

Markets with Price Coherence

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Abstract

In markets with price coherence, the purchase of a given good via an intermediary is constrained to occur at the same price as a purchase of that same good directly from the seller (or through another competing intermediary). We examine ten markets with price coherence, including their origin and outcomes as well as concerns and policy interventions.

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1 Introduction

In markets with *price coherence*, the purchase of a given good via an intermediary is constrained to occur at the same price as a purchase of that same good directly from the seller (or through another competing intermediary). [Edelman and Wright \(2014\)](#) considers outcomes in such markets, finding that price coherence leads to inflated retail prices, excessive adoption of the intermediaries' services, over-investment in benefits to buyers, and a reduction in consumer surplus and sometimes welfare.

In this paper, we extend the discussion of the markets presented in [Edelman and Wright \(2014\)](#) and discuss additional affected markets. For each market, we provide references and additional detail. For most markets, we briefly discuss how the market began operation and how the intermediary established price coherence.

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2 Credit and debit cards

Credit and debit cards facilitate all manner of purchases by both consumers and businesses. [Prager et al. \(2009\)](#) and [Rysman and Wright \(2012\)](#) present relevant institutions, incentives, and implications.

[Mannix \(1994\)](#) reviews the early history of credit cards, including the rise of cashback cards. [Akers et al. \(2005\)](#) examines payment flow within card networks, interchange fees, and the resulting incentives. [Prager et al. \(2009\)](#) and [Rysman and Wright \(2012\)](#) present relevant institutions, incentives, and implications. In this section, we add references to support the factual claims in [Edelman and Wright \(2014\)](#) and relate our contributions to the relevant economics literature.

In ten U.S. states, laws disallow credit card surcharges ([Visa, 2013](#)). Visa and MasterCard used contracts to impose similar rules. That said, litigation and regulation have ended this restriction in some countries. For example, U.S. litigation required Visa and MasterCard to allow merchants to impose credit surcharges if they so choose, beginning in January 2013 (except where prohibited by state law). (See [In Re Payment Card Interchange Fee and Merchant Discount Litigation - Class Settlement Agreement, 2012](#)) In 2010, the U.S. DOJ filed suit to challenge American Express “no steering” rules which disallow merchants from encouraging customers to use another form of payment (such as a different credit card) with lower fees to merchants. (See [United States of America, et al., v. American Express Co., et al., 2010](#)). In a February 2015 ruling, the district court found that the restrictions suppressed price competition between American Express and rival networks, and that there was no proper reason for the restrictions. ([United States of America, et al., v. American Express Co., et al., 2015](#)) American Express says it will appeal.

In 1986, Discover began to offer a 1% rebate card ([Discover Bank, 2013](#)), and multiple Visa issuers added a similar benefit in 1994 ([Mahoney, 1994](#)). Greater rebates became available later, including multiple U.S. cards with comprehensive 2% rebates. Via payment cards’ multi-party network structure, funding for these rebates ultimately comes from the fees paid by merchants ([Akers et al., 2005](#)).

Numerous critics have alleged that interchange fees are too high and promote the over-usage of cards. Examples include the Reserve Bank of Australia, the European Commission, and the United States Government Accountability Office, as well as a number of economists (e.g., [Carlton and Frankel, 1995](#); [Katz, 2001](#); [Cabral, 2006](#); [Vickers, 2005](#); [Farrell, 2006](#)). Price coherence also impedes entry by new payment services such as Bitcoin, as market structure tends to make new services’ payments *appear* more expensive to consumers despite an underlying cost advantage ([Böhme \(forthcoming\)](#)).

The theoretical literature on payment cards has focused on showing conditions under which sellers

are charged too much and cardholders too little for card transactions, resulting in excessive card usage. See, for example, [Rochet and Tirole \(2002\)](#); [Wright \(2004\)](#); [Guthrie and Wright \(2007\)](#); [Rochet and Tirole \(2011\)](#); [Wright \(2012\)](#); [Bedre-Defolie and Calvano \(2013\)](#).

Credit cards grew out of store-specific cards which individual hotel chains, oil companies, and department stores had issued to top customers since the start of the twentieth century. Restaurants were too small to issue such cards, but in 1949 a “Diner’s Club” began to serve that sector, reaching 42,000 cardholders in its first year of operation. Cardholders paid an annual fee of \$18 (increased to \$26 by 1957), while merchants paid a 7% fee on purchases. In parallel, hotels tried a different approach: The American Hotel Association’s Universal Travelcard billed cardholders the same \$26 annual fee, but charged no fee to member hotels—addressing the standard hotel complaint that payment cards sought excessive fees. But with reduced revenue, the Universal Travelcard was insufficiently funded to centrally bill cardholders. Instead, each member hotel had to separately seek payment from cardholders, which added significant expenses.

The modern credit card fee structure grew out of the BankAmericard launched by Bank of America in 1958. The card began in a test in Fresno, California, where the bank mailed 60,000 unsolicited cards to customers. With these cards in circulation, retailers were motivated to sign up. To further accelerate merchant adoption, Bank of America reduced its merchant fee to as little as 3%. With these efforts, the modern credit card pricing model took off, including low or no fees to cardholders, consolidated collection of a cardholder’s monthly payment, and significant fees to merchants.

It seems that price coherence was a condition of payment cards from the outset. As early as 1960, some card networks required by contract that merchants not impose surcharges on credit card transactions. [Evans \(2014\)](#) The legal system ultimately ratified these policies, including a California law in 1971 and a federal law in 1976 ([Pub. L. No. 94-222](#)). After the federal law lapsed in 1984, some states joined California in passing their own laws to similar effect, ultimately yielding the ten states now with similar rules.

2012 U.S. credit and debit card transaction volume were \$2.2 trillion and \$1.8 trillion. [Gerdes et al. \(2013\)](#) and [Sidel \(2009\)](#) report \$45 billion of interchange fee revenue in the U.S. as of 2009.

3 Travel booking networks

Global distribution systems (GDSs) connect airline reservation systems to travel agents (TAs). With hundreds of airlines and thousands of TAs, it would be burdensome to connect each airline to each TA.

Instead, a few large GDSs (currently three: Amadeus, SABRE, and Travelport) broker the connections. The resulting structure typically has four parties: *airlines* sell through *GDSs* to reach *TAs* which serve *travelers*. In the three-party framework of our model, TAs represent the agents which let buyers (travelers) access the intermediary (GDS).

There are two distinct contexts in which travel booking networks act as intermediaries between customers and airlines (as well as other service providers). First, GDSs connect travel agents to airlines. Here, travel agents act as the buyers within the framework of our model, in that travel agents make decisions broadly on behalf of passengers. Second, GDSs connect online travel agents (“OTAs” like Expedia, Orbitz, and Travelocity) to airlines. In this context, passengers are the buyers in the framework of our model, in that passengers make their own decisions about what to buy. Both GDSs and OTAs act as intermediaries within the framework of our model. One might think of an integrated GDS-OTA as an intermediary within the framework of our model, and indeed many OTAs are owned by GDSs. (For example, SABRE runs the largest U.S. GDS and also owns Travelocity, a large OTA. Similarly, Travelport owns 45% of Orbitz.) While the travel agent and OTA contexts are distinct, they both fit the general structure of the model in [Edelman and Wright \(2014\)](#), and in both instances price coherence comes from the same root source—GDS contracts with airlines.

GDS reservation systems grew out of airlines’ internal computer networks. When American installed the first SABRE server in 1960, it viewed the service as a productivity tool for company’s own staff, largely offering only American’s flights and fares. (Competitors’ flights were included for the limited extent of inter-airline connections.) In 1976, American and United began to offer SABRE and Apollo reservations terminals to external travel agents. Because computer terminals were costly and large, it would have been infeasible for each airline to provide its own terminal to each travel agent. Instead, SABRE and Apollo included other airlines’ flights and fares. As of 1984, American charged \$1.75 for each booking made through SABRE. Other airlines were willing to pay this fee because travel agents tended to favor airlines that appeared in GDSs. (GDSs allowed faster sales as well as confirmation of booking and other benefits.) Thus, one might think of each GDSs as beginning with an “anchor tenant” of a major airline that designed the GDS and funded initial deployment to travel agents, at which point other airlines paid to be included. (See [Alaska Airlines, Inc., et al. v. United Airlines, Inc., et al., 1991](#))

The market structure of travel distribution made price coherence particularly natural. Airlines set fares to match competitors; if an airline sought to pass GDS costs through to customers, it would effectively be raising its fares above competitors’ prices. If one of its competitors owned the GDS—

as was always the case at the outset—that competitor would have no reason to raise its fare to match. After both regulatory and competitor litigation, regulations (in place through 2003) ultimately required that any airline that owned a GDS must put all fares into all GDSs—specifically imposing price coherence. (See [14 CFR §255.7.](#))

TA multihoming costs are high: Changing to a new GDS requires new training and processes for TA staff, and connecting to multiple GDSs requires systems that are not widely available to combine their results. Thus, each TA is effectively limited to a single GDS. In order to reach business travelers who tend to buy the most expensive tickets, airlines need to connect to the GDSs used by the TAs chosen by those business travelers. Because each TA uses only a single GDS, an airline needs to appear in all GDSs if it wants all TAs to be able to sell its flights.

Changing regulations shape airlines’ dealings with GDSs. Through 2003, if an airline owned a GDS, it was required to submit its fares and schedules to all GDSs—assuring price coherence. But by the end of 2002, all airlines had sold their interests in GDSs. Many airlines began to offer their lowest prices as “web fares” available only on their own web sites, to the dismay of TAs who sought to sell all fares. In subsequent negotiations, GDSs obtained “full content access” to all of an airline’s fares in exchange for sharply lowering their fees to airlines. This contractual commitment restored price coherence, meaning that the base price of a ticket is the same whether the ticket is purchased directly from an airline versus from a TA. (Most TAs, like most airlines, now charge additional fees for tickets booked by phone.)

Save for switching costs, GDSs are largely interchangeable to TAs, so a TA typically chooses a GDS based on incentive payments. Historically, GDSs provided TAs with computer terminals and telecommunications links without charge—major benefits when IT was costly. Today, GDSs provide TAs with payments which often exceed \$1.50 per flight segment. GDSs fund these payments to TAs by charging fees to airlines. GDS fees are confidential but are understood to be approximately \$3 per segment, hence \$12 for a domestic connecting round-trip. As airlines’ GDS contracts came up for renewal, GDSs sought to raise the fees. By 2012, GDS fees met or exceeded prior levels. GDS payments to TAs have increased in parallel.

Numerous airlines have questioned and criticized rising GDS costs. American Airlines was the first to take forceful action: In 2009, it began to offer “direct connect” which allowed large travel agents to connect their systems directly to American’s servers, bypassing a GDS. But implementing this approach required significant changes to travel agent systems, and some GDSs disabled key technologies that allowed a travel agent to compare direct connect flights with GDS flights. ([Schaal, 2011](#)) Further-

more, GDS incentives often required a travel agent to sell a particular quantity of tickets in order to earn full payment from a GDS, a payment structure which discouraged travel agents from switching to a lower-cost channel such as direct connect. Finally, it was unclear what incentives American was offering to travel agencies that switched to direct connect. To make direct connect more attractive than a GDS, American would need to pay more than what the GDS was offering travel agents, but any such payment would be hard to reconcile with American’s efforts to reduce distribution cost.

Since airlines are aligned in seeking lower fees from GDSs, they might be expected to engage in some form of coordination to constrain GDS fees. But airlines and GDSs have long-term contracts—typically five years—and the contract expirations are now staggered. As a result, each airline negotiates with GDSs individually, taking as given the long-term contracts of other airlines.

In 2011, news reports indicated that the U.S. Department of Justice was concerned about the market for airline reservation systems ([Boehmer, 2011](#)), but the DOJ has not yet filed a case in this area. Meanwhile, American Airlines in 2011 filed private antitrust litigation against one GDS, SABRE, alleging demotion of American’s flights in SABRE’s systems, which made AA’s flights more difficult to find or, in some cases, completely unavailable. American claimed that SABRE took these actions in response to American’s implementation of direct connect. (See [American Airlines Inc. v. Sabre Inc., 2010](#)) The case settled in 2012, with SABRE agreeing to discontinue penalizing or hiding American’s flights and agreeing to pay American \$280 million. Even after the settlement, American’s direct connect continued to struggle to attract travel agents.

[Department of Transportation \(2004\)](#) provides details about the GDS market and prevailing practices and fees. The collective 2013 revenue of the three large GDSs, for their services operating the travel booking networks described in this section, exceeded \$6 billion (authors’ calculations based on SEC filings).

4 Rebate services

Online “cashback” rebate services offer users discounts when they purchase from participating e-retailers. A registered user clicks from a rebate service site to a merchant’s site, makes a purchase from the merchant, and earns a rebate, often 5% to 10% paid after 30 to 90 days. Initially known only to the savviest shoppers, rebate sites have become mainstream: Alexa ranks Ebates the 529th most popular site in the U.S. (about as popular as att.com, hotels.com, and oracle.com). From a consumer’s perspective, these rebates appear to be a windfall.

Rebate services typically collect fees from merchants via affiliate networks, online marketing programs in which sellers pay commissions to web sites that refer customers who make purchases. (In affiliate marketing, a merchant pays a fee only when a user actually makes a purchase, not when a user merely sees an ad or clicks an ad. For example, an online book review might link to an online merchant selling the book at issue.) Rebate services use this tracking mechanism to provide users with a rebate obtained as a portion of a seller’s advertising expenditure. Thus, if a user clicks from a rebate site to a seller’s site, the rebate services and user receive the fee that the seller would otherwise be willing to pay to a reviewer or other online advertising vendor. Representative online rebate services are Ebates, Fatwallet, and ShopAtHome.

In general sellers offer the same prices no matter what marketing channel (if any) refers a user to a seller’s site. Since rebate services reach sellers through the affiliate marketing channel, they typically benefit from this same norm of identical prices across marketing channels. Occasionally sellers adjust prices by channel. But the CEO of a leading rebate service says he would ban a seller that increases prices for rebate service users (Storm, 2008). By all indications this occurs infrequently – perhaps in part because sellers anticipate rebate services’ response and hence see the futility of raising prices to rebate customers. The relative sophistication of rebate service customers makes it particularly likely that price increases would be noticed and flagged.

The model in Edelman and Wright (2014) calls into question whether a pure rebate service (without advertising or other functions, and without any membership fee) could be viable under price coherence, if there are administrative costs in operating the service or in users joining the service. However, a pure rebate service could be viable under price coherence if a portion of buyers value rebates more than they dislike an increase in the seller’s price. For example, M ’s rebate may be more salient to some buyers than any difference between the sellers’ prices. Alternatively, consider the case in which some buyers act as agents, making purchases for reimbursement by a principal, with the entire rebate retained by the agent provided the agent pays the seller’s standard price. In practice, some users fail to claim the rebates they have earned; rebate services typically then retain the rebated funds. Finally, a rebate service could facilitate price discrimination, particularly because the users who favor rebate services are unusually price-sensitive. A merchant with heterogeneous buyers would find it profitable to set prices that vary according to buyer elasticity—differing posted prices or, if that is infeasible, differing rebates. While these contexts yield a similar result—that rebate services can operate profitably—the mechanisms and modeling are quite different. We therefore leave these possibilities for future research.

5 Hotel booking services

In part to avoid GDS fees, many hotels now offer their rooms via booking services that operate outside GDS. Prepaid rates at online travel agencies are often non-GDS rates obtained through pairwise negotiation between hotels and travel agencies.

Beginning in approximately 2012, large online hotel booking services prohibited hotels from offering lower prices on their own web sites or through other online travel agencies. Travel professionals called this policy “rate parity” and cited benefits, noting that the approach gives “the customer ... the confidence that [he] will get the best rate” without needing to check multiple booking services ([Robinson-Jacobs, 2010](#)). For example, Booking.com requires hotels to provide rate “parity” including “the same or better rates for the same accommodation, ... dates, ... and cancellation policy” that the hotel offers directly or via any other booking agency ([Booking.com, 2012](#)). Most hotel booking services then offer “best price guarantees” (or similar), confident that other booking services are prohibited from undercutting their rates.

With prices constrained to be equal, online travel agencies attract consumers by promising additional benefits. For example, Hotels.com provides a free night’s stay after ten nights booked. Expedia Rewards and Orbitz Orbucks similarly offer rebates proportional to customers’ hotel spending.

Competition regulators and consumer advocates have questioned the rate parity policy. Germany’s Bundeskartellamt alleged that price parity “virtually eliminat[ed] competition for lower room prices between ... hotel booking portals.” The Bundeskartellamt said price parity also impeded entry by new suppliers with lower costs because they would be unable to attract consumers with lower prices ([Bundeskartellamt, 2013b](#)), a ruling upheld on appeal ([Bundeskartellamt, 2015](#)). Competition regulators in France, Italy, and the UK echoed these concerns, as did U.S. class action litigation ([Turik et al. v. Expedia, Inc., et al., 2012](#)).

6 Restaurant ordering services

Online restaurant ordering services present menus for a variety of participating food providers, which allows buyers to choose their restaurant and dishes, specify a place for delivery or time for pickup, and even tender payment online. The ordering service transmits the order to the restaurant, often by fax. The ordering service typically charges the customer’s credit card, then provides periodic payment to each restaurant.

From a buyer’s perspective, online ordering can be more convenient than ordering by telephone. Consider complex orders ([Goldfarb et al., 2012](#)), users without a printed copy of a restaurant’s menu, and users who value electronic receipts and order histories.

Online ordering services typically emphasize attracting new customers who value ordering online. For example, [Foodler](#) promises to bring “additional business.” This is consistent with the merchant internalization story in our model. Online ordering can also improve restaurant operations, including avoiding errors and reducing staff time spent on telephone orders, seller-side benefits our model abstracts from.

Prices are usually identical for ordering services versus ordering directly from the same restaurant (e.g. by telephone).¹ For example, Seamless explains that “restaurants are contractually required to offer the same prices as they provide on their printed delivery menus” ([Seamless, 2014](#)). When litigation alleged that some restaurants posted higher prices to GrubHub than they charged customers who ordered directly, GrubHub called this a mistake but agreed that it was improper ([Pletz, 2011](#)). Ordering services position price coherence as a benefit to consumers—a guarantee that using an ordering service, rather than ordering directly, does not increase a customer’s cost.

Rather than collecting a surcharge from consumers, ordering services deduct a portion of each order from the restaurant. Ordering services typically do not disclose their fees publicly, but news reports suggest fees of approximately 15% ([Shank, 2004](#)).

It seems ordering services insisted from the start that restaurants not charge extra for the orders they facilitated. For example, when Archive.org first preserved the GrubHub online ordering site (in March 2006), the site already promised that online ordering was “free” and did not “cost anything extra” ([GrubHub, 2006](#)).

With prices constrained to be equal between direct purchases and online ordering services, online ordering services cannot compete with each other by lowering their posted prices. Instead, ordering services establish incentives to spur consumers’ usage. For example, GrubHub offers periodic large discounts (regularly as much as 20% off for an order of a specific size in a brief time period). At Foodler, each order earns points redeemable for discounts.

Although online ordering services have been available for more than a decade, the market remains in flux, and it may be premature to attempt to characterize long-term market structure. But online ordering service fees to restaurants have already risen—starting at 10% to 12%, but now reportedly

¹The absence of fees (to consumers) for restaurant *ordering* contrasts with the often differing prices that exist for dine-in versus takeout and delivery.

as large as 18%. Meanwhile, there were initially no consumer rebate/points programs, but such programs are now relatively standard. To date, points and rebates remain modest—approximately 1% at Fodler—but an upward trend is clear. Moreover, price coherence creates a natural context for competition through points and rebates.

7 Restaurant reservation services

In addition to fees for online ordering services, restaurants also pay for online reservation systems. In the U.S., the best-known reservation system is OpenTable, which charges restaurants \$1 per person in each honored reservation plus \$199 per month and a setup fee of approximately \$1,000 (OpenTable, 2010). Restaurants do not offset these expenses with any special charge to diners—no “reservation fee” collected from the customers who use reservation services. Diners would surely view an itemized reservation fee as improper since it is an unwanted expense for a service that diners expect to be included. Nor could restaurants plausibly present different menus to customers who use reservation services—consumers and regulators would complain when the practice was discovered, and any restaurant using this strategy would probably be ejected from the reservation service.

With price constrained to be equal whether or not a diner uses a reservation service, reservation services seek to attract extra diners. Of course diners need no special encouragement to make reservations for popular restaurants at peak hours. But reservation services also encourage diners to make reservations even when diners correctly anticipate that restaurants have plenty of capacity. For example, OpenTable Dining Rewards Points pay a diner for each honored reservation; after twenty reservations, a diner can claim a \$20 discount valid at any OpenTable restaurant. As of June 30, 2013, OpenTable reports \$32 million of Dining Rewards outstanding, approximately 40% of OpenTable’s liabilities. (OpenTable, 2013)

Other restaurant reservation services offer similar benefits to diners. For example, Hong Kong-based TableMap offers gifts and vouchers after a user makes and uses two or more reservations. TableMap’s rebates offer users a net value of 10 HKD (approximately U.S. \$1.30) per reservation. TableMap (2013)

Like most intermediaries, OpenTable launched with few users on either side of its network (neither consumers nor restaurants). To facilitate usage and justify its monthly fee and up-front fee, OpenTable from the outset emphasized its standalone value to restaurants—hardware and software to manage reservations (even those received by phone), track available tables, recognize returning customers, etc.

(These benefits are especially important in light of the up-front and monthly fees a restaurant pays to participate in OpenTable.)

8 Marketplaces

Online marketplaces bring together myriad sellers—for example, more than 2 million independent sellers offering products at Amazon Marketplace (Steiner, 2013). Malls perform a similar function in the offline context.

Both online and offline, marketplace operators risk buyers approaching sellers directly, thereby bypassing the marketplace. Online marketplaces compete with purchases from a seller’s own site. Malls compete with purchases from a seller’s non-mall locations. Powerful marketplace operators sometimes seek a commitment, embodied in contract, that prices through the marketplace be no higher than prices offered elsewhere. For example, Amazon’s “general pricing rule” requires that “the item price and total price of an item [a seller] list[s] on Amazon.com [must be] at or below the item price and total price ... via any other online sales channel.” Few malls or retailers have reason to make their lease provisions public, but similar provisions are common in the context of malls seeking low prices from their merchant tenants. (For example, Tanker (2008) reports that “the majority” of US airports require “fair pricing” consistent with prices in regional retailers. In a representative example, Minneapolis St. Paul International Airport Retail Vending Concession Agreement contains a “pricing covenant” requiring that retailers’ airport prices not exceed prices at the nearby Mall of America and Southdale Mall.) These contractual restrictions attempt to enforce price coherence at the respective marketplaces.

Marketplaces compete to attract buyers by offering a variety of benefits to buyers. For example, Amazon offers superior service, easy returns, and various rebates (such as the rebates discussed in Section 4). Mall benefits vary but sometimes include free or low-cost parking, entertainment, gift wrapping (especially at holiday season), and add-on gifts or lotteries (typically requiring a purchase of a certain size from any of the mall’s stores). These benefits encourage buyers to purchase in the marketplace rather than directly from sellers.

In February 2013, the Bundeskartellamt (the German competition regulator) opened an investigation of Amazon’s “general pricing” policy, which requires that sellers offer prices in Amazon Marketplace at or below their prices in other online sales channels. The Bundeskartellamt suggested that the policy could allow Amazon to charge higher fees to sellers, yielding higher prices to consumers without

offsetting benefits. In response to this and other scrutiny from European regulators, in August 2013 Amazon removed its general pricing policy from its Marketplace contracts in the European Union. ([Bundeskartellamt, 2013a](#)) The rule remains in effect everywhere else.

Amazon began its core bookselling business in 1994. Amazon later added sales by third-party sellers—in 1999 through a program called zShops, which in November 2000 was reworked and re-named Marketplace. By that point Amazon had already served more than 17 million users in 150 countries ([Amazon, 1999](#))—ample basis to attract third-party sellers. We have traced Amazon’s “general pricing” policy back to December 2006 ([Amazon, 2006](#)); if a similar rule was in place previously, we cannot find evidence of it.

9 Insurance comparison services

Rather than buying insurance through full-service brokers, some consumers now obtain certain insurance through price comparison websites. In some sectors, agreements between insurers and comparison services disallow insurers from offering lower prices directly or through other sales channels. The UK recently challenged such practices in the realm of automobile insurance, finding that the contractual terms at issue prevented price competition between price comparison web sites. In provisional remedies, contracts would be amended to allow insurers to offer lower prices on other comparison services’ web sites (though contracts could continue to prohibit insurers from offering lower prices on their own sites). Further contractual changes would disallow behaviors which tend to reduce or eliminate competition between comparison services. ([Competition and Markets Authority, 2014](#))

10 Insurance brokers and financial advisors

Insurance brokers direct insurance buyers to various insurance sellers, typically obtaining customer and risk characteristics from a buyer and providing quotes for multiple insurers. Financial advisors similarly direct investors among various competing products. In addition to a search function, advisors typically provided supplemental services. For example, insurance brokers often help applicants fill out application forms (requiring understanding specialized terminology). Insurance brokers also typically help submit and mediate claims when covered events occur.

Brokers and advisors suffer the incentive problems examined in [Inderst and Ottaviani \(2012\)](#), including commissions that skew their decision to favor particular insurers or products. For example,

Canadian insurance regulators reported in 2009 that life insurance brokers are paid approximately \$7.2 billion of commissions per year, in addition to widespread perks such as resort vacations. For some forms of insurance, intermediaries' fees can exceed half of the insurance premium, as in the title insurance example below.

Prices are largely identical for buyers who approach insurers or financial providers directly versus via a broker or other intermediary. For example, the Monetary Authority of Singapore recently noted that life insurance sellers offer the same prices regardless of the distribution channel that a consumer chooses. One notable reason for equal prices: If an insurer offered lower prices than its brokers, brokers would refer their customers elsewhere.

The resulting market structure causes and preserves brokers' fees. One life insurer told *Globe and Mail* investigative reporters that it “want[s] to discontinue ... incentives” to brokers but cannot do so because “brokers won't give you policies” without the payments. A Washington state investigation of title insurance called the market structure “reverse competition” because competition between insurers drives commissions up rather than driving prices down. The U.K. Financial Services Authority found a “perception” of advisors and brokers pushing life insurance sales and financial services purchases towards the firms that pay the largest commissions. The Monetary Authority of Singapore points out that this fee structure offers no savings to self-directed customers who prefer to buy life insurance and financial services from a low-cost distribution channel to avoid the commission expense.

Regulators have sought to reshape insurance and financial advising commissions due to concerns about biased recommendations—brokers and advisors promoting certain services and investments based on commission rather than consumers' needs. Regulators also identified the problem of intermediaries causing increased costs, including forcing consumers to pay for full-service brokers and advisors that they may not need.

The U.S. market for title insurance prompted scrutiny from regulators due to an exceptionally large gap between premiums and losses. In 2007, the GAO reported that just 5% of title insurance premiums went to cover losses, compared with 73% of premiums for casualty insurance. In contrast, the GAO found that 70% of title insurance premiums were paid to or retained by title agents. (GAO, 2007, p.41) Spending so little on claims suggests a premium far above the actuarially fair rate.

Examining the cause of high prices for title insurance, the GAO noted that title insurance vendors are largely chosen not by buyers of real estate but by real estate professionals, attorneys, and title agents who facilitate transactions. (GAO, 2007) To attract referrals, underwriters pay large commissions and incentives. With some restrictions, underwriters are permitted to pay fees to the attorneys

and title examiners who issue title insurance. That said, under federal law and many state laws, these payments must be bona fide compensation for services actually performed, not mere commissions or referral fees. (See [RESPA 12 USC 2607\(a\),\(c\)](#).) But [Hunter \(2006\)](#) found that these fees totaled 77.5% to 82% of the price of title insurance—charges difficult to reconcile with the number of hours of work or the level of skill required. Meanwhile, numerous investigations found impermissible payments. For example, a 2006 investigation by the Washington State Office of the Insurance Commissioner found unlawful payments “widespread and pervasive,” including payments to builders, real estate professionals, and lenders ([Kreidler, 2006](#)). At the time, common Washington incentives included gift cards, meals, and tickets to sporting events. [Hunter \(2006\)](#) found that one title insurance underwriter spent 4% of operating expenses on settlements and litigation costs resulting from disputed payments and incentives, more than triple the amount that the underwriter spent on paying claims.

More recently, several countries’ regulators sought to reshape sales practices for various financial services as well as life insurance. Effective December 31, 2012, the UK prohibited advisors from receiving commission for their advice (as to multiple financial services including life insurance). Advisors could deduct their charges from a client’s investment, or could charge on a fixed rate, hourly rate, or in some other way, but advisors’ fees had to be disclosed to investors separately. The rules are embodied in the [Amendments to the Conduct of Business Sourcebook \(COBS\) \(2010\)](#). In subsequent reminders to financial services firms and advisors, the UK Financial Services Authority specifically reaffirmed the ban on commissions and noted that it is prohibited to attempt to “work around” that ban ([Financial Services Authority, 2012](#)).

Effective July 1, 2013, Australia banned “conflicted remuneration” from financial services firms to advisors. The ban ended commissions as well as “soft” benefits, as to sales of financial services as well as life insurance. Important exceptions apply, including payments pursuant to contracts established before the new rules took effect, as well as exemptions allowing commissions on certain “basic” banking products. The new rules are embodied in the [Australian Corporations Amendment \(Future of Financial Advice\) Act \(2012\)](#), and a [Frequently Asked Questions](#) web page clarifies key provisions.

In a 2013 consultation paper ([Monetary Authority of Singapore, 2013](#)) and response ([2013b](#)), the Monetary Authority of Singapore (MAS) evaluated and implemented new requirements for financial advisors. The resulting rules allow financial services firms to pay commissions to advisors but prohibit inducing advisors with “additional cash or non-cash incentives ... over and above the typical commissions ... which are tied to the sales volume of investment products.” The stated rationale for this prohibition was that such incentives encourage advisors to direct customers to unsuitable investment

products, but the prohibition also requires that all products have exactly the “typical” commission rate, which tends to reinforce price coherence. That said, MAS also took steps to facilitate use of low-cost channels: After noting that prevailing pricing practices offer no savings to self-directed customers who buy insurance from a low-cost distribution channel, MAS required that certain “basic” life insurance be offered through direct online sales, bypassing brokers and advisors. Crucially, MAS required that the price of “basic” insurance be a wholesale price that excludes commission to agents and brokers. These changes are slated to take effect during the first quarter of 2015.

A broader set of inquiries—by diverse regulators, consumer advocates, and journalists—examine insurance sales practices more generally. For example, [Robertson and Perkins \(2010\)](#) review insurance commissions in Canada, and [Kollmorgen \(2013\)](#) looks at various insurance rebates in Australia. [GAO, 2007](#) examines title insurance in the U.S., while [Kreidler \(2006\)](#) studies title insurance in Washington State in greater detail, and [Health Now Administrative Services - HNAS \(2013\)](#) tabulates U.S. state restrictions on insurance rebates. [Eagle Insurance Brokers \(2011\)](#) and [Robertson and Perkins \(2010\)](#) consider the perspective of insurance brokers and the resulting incentives for insurers.

11 e-books

Historically, electronic books (“e-books”) were sold in what is now known as a “wholesale” model: publishers sold distribution rights to retailers at set prices (typically, half of the suggested retail price), then resellers could sell to consumers at any price they chose. In 2009, Apple and six large publishers moved to an “agency” model where publishers set the price to be charged to consumers, with a 30% payment to Apple. (See [United States of America v. Apple Inc., et al., 2012](#)) Apple’s contracts with publishers also included a clause requiring publishers to match the price offered by any competing intermediary (such as Amazon), thereby assuring that that the prices they set for sales through Apple would be the same as those set by Amazon and others, pushing Amazon to adopt the agency model itself. ([Apple Inc., 2010](#))

This approach was ultimately blocked by antitrust litigation finding the approach a restraint of trade in violation of Section I of the Sherman Act. When in effect, and had it been permitted to continue, it created (and would have continued to create) price coherence in that the price was the same for purchases through Apple, as through Amazon (or other intermediaries). In that circumstance, consumers would have had no price incentive to choose one intermediary over another. Instead, consumers would most naturally have chosen the intermediary that provided the greatest add-on benefits

which in this context would probably have consisted of reader hardware and software. Our model suggests that competition among platforms might have produced benefits beyond the efficient point—e.g. features added to e-readers beyond what consumers would choose were they buying those features on a freestanding basis. Instead, competition among platforms would cause excessive investment in such features.

12 Additional Affected Markets

Price coherence operates in a similar fashion in the markets discussed in the following subsections, though the mapping of our theory of price coherence is less straightforward in these examples.

12.1 Network neutrality and possible content provider payments to ISPs

Widespread U.S. policy and popular discussion considers the question of *network neutrality*, obliging ISPs to treat all content and sites equally [Wu \(2003\)](#). Most network operators dispute that they have any such obligation, instead proposing (or at least claiming that it is their right) to charge any content provider that seeks high-speed, assured, or other preferred access to customers. U.S. policy on network neutrality has shifted significantly, through both regulatory statements and litigation, and as of March 2015 remains unsettled.

Suppose the principle of network neutrality is abandoned, so that ISPs may charge fees to content providers seeking preferred access. Experience suggests that content providers would set the same price to consumers whether they arrive via the basic tier or the preferred tier. In that case, the preferred tier is analogous to the intermediary’s service as modeled in the paper—a consumer accesses the seller (content provider) directly (obtaining basic service) or via the intermediary (preferred service).

Our model suggests that under a non-net-neutrality regime (as described in the preceding paragraph), competition among ISPs might distort consumers’ choices. Consider a consumer choosing between two ISPs, A and B, to access some content provider C. With no net neutrality requirement in place, ISP A introduces a basic tier of service and a preferred tier of service, and following the standard price discrimination result ([Mussa and Rosen, 1978](#)), it degrades the “basic” tier of service to encourage content providers to pay for the preferred tier. Meanwhile, ISP B honors net neutrality and provides a standard level of service to all content providers, hence with a quality level between A’s basic and preferred levels. Consider a content provider C that chooses A’s preferred tier. As discussed above, C is likely to charge consumers the same price whether they arrive via ISP A or B; C incurs

higher costs for consumers choosing A, but it is infeasible to pass those costs to A-type users only. The consumer then chooses between ISP A (yielding C’s service at the preferred level of quality), or ISP B (at the standard level of quality). ISP A dominates, even if the standard level of quality would have been satisfactory to the consumer and even if A’s charge to C exceeds the consumer’s willingness to pay. That is, the consumer chooses ISP A to get a small benefit, blind to the cost the content provider incurs to provide that benefit. Moreover, thanks to C’s payment, A can set a lower direct price to consumers, thus further taking market share from B—yet passing on to consumers only a portion of C’s payment, with the balance retained as profit. This tracks the price coherence logic explored in [Edelman and Wright \(2014\)](#).

12.2 Search engine advertising

Search engine advertising entails large costs to merchants—collectively, some \$40+ billion of pay-per-click advertising in 2013. Furthermore, advertising prices differ across search engines ([Hamilton, 2013](#)). Thus, merchants have every incentive to prefer that users arrive directly (not via a search engine advertisement) or via a low-priced search engine rather than a high-priced search engine.

Multiple factors constrain prices to be equal whether or not a user clicks a search advertisement to reach a merchant. In the short run, merchant sites lack a feature to present different prices depending on whether a user clicked an ad. Moreover, search engines might disfavor merchants that use such a strategy were it to become a realistic possibility.

With advertising costs shielded from consumers, search engines compete to attract users. Specifically, search engines offer users numerous online services. Most closely bundled with search advertisements are algorithmic search results (the “left-side” search results for which search engines are best known) which index and rank billions of pages at no charge to users. Search engines also offer email, image search, videos, maps, and scores of other services, all without charge to users. Furthermore, search engines pay computer, tablet, and phone manufacturers to make their search engines the defaults (offsetting a portion of the cost of making those devices) and pay software developers to install search toolbars that direct users to the corresponding search sites (funding software that is often provided to users without charge). From 2008 to 2010, Microsoft Bing Cashback even paid users who ran searches, clicked ads, and made purchases—rebating a portion of advertisers’ fees back to users. These efforts to attract users all result from the market structure created by price coherence.

Price coherence also shapes search engine market shares. Advertisers’ posted prices are equal no

matter what search engine a user chooses, so users have no incentive to choose the search engine with lowest fees to advertisers. If users paid the advertising costs resulting from their respective clicks, they would notice that Google charges the highest advertising fees, and price-sensitive users would favor other search engines or avoid using search engines to find online merchants. Instead, prevailing market structure invites users to choose the search engine that offers them the most and best “free” services.

Another factor constraining prices to be equal, whether or not a user reaches a merchant from a search engine advertisement, is that consumers have objected to other instances in which merchants offered different prices or products based on factors that users did not anticipate. See user response to merchants’ random experiments ([Wolverton, 2000](#)), computer configuration ([Mattioli, 2012](#)), and user location and nearby competition ([Valentino-Devries et al., 2012](#)). Presenting different prices to search engine users would likely prompt similar backlash. Furthermore, depending on the technical mechanism put in place, some users might find it easy to bypass any attempt to charge more to consumers who reach the site via disfavored methods.

For a user genuinely relying on the “search” aspect of a search engine, any harm from price coherence is likely to be more than offset by the search engine’s efforts to collect and organize information. On the other hand, many users rely on search engines for navigation—for example, running a search for “eBay” when they know they wish to visit ebay.com. For these users, the distortions from price coherence are thus particularly prominent.

12.3 Real estate buyers’ agents

In most of the U.S. and Canada, *buyer’s agents* assist prospective real estate buyers. Buyers’ agents often identify properties of possible interest, arrange in-person visits, and assist with submitting an offer. In principle, buyers could pay for these services directly. Instead, *sellers* typically pay buyers’ agents at a rate specified in each property’s entry in the Multiple Listing Service or other database of available properties. In 2012, 59% of U.S. home-buyers were represented by buyers’ agents. Buyer’s agents fees were typically 2.5% to 3%, half of the 5% to 6% charged by real estate agents on each transaction.

Because buyers do not pay buyers’ agents directly, buyers often perceive that these services are “free.” If a buyer’s agent truly entails no incremental cost to the buyer, a rational buyer would use the services if their gross value is even slightly positive.

A shrewd buyer might realize that a seller pays for the services of a buyer’s agent. Such a buyer

might forego the services of a buyer's agent to provide a savings to the seller and ask the seller to accept a lower selling price. This approach has become significantly more realistic thanks to improved information available directly to buyers, even without the assistance of a buyer's agent. For example, the web site Zillow provides information about houses on the market, their characteristics, and even open house times. In most cities, MLS data is now on the web, albeit often with registration required or with other restrictions. Via these and other tools, sophisticated buyers can reasonably find a suitable home without the assistance of a buyer's agent or other real estate professional.

Nonetheless, price coherence, interlocking contracts, and industry norms impede buyers' efforts to avoid the costs of real estate agents. For one, when a seller hires a seller's agent to market a property, the standard contract calls for the seller to pay a flat percentage (say, 5%) to the seller's agent. Thus, if the buyer forgoes a buyer's agent, the seller's agent retains the full 5%, and the buyer and seller get none of the savings. A shrewd seller might attempt to negotiate a revision of this term when initially retaining a seller's agent. But seller's agents largely refuse such a change, citing state law and/or office policy. Since most buyers use buyer's agents, sellers have little incentive to press the point.

The prevailing market structure impedes competition that might reduce fees to buyer's agents. A concerned seller could offer lower compensation to buyers' agents—perhaps 2% in a market where 2.5% is standard. But consider the consequence: Having built a relationship with an intending buyer likely to buy *some* property, and having perhaps signed an exclusive representation agreement with that buyer, a buyer's agent has little incentive to feature a property with a lower commission. Rather, the buyer's agent receives a larger fee by directing the buyer to one of the many properties with the market-standard fee to a buyer's agent. A seller offering a reduced buyer's agent commission thus risks fewer buyers, a slower sale, and a lower selling price. Competition among buyers' agents does not fix the problem: Buyers' agents compete for available buyers (perhaps offering superior service), but the market structure gives them neither incentive nor ability to lower the fees charged to sellers.

Some buyers and sellers circumvent this market structure, often attaching ad hoc amendments to contracts or offers. But these transactions are unusual, requiring specialized information and skill.

The US Department of Justice in 2005 filed a Sherman Act antitrust complaint alleging that real estate agents reduced competition on price and quality, raised barriers to entry, and impeded the efforts of limited-service brokers who offer reduced and a-la-carte services at a lower fee. (See [United States of America v. National Association of Realtors, 2005](#)). In a final judgment, the National Association of Realtors agreed to cooperate with limited-service brokers. (See [United States of America v. National Association of Realtors, 2008](#)). A limited-service seller's agent allows a seller to submit a property to

a regional property listing database without paying a full seller's agent's fee. (A seller can then pay fee-for-service for assistance taking photos, running open houses, and receiving offers, or a seller can do these tasks without professional assistance.) Similarly, if a buyer chooses a limited-service buyer's agent, the buyer's agent rebates to the buyer a portion of the fees received from the seller, somewhat reducing the net cost of the institution of buyer's agents for that transaction.

Despite the availability of limited-service buyer's agents, the overall market structure remains. In principle, a buyer can shift from a full-service buyer's agent to a limited-service buyer's agent, collecting approximately a 1% rebate. But even a buyer who engages a limited-service buyer's agent still pays approximately 1% of the home's purchase price to that buyer's agent—a large expense difficult to reconcile with the hours worked. A buyer who prefers to forego buyer's agent services still has no easy or standard way to realize the full savings of that choice.

Ten U.S. states prohibit brokers from offering cash rebates to consumers. The Department of Justice has investigated these restrictions and encouraged state legislatures to end these prohibitions ([Department of Justice \(DOJ\) - Antitrust Division, 2011](#)). The DOJ quotes a real estate agent: “If we give rebates and inducements, it would get out of control and all clients would be wanting something. The present law keeps it under control.” While agents benefit from this prohibition, the DOJ argues that agents' benefit comes directly from increased fees to consumers.

[National Association of Realtors \(NAR\) \(2013\)](#) surveys home-buyers about their use of buyers' agents (among other factors), while [Adams \(2008\)](#) tracks agents' fees. [Greater Boston Real Estate Board \(GBREB\) \(2005\)](#) presents a standard contract for a home seller to retain a seller's agent, including no reduction in fee if the buyer does not use a buyer's agent.

Based on reported median housing prices, number of homes sold, and rates of using a real estate agent ([National Association of Realtors \(NAR\), 2014](#)), we estimate that buyers' agent commissions total at least \$35 billion per year.

Some home buyers use buyers' agents in a way broadly similar to the “navigational searches” discussed in the prior subsection: These buyers already know which home they wish to buy, and they contact buyers' agents for assistance that is relatively narrow and less focused on search. Limited-service buyers' agents tend to match this description. These buyers would be likely forego buyers' agents entirely if they could realize a savings from doing so—tracking the distortions discussed in the other markets we examined.

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