Bottles)	-0.934**	2.414	-5.436	3.316	31
Online Savings per Bottle (UPS 3 rd Day Air, 6 Bottles)	-3.578**	2.656	-8.475	1.392	31
Online Savings per Bottle (UPS 2 nd Day Air, 6 Bottles)	-5.039**	2.824	-10.128	2.455	31
Online Savings per Bottle (UPS Ground Service, 12 Bottles)	-0.697	2.362	-5.126	3.644	31
Online Savings per Bottle (UPS 3 rd Day Air, 12 Bottles)	-2.888**	2.532	-7.598	1.948	31
Online Savings per Bottle (UPS 2 nd Day Air, 12 Bottles)	-4.220**	2.742	-9.176	1.112	31

On average then, consumers can save money if they purchase six or 12 bottles of the more expensive wines online. For the very expensive wines, they can even save money purchasing single bottles online. This comparison of online and offline averages, however, may not accurately indicate the true size of the savings available to a typical consumer who is willing to buy online. In the preceding analysis we assumed that the consumer either purchases all wine offline or online. In reality, many consumers likely would comparison shop, and purchase from whichever (online or offline) retailer they found the wine at the lowest cost, when accounting for transportation costs. Table 4 presents the

average savings that would have been available to such a comparison shopper if interstate direct shipment had been legal at the time we gathered our data and he purchased the entire bundle.

The figures in the table compare the lowest available price anywhere with the lowest available price offline. Both prices include transportation costs. As one might expect, comparison shopping online and offline yields larger savings than online purchase only. Unlike the results reported in Table 3a, all of the differences in Table 4 are positive and statistically significant (except for purchase of a single bottle sent by the most expensive shipping method). The comparison shopper can save an average of between \$2.21 and \$4.30 per bottle, or 8-15 percent of the average bottle price, depending on the quantity and shipping method.

Table 4: Cost Savings (Extra Expenses) per Bottle When “Comparison Shopping” for Entire Sample

Category	Mean	Std. Dev.	Max.	Obs.
Online Savings (No Transportation Costs)	5.974**	10.509	83.000	67
Online Savings (UPS Ground Service, Buying 1 Bottle)	3.569**	10.582	82.686	67
Online Savings (UPS 3 rd Day Air, 1 Bottle)	2.207*	9.762	78.006	67
Online Savings (UPS 2 nd Day Air, 1 Bottle)	11.629	9.224	74.676	67
Online Savings per Bottle (UPS Ground Service – 6 Bottles)	4.201**	10.249	80.749	67
Online Savings per Bottle (UPS 3 rd Day Air, 6 Bottles)	2.752**	9.828	77.711	67
Online Savings per Bottle (UPS 2 nd Day Air, 6 Bottles)	2.276*	9.571	76.058	67
Online Savings per Bottle (UPS Ground Service, 12 Bottles)	4.303**	10.225	80.567	67
Online Savings per Bottle (UPS 3 rd Day Air, 12 Bottles)	3.020**	9.886	78.095	67
Online Savings per Bottle (UPS 2 nd Day Air, 12 Bottles)	2.477**	9.655	76.517	67

Considering a consumer who wants to purchase the entire sample, we find that average savings-per-bottle can range from 1.6 percent to as high as 9.7

percent, depending on which shipping method is employed. This finding compares to a maximum possible average savings of 3.6 percent when purchasing online only. The comparison shopper clearly reaps much larger savings than the (exclusively) virtual shopper from direct shipping. Calculations of average percentage-per-bottle savings reveals that even for the most expensive shipping method (1 bottle shipped via second-day air), consumers can realize statistically significant savings if they have the option of being able to purchase bottles online. To the extent that consumers compare online with offline prices, the results in Tables 3a-c understate the potential consumer savings from direct shipment, especially if we consider the fact that not all consumers might want to purchase every bottle in our market bundle, but perhaps only the more high-priced bottles.

Section 5: Conclusion

While electronic commerce has grown to encompass many business-to-consumer transactions, existing laws and regulations prevent certain industries from carrying out their activities on the Web. Due to its unique status following from the 21st Amendment, wine is regulated at the state level almost entirely without federal intervention. As a result, a patchwork quilt of direct shipment bans has evolved over time to prevent a nationwide virtual wine store from emerging anytime in the near future. This study has discussed the legal and political background surrounding the ongoing debate on Internet alcohol sales and has made a modest attempt to assess the veracity of various claims about the effects of existing direct shipment bans.

Focusing on a particular geographic market, our results suggest that McLean consumers may face higher prices and have access to less product variety (even for highly popular wines) than they would in the absence of the direct sales ban. Specifically, approximately 15 percent of the wines in our sample are unavailable in 13 bricks-and-mortar stores identified as wine retailers within 10 miles of McLean, but could be ordered online if direct shipment were legal. With respect to price, our findings indicate that an exclusively online shopper could save money on the wines in our sample by purchasing six or 12 bottles and having them delivered via standard UPS ground service. This finding holds for more expensive bottles in particular, as average savings of up to 21 percent are available on wines costing more than \$40/bottle. Consumers who check both online and offline prices, then purchase wherever the wine is cheapest, could save 1.6-9.7 percent with legalized interstate direct shipping.

These effects on consumers may be more significant than our findings suggest. With respect to variety, since the sample consists of the more popular wines, it excludes thousands of lesser-known labels that may not be carried by

bricks-and-mortar retailers. Second, to the extent that individuals have heterogeneous and strongly-held preferences, the consumers who sought to purchase these wines may be significantly worse off if they settle for less-preferred substitutes. With respect to price, the method employed for calculating shipping costs from remote vendors was conservative. If wine drinkers obtain economies of scale in shipping by ordering more than one wine at a time from the same online retailer, then the available savings from shopping online are usually larger than for the consumer who wants only one or two bottles of a given wine.

In considering these conclusions, a few caveats should be noted. First, it is important to emphasize that these findings are simply a snapshot, and do not address how online and offline vendors might alter their prices and product selection if the direct sales ban were lifted. Second, although we selected a relatively affluent region with a fairly robust retail wine market, it is always possible that we have neglected to account for some unique attribute of Northern Virginia that might limit the applicability of these results. Finally, we should emphasize that our results reflect assumptions about consumer search behavior that we believe are plausible, but different assumptions might lead to different results.

Further research can take any of several directions and might serve to ameliorate some of these concerns. First, as of July 1, 2003, Virginia implemented a new policy that legalizes direct shipments under certain conditions. While this new policy has created confusion among retailers, it will likely stabilize reasonably soon, and it would be worthwhile to replicate the analysis of this study to identify whether the legalization of direct shipments exacerbated or reduced differences in product prices and variety. Studies comparing similar geographic markets in states with different alcohol laws would also help to provide information about the differences in marketing and retail institutions under different legal regimes. Finally, one might also consider replicating this analysis with other geographic markets, as well as using different, or larger, samples of wines.

From a political perspective, our discussion of the history behind the direct shipment debate has illustrated a number of issues that should be of interest to scholars of lobbying strategies and interest group politics. The politics of direct shipments could be characterized as one in which distributor interests have found themselves facing an increasingly mobilized group of opposing consumer and producer interests. With the rise of such competing interests, they have obviously had to modify their nonmarket strategies to accomplish their policy goals, and it would be interesting to study their lobbying efforts to see if they comport with existing theoretical expectations (e.g., vote-buying models of Groseclose and Snyder 1996). From a different perspective, the direct shipment debate seems a novel case of states effectively engaging in a trade war that is not in violation of

the interstate commerce clause. Hence, the existing theoretical literature on the politics of protection and trade policy (e.g., Baron 1999, Grossman and Helpman 1994) might be able to inform us about why certain institutions emerged (e.g., reciprocity) in they manner that they have. Such scholarship could contribute to a rich theoretically motivated empirical research agenda into the nonmarket environment (Baron 2003) that accompanies Internet wine sales.

Colophon

Data for this project were collected when both authors were members of the staff at the Federal Trade Commission. The authors thank Denis Breen, Mark Frankena, Dan Hosken, Jeffrey Milyo, Paul Pautler, David Scheffman, Craig Volden, and two referees and the editor of *Business and Politics* for helpful comments, and Van Brantner and Sara Harkavy for their capable research assistance on this project. An earlier version of this paper was titled “How Many Bottles Make a Case Against Prohibition? Online Wine and Virginia’s Direct Shipment Ban (Federal Trade Commission Bureau of Economics Working Paper # 258). The views expressed herein are solely those of the authors and do not represent the views of the Federal Trade Commission or any individual commissioner. Alan E. Wiseman is an Assistant Professor of Political Science at The Ohio State University. Jerry Ellig is a Senior Research Fellow at the Mercatus Center at George Mason University. Corresponding author: Alan E. Wiseman (wiseman.69@osu.edu); Department of Political Science, The Ohio State University, 2140 Derby Hall, 154 North Oval Mall, Columbus, OH, 43210-1373.

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