

Why Geoblocking Can Increase Consumer Welfare and Improve Income Equality

BY JOSEPH V. KENNEDY | MAY 2014

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As the world economy becomes more integrated, it is increasingly common for the same product to be offered in many different national markets, often with very little or no local modification. This applies to both physical and digital goods, and through in-person and online purchases. Despite the sameness of the product, however, its price can vary, sometimes significantly, depending upon the country in which it is purchased. The reasons for this can be opaque, especially in the case of online purchases of digital content (e.g., e-books, movies, music, software, and video games) where the product being sold in different areas is often identical and the cost of delivery is presumed to be very low and not dependent on the purchase location.

The practice of offering digital products sold online at different prices in different markets is known as geoblocking because it involves blocking access to certain sales from certain places.¹ Although geoblocking has encountered resistance among those who feel they are paying more than others, its practice often benefits consumers by increasing total supply, lowering the price to at least some customers and encouraging a competitive market in which consumers are offered an increasingly diverse supply of products. As such, it would be a mistake for policymakers to restrict such pricing practices.

INTRODUCTION

Over the past several decades, the world's economy has become increasingly global in nature. Lower transportation costs, improved communications, falling trade barriers, and more growth-oriented policies in developing countries have created an environment in

which companies increasingly use globally interconnected supply chains to produce and sell their products worldwide, often with little or no modification to reflect local tastes.

Despite the sameness, the before tax sales prices can vary widely (or not) depending on where and when they are purchased. Consumers know that price variation occurs even in very local markets. It is not unusual for gas stations located at the same intersection to display prices that differ by several cents a gallon. Likewise, prices for the same good can differ by time of day, as evidenced by lower prices for matinee movie performances. Airline tickets for the same flight vary depending on when the ticket is purchased.

Prices can also vary by country even for identical goods. *The Economist's* Big Mac Index measures the local price of a McDonald's Big Mac in each country. Because McDonald's tries hard to make each hamburger as uniform as possible, price variations should not reflect any differences in the quality of the product. Despite this, the price of a Big Mac varies from US\$1.54 in India to US\$7.80 in Norway.² The fact that a country's currency can be significantly overvalued or undervalued explains part of this variation, but not all. In particular, Big Mac prices show a strong correlation with GDP per capita. Internationally, prices may vary for many reasons including shipping costs, product liability and warranty laws, labor rates (especially if the product is made locally), variations in national exchange rates, and differences in taxes and tariffs.

For the most part customers understand and accept these variations. But their understanding may be challenged when the goods are purchased online. In that case customers often believe that they should be quoted the same price absent charges for shipping and tax wherever in the world they order from, since the product is presumably being shipped from the same location and the seller cannot tell where the customer is located. Their acceptance may become even more strained when purchasing digital goods because in this case the production cost is basically the same no matter where the good is made and, if the product is downloaded, "shipping" costs are close to zero. The Obama Administration recently reflected these thoughts in its recent report on Big Data, which asserted that "Consumers have a legitimate expectation of knowing whether the prices they are offered for goods and services are systematically different than the prices offered to others."³

As it turns out, neither of the above assumptions are true. Companies can tell, with a fair level of precision, exactly where a customer is located when she purchases a product online. Often this information is furnished by the customer herself. When it is not, companies can use other information such as the location of the owner of the credit card or the location of the Internet service provider the customer is using. Companies also frequently vary their sales policies depending on a customer's location, including for digital goods. In some cases the quoted price is higher in some countries and lower in others. In other situations, a company may not even make a product available to customers in some countries.

These practices have sometimes generated opposition as customers (and policymakers) in high priced locations complain that they are being unfairly targeted.⁴ Why shouldn't the same digital products be available at the same price to all locations in the world? They ask. Are these complaints legitimate? Why do companies need to track the location of their

customers? Are there valid reasons why companies may tailor their sales strategies geographically? Does the practice raise anticompetitive concerns? Should governments attempt to fashion a remedy? This report answers these questions by explaining some of the valid reasons why companies look at customer location on the Internet, why varying price by geographic location often makes sense, and why doing so can help consumers and spur more innovation.

WHY DO COMPANIES TRACK THE GEOGRAPHIC LOCATION OF THEIR CUSTOMERS?

When a customer logs on to an e-commerce website, the company usually has a pretty good idea of where the customer is located. If the customer has already registered with or made purchases from the site, much of the data for this determination is likely to have been supplied by the customer himself. For example, credit card numbers are linked to a specific bank or billing address. The customer may also need to type in a shipping address for the delivery. But even if the customer visits the site anonymously, a number of clues may point to her location. The computer's IP address gives some indication of location. If the customer is using a smart phone, the use of cell towers and GPS will help to locate the nation he is in. With both desktop computers and mobile devices, the use of a particular wi-fi network can help locate the source of the inquiry.

In some cases such identification can raise privacy issues, especially if the information is personally identifiable and used inappropriately by either companies or the government. But there are many valid reasons for collecting it. For instance, many countries place limits on the products and services, such as cigarettes or Internet gambling, sold within their borders. Countries may also impose different requirements on the procedures and warnings that companies have to comply with in order to make sure purchasers are of legal age or otherwise authorized to transact business. Second, taxes usually vary widely by jurisdiction. When a company is required to collect tax on behalf of the jurisdiction, it must be able to determine where the customer is placing the order from. And these methods must be fairly precise: a high-tax jurisdiction is likely to mind if its tax revenues decline just because its citizens are pretending to be from low-tax jurisdictions when they go shopping. Finally, governments may require companies to tailor their products to local jurisdictions, perhaps by offering stronger warranty protections or by being responsible for the disposal of old products.

Rather than seeking to prevent companies from identifying location and therefore precluding the many legitimate uses of location data, efforts should concentrate on preventing its abuse by either companies or governments. But even without legal constraints, companies already have a strong incentive to use any information they collect responsibly since any violation of customer trust can hurt both sales and brand value.

WHY DO COMPANIES VARY AVAILABILITY OR PRICE BY LOCATION?

When discussing pricing policy, the first thing to remember is the presumption that producers should have a large degree of freedom in determining both the prices they charge and the variation in those prices between different customers. This default policy is motivated by the belief that the government is a very poor price regulator, both because it

lacks most of the information needed to set prices and because the process quickly becomes politicized. It also reflects the reality that in competitive markets companies generally have an interest in selling as much of a product as possible and that customers almost always have the option of saying no if they believe the price is too high. The burden of proof should therefore be heavily on the proponents of government intervention.

Government attempts to control prices often have perverse effects. An Australian law banning discriminatory pricing “if the discrimination was of such magnitude or was of such a recurring or systematic character that it was likely to have the effect of substantially lessening competition” was repealed because experience showed that, rather than lowering prices, it actually reduced price flexibility and increased inflation. Other parts of the law were able to address true anticompetitive actions. Ironically, the provision was typically used by established sellers who were trying to prevent their competitors from discounting prices.⁵

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It is also important to note that consumers have a conflicted view of price variation. No one likes to find out that he paid more for a product than his neighbor. In fact, chagrin at having paid more for his flight than fellow travelers led Oren Etzioni to start up Farecast, which helps ticket purchasers predict whether the price of a flight is likely to rise or fall in the future.⁶ People also love getting a bargain. Given human nature, it is not surprising that those who paid more than average feel they were cheated, while those who paid less think they got a fair price. The public debate is therefore likely to be skewed.

There are a number of legitimate reasons why a company might logically vary its prices by region. The most obvious is that transportation costs vary widely by location. Even if a product is produced locally, many of the components may have been manufactured globally, requiring much higher costs to be built into the final price. This of course does not apply directly in the case of digital goods such as music or software downloads. But companies often contract with local distributors to sell identical or related products in stores. These arrangements provide local jobs and give customers a physical place to go to for advice and repairs. Local dealers are unlikely to react well if the producer then undercuts their business by offering cheaper Internet pricing. Even where local laws do not protect them, the local distributor is likely to insist on pricing protections before it invests anything in the business.

Another obvious difference is tariffs and taxes. Although trade agreements have reduced many barriers, tariff and non-tariff restrictions can be significant for certain products. National and subnational taxes can also differ widely between jurisdictions. Both of these lead to obvious price differences. Prices can be even more difficult to compare when local laws differ on how taxes are listed. For example, quoted prices in the United States usually do not include relevant taxes, which are added on at the end before the sale is finalized. However, Australia requires that taxes be included in the product price. This automatically creates a price discrepancy of 10 percent in the list prices.⁷

With international sales, currency fluctuations are also likely to play a big role. In theory, a company that wished to make the same margin in each country could let national prices vary with the day-to-day fluctuations in exchange prices, but this is likely to be costly and

cause confusion among customers. Most companies try to protect foreign customers from the risk of currency changes at least to an extent. Yet if the company sets a fixed price for each country, discrepancies will arise between the listed price for a product in each country and the price a customer would get if he purchased the product in a different country at current exchange rates. Countries experiencing significant currency appreciation will find that domestic prices rise relative to foreign ones.

There are also reasons why the price of a good might vary depending on the timing of sale. Theaters might offer lower prices for afternoon showings because demand is lower and whatever revenue the theater can bring in for these showings probably goes to the bottom line since most other costs have already been incurred. The movie industry also carefully controls both the timing and price of various distribution outlets in order to ensure that some kinds of releases don't impact the sales of others.

Finally, price discrimination may allow companies to increase their sales in low-income countries that cannot afford a global price. If the producer can control price arbitrage, these sales can actually benefit all consumers by increasing total revenues, permitting the same level of profit at a lower average price. Whenever marginal prices approach zero, any additional sales increase revenue, which can be used to keep the price low, reinvest in the next generation of products, or increase profits. The economic impact of these sales in low income nations may also be highly progressive, by giving the poorest customers access to modern educational, health, and information services at close to the marginal cost while richer consumers cover fixed costs. These lower prices can also reduce digital piracy, especially since the ratio of average costs to income is highest for low-income consumers.⁸

These strategies are not just used for digital products but for other products as well. This is often the case for life-saving medicines such as the antiretroviral drugs used to treat HIV infection. Requiring drug companies to offer the same prices worldwide would significantly raise the cost of addressing developing country needs. Likewise, the company Biolite sells an innovative camp stove that burns less wood and generates heat and electricity (but very little air emissions) at a higher price in the United States, so that it can sell a different version at a steeply discounted price in Africa.⁹

In order to maintain two prices, however, the company needs to ensure that buyers cannot arbitrage the difference by buying the product where it is cheap and selling it where it is expensive. If there were no restrictions on the quantity sold, arbitrage would quickly resurrect a single price, with the gains going to the arbitrageur rather than the producer. U.S. law does not always protect producers from arbitrage. In *Kirtsaeng v. John Wiley and Sons* the U.S. Supreme Court ruled that a student did not violate copyright laws when he imported cheap textbooks into the United States from Thailand.¹⁰ The textbook price in Thailand was kept low because the student's ability to pay was less. However, this case is not likely to impact most digital goods, which are typically licensed rather than sold outright.¹¹

Producers may try to segment consumers in many ways other than price. For example, stores may offer shoppers a better deal if they purchase more of an item. They may also offer lower prices to new customers in an attempt to get them to switch stores. The

Although the company is the only authorized seller of this game, its product must generally compete with other games in the market. Even if the company controlled all other computer games, it would have to compete with other forms of entertainment such as movies, music, and board games, not to mention illegal downloads.

entertainment industry actively engages in “windowing”—distributing content in different formats and channels at different times. For instance, the movie industry typically releases a film only to movie studios in certain markets. Gradually, the movie is shown in more locations and the price of tickets often drops over time in any one city. The movie might then be released in DVD, to HBO, or streamed through Netflix at different times for different prices. Although this can be inconvenient for viewers who want a discount version to be widely available as soon as the movie is released, windowing has given smaller artists greater control over their creations and has been accompanied by an explosion of high-quality new content.¹²

A REVIEW OF PRICING THEORY

But to fully understand the potential benefits of variable pricing, it helps to review some basic economic principles.¹³ Let’s assume a case in which a computer game producer spends \$5 million in fixed costs to develop a new video game. But because this is largely an information product, its variable costs for producing an extra unit are very low. Let’s assume they start at \$15 and decline to \$5 as more units are sold. This may include the physical cost of a disk and packaging. In the case of downloaded software, variable costs will be even lower, although unlikely to be zero. For example, the company may feel that in order to double its sales, it will need to double spending on office overhead, advertising and product support. These costs exist whether or not a particular customer benefits from them.

Let’s also assume that the company faces a downward sloping demand curve—in other words, the demand for the product falls as the price rises. In this case, social welfare would be maximized by setting the price equal to the marginal cost, \$5. Then, any consumer willing to pay what it costs to produce one more copy would get one. There is just one problem: at this price, the company is unable to recoup its fixed costs and therefore loses money. Anticipating this, few companies will invest in the development of new products.

Note two other points about this example. The first is that the company has some pricing power for this particular product. In a perfectly competitive market, suppliers must accept the market price; otherwise consumers will not buy their product. In most cases, however, the producer has some ability to determine prices. In general, lower prices will result in more sales. The second point is that we do not necessarily want a lot of producers in this market, because the company has continually declining marginal costs. Splitting the market between two producers would actually reduce social welfare because the cost of both companies producing a certain quantity will always be greater than the cost of having just one producer.¹⁴

However, the company’s market power is likely to be limited. Although the company is the only authorized seller of this game, its product must generally compete with other games in the market. Even if the company controlled all other computer games, it would have to compete with other forms of entertainment, such as movies, music, and board games. And in many cases, the company must compete with prior versions of the digital product (e.g., prior versions of a word processing program) that consumers have already installed. Moreover, while the company can set the price of the product, it cannot force customers to

buy it. And without sales, the company has no revenue. Customers will not purchase the product if its price exceeds its value to them. Finally, in the case of digital goods, companies are competing with other providers who illegally sell (or give away) their digital goods. Despite current (albeit inadequate) efforts to fight digital piracy, it is widespread—particularly in many developing nations.¹⁵

If the company must sell its product at a single price, it will choose the one where its marginal cost equals marginal revenue. In this case marginal revenue is generally less than the market price, because any time it lowers its price in order to attract more customers it must offer that lower price to all its existing customers as well. Total revenues therefore go up by less than the product of the additional sales multiplied by the market price. In general, the company will choose a price at which the lost revenue from having to lower its price to existing customers exactly equals the revenue gained from new sales. The quantity associated with this higher price is lower than the quantity that would be produced if the price equaled marginal costs. However, the single price does not maximize static social welfare because there are some customers who value the product more than its marginal cost but less than the price. These customers would be willing to pay for the costs of additional production.

Ideally, the company would like to charge each person a separate price depending on the product's value to that particular customer. Some people might value the product at a little over \$15. Others might think it is only worth \$5. Still others might be willing to pay only \$1 for it. If the marginal cost is \$5, several things are implied. First, the company will not price the product low enough for the third customer to buy it, because the revenue does not cover the cost of producing it. Second, if the company has to charge a single price, it will be close to \$15. At this price, total revenue is \$15. Setting the price at \$5 would reduce revenues to \$10 even though the company would sell two units rather than one. By setting the price close to \$15, the supplier is able to capture almost all of product's social value for the first customer. But note that the first buyer is still better off than if he had not purchased it as long as the price is lower than its value to him. Although the first customer is worse off than if the price were \$5, this loss is offset by the gain to the company. Setting a single price prices the second (and third) purchaser out of the market. This loss to the customer from not being able to buy the product is not offset by a gain to anyone else. Allowing the company to set two prices increases total welfare.

The variation in surplus value (i.e., the difference between what a customer would be willing to pay for a product and the marginal cost of producing it) is likely to be greatest for information products, since these generally have relatively high fixed costs and very low marginal costs. For normal goods in which variable costs make up a much larger share of total production costs, the variation in possible prices will be much more constrained.

If the company is able to set different prices for each customer, both will benefit and social value will be maximized. The exact prices will depend upon the market power of the producer, the availability of close substitutes, and the value to each customer. In no case will any customer pay more than the product is worth to her. Customers will benefit as long as the value they attach to the product is greater than the price they are asked to pay.

The ability to price discriminate is broadly progressive from a distribution perspective.

And while the ability to charge different prices to different customers transfers money from customers to producers, it allows those producers to offer lower prices to customers who do not value the product highly. At a deeper level, it also increases the profits for those who develop products that consumers value highly. This is likely to lead to a larger and more varied supply of digital goods as companies use these profits to reinvest in next generation products.

Why might customers attach different values to the same product? There are many possible reasons, including individual taste, social values, and professional needs. One important factor is income. Individuals with higher incomes are generally able and willing to spend more for a product than are those with less income. In this sense, the ability to price discriminate can be broadly progressive from a distribution perspective, particularly when the pricing varies by country. It results in those with higher incomes paying more for a product while allowing those with lower incomes to buy it at an affordable price. In some cases this can have dramatic social effects. Technically, society never benefits by spending more money to produce a product than a customer is willing to pay for it. But there are many cases in which people might highly value a product but be unable to afford it. Good examples are students trying to go to college and medicines in developing countries. A company that is required to offer a single price to everyone cannot afford to help, since doing so would result in losses on every sale. Absent a government subsidy, the producer can meet this demand only by offering specific buyers a low price and making up the losses through higher prices charged to other customers, including ones in high-income nations.

CONCLUSION

It will often be the case that customers paying higher prices will benefit, at least in the short term, by prohibiting price discrimination.¹⁶ But these gains will come at the expense of other customers, many with less income, who will now no longer have access to the lower priced goods. More important, pricing restrictions raise significant risks. The market for information is one of the most diverse and competitive in history. Consumers benefit from a growing choice of technologically advanced products whose value often sharply declines over time as new versions are brought out. That market is closely identified with a particular pricing policy that reflects the unique nature of information services. It is not perfect. Consumers would naturally prefer more open distribution channels that allow them to play any content on any device any time, all at a much lower price. It is not their concern whether that price allows the producer to recover his costs or encourages more competition. Producers would obviously like to capture as much of the consumer value as possible, control their distribution channels, and maximize profits. These desires conflict.

Yet the market ultimately runs on mutual agreement. Government cannot make companies produce good music, movies, or software. And companies cannot make consumers pay more for a product than they think it is worth. In the end, both parties—producers and consumers—must agree on a price. Producers often lose a lot of money pouring large up-front costs into products that consumers do not want. And consumers often get frustrated when they find out that someone else paid a lower price, possibly because they waited until later in a product's cycle. But on the whole, these arrangements have delivered rapidly

improving products and a declining cost. They also increase total social welfare beyond what would be achieved by requiring a single worldwide price.

ENDNOTES

1. The Australian government defines geoblocking as “the name for a variety of techniques used to verify a user’s location and provide related content on that basis. It is most commonly used for content delivery, such as films and television programs, to verify a purchaser’s location at point of sale.” House of Representatives, Standing Committee on Infrastructure and Communications, *At What Cost? IT Pricing and the Australia Tax* (Parliament of Australia, July 2013), 14, http://www.aph.gov.au/parliamentary_business/committees/house_of_representatives_committees?url=ic/itpricing/report.htm.
2. “The Big Mac Index,” *The Economist*, January 23, 2014, <http://www.economist.com/content/big-mac-index>. For India the Index uses the price of a Maharaja Burger, made with chicken instead of beef.
3. Executive Office of the President, “Big Data: Seizing Opportunities, Preserving Values,” May 2014, 65, http://www.whitehouse.gov/sites/default/files/docs/big_data_privacy_report_may_1_2014.pdf.
4. The Australian report cited above concluded that in many cases “the price differences for IT products cannot be explained by the cost of doing business in Australia. Particularly when it comes to digitally delivered content...many IT products are more expensive in Australia because of regional pricing strategies implemented by major vendors and copyright holders. House of Representatives, *At What Cost?*, vii.
5. House of Representatives, *At What Cost?*, 116-17.
6. Viktor Mayer-Schönberger and Kenneth Cukier, *Big Data* (New York: Houghton Mifflin Harcourt, 2013), 3-5.
7. House of Representatives, *At What Cost?*, 53-54.
8. Short of piracy, there may be other actions that consumers can take to get around geoblocking policies. These would also put downward pressure on the price companies can charge. See: Elise Dally, “A how-to guide to navigating geoblocking,” *Choice* (blog), March 5, 2014, <http://www.choice.com.au/reviews-and-tests/computers-and-online/networking-and-internet/shopping-online/navigating-online-geoblocks/page/how-to-circumvent-geoblocks.aspx>.
9. “HomeStove Fact Sheet” BioLite website, <http://www.biolitestove.com/Media/BioLite/Media%20Kit/Press%20Releases/HomeStovePressPage.pdf>.
10. *Kirtsaeng v. John Wiley & Sons, Inc.*, 568 U.S. ____ (2013).
11. Daniel Castro, “Price Discrimination for Copyrighted Works Post-Kirtsaeng,” *The Innovation Files* (blog), ITIF, <http://www.innovationfiles.org/price-discrimination-for-copyrighted-works-post-kirtsaeng/>.
12. Chris Castle, “Attention Mr. Manjoo: The 1990s called and they want their red herrings back,” Music Tech Policy Blog, March 31, 2014, <http://musictechpolicy.wordpress.com/2014/03/31/attention-mr-manjoo-the-1990s-called-and-they-want-their-red-herrings-back/>.
13. For a good review of the economic literature on pricing theory and how differential pricing can increase total welfare, see: Mark Armstrong, *Price Discrimination* (Munich Personal RePEc Archive, paper no. 4693, October 2006), <http://mpira.ub.uni-muenchen.de/4693/>.
14. In a big enough market, additional producers do not raise marginal costs. For instance, the marginal cost of producing another physical music CD is pretty low at high volumes of production, but it probably does not get much lower beyond a certain threshold. The world music market is large enough that several companies can achieve this threshold and therefore compete against each other.
15. Daniel Castro, Richard Bennett, and Scott Andes, *Steal These Policies: Strategies for Reducing Digital Piracy* (Information Technology and Innovation Foundation, December 2009), <http://www.itif.org/files/2009-digital-piracy.pdf>.
16. In some cases the market in high-income countries may be so small compared to low-income markets that the producer will withdraw its product from developed areas if it means pricing itself out of the developing world. In this case banning price discrimination would impose losses on those consumers who are willing to pay the most for the product.

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