

Klick
Antitrust
Final Exam
Spring 2014

You may use your casebook, notes, and commercial outlines in the completion of this exam, but you may not confer with anyone else about it during the period April 29-May 9. You have 24 hours to complete the exam starting once you download it. Each question (1, 2, and 3) is equally weighted subject to your choice in question 4. Good luck.

1. Pope Francis, the head of the Roman Catholic Church, drawing upon his message of inclusiveness and strong personal charisma, begins a process of reconciliation between his church and the various Protestant denominations that began separating from the Roman Catholic Church in the 1500s. Surprisingly, the process goes exceedingly well, sparking a worldwide reunification of the Christian churches. As a result of this process, the U.S. Conference of Catholic Bishops, the administrative body that oversees the Roman Catholic Church in the United States, initiates plans to integrate all of the Christian churches in the country. You work for the FTC. You are asked to compose a memo outlining what, if anything, the FTC's position on this merger should be. Relevant data are available here: <http://www.gallup.com/poll/1690/religion.aspx> (for the questions where responses are not broken down by denomination, assume that there is no heterogeneity across denominations). In your memo, feel free to indicate what other empirical analyses would be relevant.

The first question that should be considered is whether such things can be regulated along these lines in US law. Looking strictly at the antitrust statutes, it is at least arguable that churches trade with their members (customers) in that the church provides various services and individuals pay for them. As a constitutional matter, regulation in the context is a no-go, and this should be mentioned, but as an FTC staffer, your comparative advantage is likely not in constitutional law. After flagging this concern, there are various points that likely fall within your expertise. Especially given the Court's continued insistence that competition laws are about competition and metrics related to it, regardless of how compelling other normative interests seem, it is important to analyze the competitive issues here even if you suspect First Amendment concerns will dominate.

As for competitive matters, the first issue would involve assessing metrics related to market power. A starting point would be to calculate an HHI (the sum of the squared market shares of the various "firms"). While the data at the provided link is helpful, there are judgment calls to be made. Is the relevant market the market for religions (in which case the fraction claiming no religion should be excluded and the individual religions' shares should be taken as a fraction of the ~85% of people claiming some religion)? Is the relevant market the market for Christianity? To determine this issue, it would be necessary to have additional data to examine something akin to the cross price elasticity between Christianity and other religions. Since churches (usually) don't charge explicit prices, this investigation would need to be indirect, perhaps looking at changes in church membership/attendance when various religious denominations are and are not present in a given geographic area (and here we would need to think about research design – would a pure cross sectional study be useful or would we need to look at panel data analyses examining what happens when churches shut down, etc). Short of data like this, data on religious conversions would be of potential interest (especially the comparison of conversions between Protestantism and Catholicism

vs conversions in and out of Christianity). There is also the potential to look specifically at those who claim to be active rather than all of those who identify with a particular religion.

However, although these questions are interesting and in many merger cases would greatly affect determinations regarding whether to scrutinize a merger, in any event, the relevant HHI's are quite high (especially given that the hypothetical merger is all of the Protestant congregations and so all of Protestantism should be regarded as a single "firm"). At least based on the Merger Guidelines, this would be enough to draw scrutiny.

That said, there could be some reasons why a challenge may not be automatic. In examining conversions, if it is discovered that there are essentially no conversions, even between Christian churches (say, for example, if most everyone simply follows the religion s/he is born into), the Protestant churches may not be much of a disciplining force on Catholicism (or each other, for that matter). If that is the case, the merger is unlikely to generate competitive harm. From another angle, if it is easy to start a religion, the potential for entry may provide enough discipline (although there are surely lots of examples of new religions being founded both historically and in more recent times, it would seem that only a few throughout history have been able to compete in serious ways with the major existing churches, so maybe the possibility of entry is not a plausible claim).

Efficiencies may be another element to consider. Many churches are well below capacity and, so, consolidation may lower costs. Also, religions likely exhibit network externalities, so larger scale may be favored for that reason as well.

2. Are monopolies in criminal markets desirable or not relative to competitive criminal markets? Be sure to discuss counter arguments.

If we view criminal activities as generating negative social value (or at least generating negative externalities that are not fully internalized by criminals), less crime would likely improve social welfare on the margin. Monopolies restrict output, therefore criminal monopolies would likely move crime closer to the social optimum than would a competitive criminal marketplace.

That said, if potential criminal organizations recognize the possibility of monopoly profits, they will invest to secure those profits in various ways that are socially wasteful (thus, while the deadweight loss triangle will shrink, the "rent erosion" effect may more than offset this gain).

These are probably the two main points to be made here. There are other marginal points that can be made as well (e.g., concerns that there may be increasing returns to scale in crime, etc).

3. The demand curve for a given good is represented by:

$$p = 20 - 1.5q$$

The marginal cost of producing this good is represented by:

$$MC = 2 + 0.5q$$

- 3.a What are the equilibrium price and quantity if this market is perfectly competitive?

In a competitive market, price=MC, so

$$20 - 1.5q = 2 + 0.5q$$

$$18 = 2q$$

$$q = 9$$

$$p = 20 - (1.5 * 9) = 20 - 13.5 = 6.5$$

3.b What is the price and quantity if this market is controlled by a monopolist?

A monopolist sets MR=MC

$$\text{Revenue} = p * q = (20 - 1.5q) * q = 20q - 1.5q^2$$

$$\text{MR} = 20 - 3q$$

So

$$20 - 3q = 2 + 0.5q$$

$$18 = 3.5q$$

$$q = 5.14 \text{ etc}$$

$$p = 20 - (1.5 * 5.14) = 12.30$$

Note that while this is easier with calculus (so as to be able to analytically define MR), you could have gotten approximately the same answer by “brute force” in a spreadsheet where you calculated profit for each quantity possibility. If you examined integer outputs, you would have found profit maximized at $q=5$ and so price =12.5

3.c Calculate consumer surplus in the perfectly competitive market.

Remember that 1) all consumers pay the same price and 2) consumer surplus is the amount of benefit above the price paid. Geometrically, this is the area of the triangle where the height is the difference between the price intercept of the demand curve (20) and the price paid (6.5) and the base is the competitive quantity (9) so consumer surplus is $\frac{1}{2} * (9-0) * (20-6.5) = \60.75

3.d Calculate consumer surplus and producer profit in the monopoly market.

Consumer surplus is still just the area of the triangle but now the relevant height is the difference between the price intercept (20) and the monopoly price (12.30) and the base is the monopoly quantity (5.14) so consumer surplus is $\frac{1}{2} * (5.14-0) * (20-12.30) = \19.80

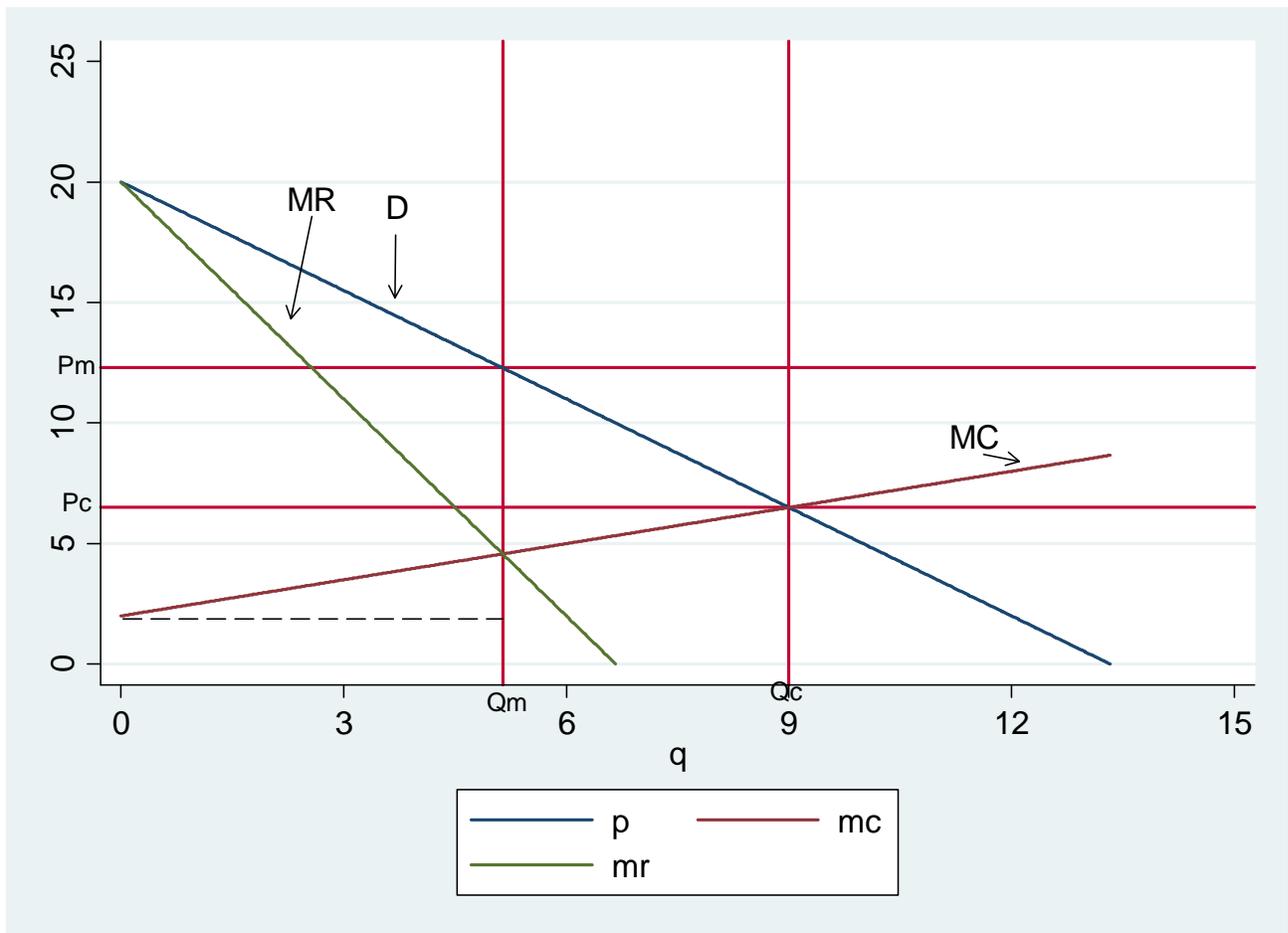
Profit is revenue – cost. Revenue is simply $p * q = 12.30 * 5.14 = 63.22$

Cost is trickier. It is the area under the marginal cost curve (essentially adding up the marginal costs for each unit you produce). Geometrically, this has two components on the graph below: the rectangle under the dotted line and the triangle between the dotted line and the marginal cost curve. The rectangle is simply 2 (the intercept of the MC curve) * the monopoly quantity (5.14) so 10.28 and the triangle is $\frac{1}{2} * \text{base (i.e., monopoly quantity - 0)} * \text{height}$. The height is the difference between marginal cost at the monopoly quantity and the marginal cost intercept (2) so since the monopoly quantity is 5.14, marginal cost is $2 + (0.5 * 5.14) = 4.57$, so the difference is 2.57. The area of the triangle is $\frac{1}{2} * (5.14-0) * 2.57 = 6.60$, so the whole cost is $10.28 + 6.60 = 16.88$. Profit then is $63.22 - 16.88 = \$46.34$.

3.e Calculate the deadweight loss from monopoly in this market.

DWL is the difference between the total surplus (consumer + producer) in the competitive outcome – the total surplus in the monopoly outcome. You could use the numbers you already have computed but you would still need to compute producer surplus in the competitive outcome (due to the increasing marginal cost, entry won't push short term profits to zero) which we haven't calculated previously.

Geometrically, it might be easier to simply calculate the area between the demand curve and the marginal cost curve for the units that are not produced by the monopolist but would have been produced in the competitive market. This area is composed of 2 triangles. The upper triangle has as its base the difference between the competitive output and the monopoly output (9-5.14). Its height is given by the difference between the monopoly price and the competitive price (12.30-6.5), so the area of that triangle is $\frac{1}{2} \times 3.86 \times 5.8 = 11.19$. The lower triangle has the same base (3.86) but the height is the difference between the competitive price (6.5) and the intersection between the marginal revenue and marginal cost curves (4.57) and so the area is $\frac{1}{2} \times 3.86 \times 1.93 = 3.72$, so the total DWL is $11.19 + 3.72 = 15$.



4. Choose one of questions 1, 2, or 3 (inclusive of subparts) above to count double or choose to have each question count the same (i.e., multiply your point total for each question by 4/3). If

your choice is not clearly noted, you will automatically lose 25% of the available points on the exam.