

## **FDA Regulation of the U.S. Pharmaceutical Industry** Analysis of Regulation and Case Study of Reform

*All specialists, whether businessmen or professional people, are fully aware of their dependence on the consumers' directives. Daily experience teaches them that, under capitalism, their main task is to serve the consumers. Those specialists who lack an understanding of the fundamental social problems resent very deeply this "servitude" and want to be freed. The revolt of narrow-minded experts is one of the powerful forces pushing toward general bureaucratization. The architect must adjust his blueprints to the wishes of those for whom he builds homes; or in the case of apartment houses of the proprietors who want to own a building that suits the tastes of the prospective tenants and can therefore be easily rented. There is no need to find out whether the architect is right in believing that he knows better what a fine house should look like than the foolish laymen who lack good taste. He may foam with rage when he is forced to debase his wonderful projects in order to please his customers. And he yearns for an ideal state of affairs in which he could build homes that meet his own artistic standards. He longs for a government housing office and sees himself in his daydreams at the top of this bureau. Then he will construct dwellings according to his own fashion.*

-Ludwig von Mises, *Bureaucracy*

*FDA exists because of the belief that without regulation – meaning governmentally established and enforced rules and standards -- life-essential goods such as safe food and safe and effective drugs and medical devices are less likely to be available. I submit that this belief is rooted in fact. Consumers lack the information and the ability to monitor the safety of the food supply chain once the world changes from a place where people grow their own food or obtain it from their neighbors to a world in which food is grown and packaged far from where it is consumed, now often in other countries. Similarly, with respect to drugs, there is no substitute for a well-controlled clinical trial to establish a drug's safety and effectiveness and conducting such a trial is beyond the competence of individual consumers. Consumers, unprotected by regulations requiring such trials, are unable to judge the safety and effectiveness of a drug. The alternative to regulation in the areas of food, drugs, and medical devices is a marketplace flooded with products which carry no greater assurance of safety, efficacy, and purity than the unverified and self-interested representations of those producing the products. Because of the risks inherent in that alternative, there is a strong consensus in our country and, indeed, across much of the world that regulation in the areas of food and medical products is necessary.*

-Ralph Tyler<sup>1</sup>

Emily El Sanadi  
December 14, 2016  
Dr. Jeffrey Herbener  
ECON 420 A  
Box #2738

---

<sup>1</sup> Ralph Tyler, "The Goals of FDA Regulation and the Challenges of Meeting Them," *Health Matrix: The Journal of Law-Medicine* 22, no. 2 (2013): 423-431.

## **Introduction**

A clear path towards innovation and sale of safe and effective drugs in the U.S. pharmaceutical industry is vital for the physical well-being of the consumer. However, the Food and Drug Administration (FDA) regulatory process governing the U.S. pharmaceutical industry often results in an excessive burden on the drug development process and negative effects on consumer welfare. Attempted reform of FDA regulation in the past, such as the Prescription Drug User Fee Act, often does not remove the burden of legislation on the pharmaceutical industry, rather it perpetuates regulatory inefficiency. The duty of legislators concerning the pharmaceutical industry is to find a way to remove obstructions in the path of firms from developing drugs in a safe and effective manner.

## **History of Regulation**

The history of pharmaceutical regulation in the U.S. is fairly recent; as researchers from the Independent Institute note, “before the twentieth century there was no direct federal regulation of drugs or other consumer products.”<sup>2</sup> Nevertheless, it did not take long before the U.S. government began to regulate the pharmaceutical industry. Several key pieces of legislation affecting drug development and consumer welfare are outlined in the following paragraphs to describe the history of federal regulation over the pharmaceutical industry in the U.S.

---

<sup>2</sup> Daniel B. Klein and Alexander Tabarrok, “History of Federal Regulation: 1902–Present,” *Independent Institute*, [http://www.fdareview.org/01\\_history.php](http://www.fdareview.org/01_history.php).

The Biologics Act passed into law at the beginning of the 20<sup>th</sup> century as a reaction to the sale of an unsafe drug in U.S. markets that killed several consumers.<sup>3</sup> The 1902 legislation states that all drugs of a “biological” nature must pass under the supervision of the Bureau of Chemistry, soon to become the FDA, before being sold in the pharmaceutical market. The passage of the Pure Food and Drugs Act in 1906 held firms accountable for the mislabeling of marketed drugs.

The smaller pieces of legislation passed in the early 20<sup>th</sup> century were precursors to the 1938 Food, Drug, and Cosmetic Act that resulted in a significant increase in regulation over the pharmaceutical industry. The 1938 legislation passed into law under the provision of regulating interstate commerce in the wake of the Elixir Sulfanilamide tragedy, when a drug containing a form of anti-freeze was consumed and resulted in the deaths of 107 individuals. The Food, Drug, and Cosmetic Act directly affected the drug development process by stipulating that firms producing drugs must put their products through specific tests and studies prior to sale on the market.<sup>4</sup> Under the law, drugs must be submitted for approval to the FDA in the form of a New Drug Application (NDA) before being sold. The NDA includes information such as drug ingredients, stated purpose of the drug, and other details. The 1938 act placed a 60 day limit on the FDA

---

<sup>3</sup> Information in this paragraph is summarized from the following source:

Daniel B. Klein and Alexander Tabarrok, “History of Federal Regulation: 1902–Present,” *Independent Institute*, [http://www.fdareview.org/01\\_history.php](http://www.fdareview.org/01_history.php).

<sup>4</sup> Information in this paragraph is summarized from the following source:

Daniel B. Klein and Alexander Tabarrok, “History of Federal Regulation: 1902–Present,” *Independent Institute*, [http://www.fdareview.org/01\\_history.php](http://www.fdareview.org/01_history.php).

board drug review process; if the FDA failed to review the drug within this time period, the drug would be approved by default.

The 1962 Kefauver-Harris Amendments were the second wave of major legislation in the 20<sup>th</sup> century that left a lasting impact on the drug development process.<sup>5</sup> The amendments came about as a reaction to a harmful drug that was used in West Germany by pregnant women to reduce morning sickness called Thalidomide. The drug caused major birth defects with children, and while the drug had not yet been distributed in the U.S. due to regulatory uphold, the scare of the drug across the globe sparked action to create the amendments. The Kefauver-Harris Amendments removed the 60 day limit for approval by the FDA of drugs and added the stipulation that drugs be tested for efficacy as well as safety. From this point onwards, the FDA would not only serve as the gateway to the market for pharmaceutical drugs, but would also maintain a heavier hand in the drug development process itself.

Layers of legislation over the pharmaceutical industry during the 20<sup>th</sup> century eventually resulted in a great regulatory uphold of the drug review process.<sup>6</sup> The time it took for a drug to move through FDA review had slowed so much by 1992 that the FDA appealed for greater funding to expedite the review process. In lieu of more federal funding, Congress passed the Prescription Drug User Fee Act of 1992 (PDUFA). The PDUFA gave license to the FDA to charge pharmaceutical firms “user fees”, prices paid

---

<sup>5</sup> Information in this paragraph is summarized from the following source:

Daniel B. Klein and Alexander Tabarrok, “History of Federal Regulation: 1902–Present,” *Independent Institute*, [http://www.fdareview.org/01\\_history.php](http://www.fdareview.org/01_history.php).

<sup>6</sup> *Ibid.*

in order to submit a drug to the FDA review process. More details on the nature of the PDUFA are included later in this paper as a case study for reform of the pharmaceutical industry.

More recent legislation since the 1992 PDUFA centers on renewing user fee allowances, providing incentives for pharmaceutical firms to conduct research, and guaranteeing “market exclusivity” for specific classes of drugs.<sup>7</sup> The layers of pharmaceutical regulation built up throughout the history of the U.S. has significant ramifications for the industry, and these effects are outlined in the following paragraphs.

### **Effects**

One result of the legislation outlined in the above paragraphs is that the FDA has become the sole arbiter of the pharmaceutical industry in the U.S., from drug development to pricing on the market. Specialist in life sciences start-ups James F. Jordan writes that it is advisable for any pharmaceutical company to have an expert in the regulatory process of the FDA advising over drug development from start to finish:

*FDA regulations are constantly evolving ...A start-up’s regulatory pathway is one of the most, if not the most, expensive aspects of commercializing a life sciences technology. Making a mistake in the appropriate selection of the FDA pathway, and/or in the execution of the clinical trial, and/or in the submission of the data can literally bankrupt the company.<sup>8</sup>*

---

<sup>7</sup> Information in this paragraph is summarized from the following source:

Alden Abbott, “FDA Reform: A Prescription for More and Better Drugs and Medical Devices,” *The Heritage Foundation*, <http://www.heritage.org/research/reports/2016/06/fda-reform-a-prescription-for-more-and-better-drugs-and-medical-devices>.

<sup>8</sup> James Jordan, *Innovation, Commercialization, and Start-Ups in Life Sciences* (Boca Raton, FL: CRC Press), 2015, 128-129.

The effects of FDA regulation are evident in two primary areas. First, FDA regulation has a major impact on the drug development and clinical trial process. Second, FDA regulation impacts consumer welfare in the pharmaceutical industry.

### **Drug Development and the Clinical Trial Process**

The modern day clinical trial process is multi-faceted and complex. If a firm is willing to develop a drug and bring it to market, it must begin the Investigational New Drug (IND) process outlined by the FDA,<sup>9</sup> through which the firm provides information to the FDA about its planned testing process, components of the drug, and other information. The drug then goes into a period of testing known as the clinical trial process.

A clinical trial consists of three main stages.<sup>10</sup> A pharmaceutical company begins the process by working in conjunction with an Independent Review Board (IRB) to create the different phases and parameters of the clinical trial. Phase I is conducted with a small number of healthy test participants to determine the general safety of the drug. Phase IIA testing is given to people who have the disease or disorder being treated. The purpose in this phase is to determine drug dosing levels, targeting the population on whom the drug

---

<sup>9</sup> Information in this paragraph is summarized from the following source:

PhRMA, "2016 Profile: Biopharmaceutical Research Industry," <http://pharmacdn.connectionsmedia.com/sites/default/files/pdf/biopharmaceutical-industry-profile.pdf>, 49-50.

<sup>10</sup> Information in this paragraph concerning details on the clinical trial process is summarized from the following source:

PhRMA, "2016 Profile: Biopharmaceutical Research Industry," <http://pharmacdn.connectionsmedia.com/sites/default/files/pdf/biopharmaceutical-industry-profile.pdf>, 50-51.

would be most effective. Phase IIB are larger, pre-registration studies, which are meant to inform the processes of the “registration” and pivotal Phase III trials. Phase IIB are typically lengthier trials, so that more data can be gathered on the long-term safety and efficacy of drugs. Phase III is the “registration” study, the final step in proving both the safety and efficacy of the drug for the targeted population.

After the clinical trial process is complete, the organization supporting the drug development process (not necessarily the “producer”—the organization that intends to sell or patent the drug is responsible for this process) submits a New Drug Application (NDA) to the FDA. The NDA displays the results of clinical trial processes, such as “data from specific technical viewpoints for review, including chemistry, pharmacology, medical, biopharmaceutics, and statistics.”<sup>11</sup> If the drug passes this review process, the “FDA then makes a final decision on whether to approve a new therapy.”<sup>12</sup> In the U.S. pharmaceutical industry, the FDA serves as the gateway for a new drug to come to market.

The tangible impact of FDA regulation is felt on a daily basis by pharmaceutical firms. According to an executive at a pharmaceutical firm founded in 1994 in the Midwest, the FDA is a guiding presence throughout the entirety of the drug development

---

<sup>11</sup> FDA, “Frequently Asked Questions about the FDA Drug Approval Process,” <http://www.fda.gov/Drugs/ResourcesForYou/SpecialFeatures/ucm279676.htm>.

<sup>12</sup> Information in this paragraph is summarized from the following source:

PhRMA, “2016 Profile: Biopharmaceutical Research Industry,” 51, <http://pharmacdn.connectionsmedia.com/sites/default/files/pdf/biopharmaceutical-industry-profile.pdf>.

process.<sup>13</sup> The executive stated: “everything we do is done with the knowledge that at the end of the year we have to submit an annual report that summarizes all of those points [to the FDA].” When asked about FDA regulation over the pharmaceutical industry, the co-founder of the company said that there are two competing principles in drug development. First, there are the principles of compliance created by the FDA meant to govern the drug development process. Second, there is the well-known economic principle of scarcity of resources, specifically fiscal resources, in the pharmaceutical industry. The standards that the FDA holds pharmaceutical companies to often exceed the fiscal capacity of the company. The tangible effects of FDA pharmaceutical regulation are further exemplified by noting data on time, costs, and other details of the drug development process.

In two papers produced by the Tufts Center for the Study of Drug Development, author Joseph DiMasi and other researchers trace the costs of the drug development process over the span of several years. Both articles use similar parameters to judge the costs of drug development. The authors’ findings are derived from 10 pharmaceutical firms and 106 products.<sup>14</sup> Researchers estimate the current cost for new drug development in the U.S. to be 2,558 million dollars per drug.<sup>15</sup> The cost of developing

---

<sup>13</sup> Information in this paragraph comes from the following source:

Pharmaceutical Executive Board Interview, interview by Emily El Sanadi, November 27, 2016, transcript.

<sup>14</sup> *Ibid.*, 8.

<sup>15</sup> Joseph DiMasi, Henry Grabowski, and Ronald Hansen, “Briefing: Costs of Developing a New Drug,” *Tufts Center for the Study of Drug Development*, November 18, 2014, 5, [http://csdd.tufts.edu/files/uploads/Tufts\\_CSDD\\_briefing\\_on\\_RD\\_cost\\_study\\_-\\_Nov\\_18,\\_2014..pdf](http://csdd.tufts.edu/files/uploads/Tufts_CSDD_briefing_on_RD_cost_study_-_Nov_18,_2014..pdf).

one new drug was not always so steep. In the 1970s, costs of drug development were estimated to be 179 million dollars per new drug. In the 1980s, costs rose to 413 million dollars. The 1990s to early 2000s saw a significant rise in costs of development, to 1,044 million dollars.<sup>16</sup>

Not only are costs in drug development increasing, but the amount of time it takes to develop a drug and bring it to market is extremely lengthy. The drug development process can run anywhere from “10 to 15 years.”<sup>17</sup> The time and effort spent developing a drug are no guarantee that it will pass through the final approval of the FDA to be sold on the market. Over the past several decades, “the number of new drugs approved per billion U.S. dollars spent on R&D has halved roughly every 9 years since 1950, falling around 80-fold in inflation-adjusted terms.”<sup>18</sup> After the passage of the 1962 Kefauver-Harris Amendments, the drug review process increased in time with fewer drugs being approved; since the passage of the amendments, “the average number of new drugs introduced each year dropped significantly—by 60 percent.”<sup>19</sup> In 2016, “Only 2 of 10

---

<sup>16</sup> Joseph DiMasi, Henry Grabowski, and Ronald Hansen, “Briefing: Costs of Developing a New Drug,” *Tufts Center for the Study of Drug Development*, November 18, 2014, 23, [http://csdd.tufts.edu/files/uploads/Tufts\\_CSDD\\_briefing\\_on\\_RD\\_cost\\_study\\_-\\_Nov\\_18,\\_2014..pdf](http://csdd.tufts.edu/files/uploads/Tufts_CSDD_briefing_on_RD_cost_study_-_Nov_18,_2014..pdf).

<sup>17</sup> PhRMA, “2016 Profile: Biopharmaceutical Research Industry,” 2, <http://pharmacdn.connectionsmedia.com/sites/default/files/pdf/biopharmaceutical-industry-profile.pdf>.

<sup>18</sup> Jack Scannell, et al., “Diagnosing the Decline in Pharmaceutical R&D Efficiency,” *Nature Reviews: Drug Discovery* 11, (2012): 191.

<sup>19</sup> Alden Abbott, “FDA Reform: A Prescription for More and Better Drugs and Medical Devices,” *The Heritage Foundation*, <http://www.heritage.org/research/reports/2016/06/fda-reform-a-prescription-for-more-and-better-drugs-and-medical-devices>.

marketed drugs return revenues that match or exceed R&D costs.”<sup>20</sup> The likelihood of a nascent drug therapy making its way through the present day drug development process and entering into the pharmaceutical market is “less than 12%.”<sup>21</sup> The time and expense of drug development along with slower approval times for drug review by the FDA have hampered efficient development of pharmaceutical drugs in the U.S.

### **Consumer Welfare**

Increased FDA regulation over the course of the past century not only impacts the drug development process, it also affects consumer welfare. While the FDA states one of its main purposes is to “[protect] the public health,”<sup>22</sup> some scholars claim that the work of the FDA impedes the very welfare of the public it claims to preserve.

Arguments that FDA regulation harms consumer welfare oftentimes have a similar structure to the “broken window fallacy” cited in the discipline of economics.<sup>23</sup> In this fallacy, a shopkeeper’s window is broken by a vandal in a small town. Observers of the broken window state that the act of vandalism is ultimately economically beneficial as the town glass maker will have more business. These observers fail to note that the money the shopkeeper spends on fixing the window could have been spent

---

<sup>20</sup> PhRMA, “2016 Profile: Biopharmaceutical Research Industry,” 2, <http://pharmacdn.connectionsmedia.com/sites/default/files/pdf/biopharmaceutical-industry-profile.pdf>.

<sup>21</sup> Ibid.

<sup>22</sup> U.S. Food and Drug Administration, “What We Do: FDA Mission,” last modified October 24, 2016, <http://www.fda.gov/AboutFDA/WhatWeDo/>.

<sup>23</sup> This description of the fallacy comes from the following source:

Henry Hazlitt, *Economics in One Lesson* (New York: Harper & Brothers), 1946, 23-24.

elsewhere in the economy. The fallacy highlights how men often disregard the unintended consequences of an event or policy, only focusing on immediately observable consequences.

The economist Henry Hazlitt writes that “many of the most frequent fallacies in economic reasoning come from the propensity, especially marked today, to think in terms of an abstraction—the collectivity, the “nation”—and to forget or ignore the individuals who make it up and give it meaning.”<sup>24</sup> The weakness Hazlitt notes is common in the U.S., where legislators implement public policy concerning the pharmaceutical industry while “thinking in terms of abstraction” without considering the oftentimes hidden effects of a policy. In reality, the unseen consequences of a policy are oftentimes the most impactful on individual welfare.

The economist Robert Higgs does an excellent job of examining the hidden ramifications of extensive regulation of the pharmaceutical industry in the U.S on consumer welfare. He argues that regulation meant to protect the consumer typically results in a hidden restriction of medical options that may benefit the consumer’s welfare.<sup>25</sup> As the public is not aware of the drugs the FDA does not allow to enter the market, the public is also not aware of the forgone benefits from the unapproved drug. Regulation also results in the delay of production and use of pharmaceutical drugs that

---

<sup>24</sup>Henry Hazlitt, *Economics in One Lesson* (New York: Harper & Brothers), 1946, 28.

<sup>25</sup> Robert Higgs, “Banning a Risky Product Cannot Improve Any Consumer's Welfare (Properly Understood), with Applications to FDA Testing Requirements,” *The Review of Austrian Economics* 7, no. 2 (1994): 6-10.

could potentially increase the standard of living and welfare of individual U.S. citizens.<sup>26</sup> The pharmaceutical regulatory process is so extensive in the U.S. that it draws out the process of drug development itself and the approval of drugs by the FDA; as a result, helpful medication is slowed by the regulatory process when it could be either saving lives or lessening the effects of sickness that individuals must endure.

Higgs cites the work of William Wardell at the University of Rochester to prove the negative impact on consumer welfare caused by FDA regulation.<sup>27</sup> While Wardell was writing in the 1970s, many of his points are still relevant for a consideration of the tangible negative effects of regulation in the pharmaceutical industry. Wardell writes of “drug lag”, a term he uses for the delay in the introduction of a pharmaceutical drug to market.<sup>28</sup> He states that “from the excessive delays in the approval process come delayed new drug introductions -some of them so delayed that drugs that have been used safely abroad for years are not yet available here [in the U.S.]”<sup>29</sup> Wardell looks at different treatments that have been held up in the regulatory process in the U.S. by the FDA.

---

<sup>26</sup> Information in this paragraph is summarized from the following source:

Robert Higgs, “Banning a Risky Product Cannot Improve Any Consumer's Welfare (Properly Understood), with Applications to FDA Testing Requirements,” *The Review of Austrian Economics* 7, no. 2 (1994): 10-13.

<sup>27</sup> Robert Higgs, “Should the Government Kill People to Protect their Health,” *Foundation for Economic Education*, January 01, 1994, <https://fee.org/articles/should-the-government-kill-people-to-protect-their-health/>.

<sup>28</sup> William Wardell, “More Regulation or Better Therapies?” *American Enterprise Institute: Journal on Government and Society*, September/October 1979, 25, <https://object.cato.org/sites/cato.org/files/serials/files/regulation/1979/9/v3n5-5.pdf>.

<sup>29</sup> Ibid.

Specifically, he looks at how drugs treating cardiovascular illness are introduced safely in foreign countries but remain inaccessible to U.S. markets due to FDA regulation.<sup>30</sup>

In addition to cardiovascular drugs, Wardell cites similar situations with respiratory drugs, mental illness treatments, and gastrointestinal drugs.<sup>31</sup> Higgs summarizes Wardell's research in the following brief statement:

*Dr. William Wardell...estimated in 1979 that a single beta-blocker, alprenolol, which had already been sold for three years in the strictly regulated Swedish market, could have saved more than 10,000 lives a year in the United States.*<sup>32</sup>

As Higgs and Wardell note, the regulation implemented by the FDA often has negative effects on consumer welfare. Economists such as Higgs argue that the consumer is capable of regulating his own use of drugs without the FDA acting as a guardian of consumption.<sup>33</sup> Government regulatory agencies tend to be overly conservative in considering the risk of products,<sup>34</sup> and in tandem, cannot have the necessary immediate knowledge of a consumer's medical needs to make all decisions on drug safety and efficacy.

---

<sup>30</sup> William Wardell, "More Regulation or Better Therapies?" *American Enterprise Institute: Journal on Government and Society*, September/October 1979, 26-27, <https://object.cato.org/sites/cato.org/files/serials/files/regulation/1979/9/v3n5-5.pdf>.

<sup>31</sup> Ibid.

<sup>32</sup> Robert Higgs, "Should the Government Kill People to Protect their Health," *Foundation for Economic Education*, January 01, 1994, <https://fee.org/articles/should-the-government-kill-people-to-protect-their-health/>.

<sup>33</sup> Ibid.

<sup>34</sup> William Wardell, "More Regulation or Better Therapies?" *American Enterprise Institute: Journal on Government and Society*, September/October 1979, 32, <https://object.cato.org/sites/cato.org/files/serials/files/regulation/1979/9/v3n5-5.pdf>.

Recent research on the impact on consumer welfare of FDA regulation done by the Manhattan Institute in 2015 studies the varying levels of efficiency within different divisions of the FDA drug review board.<sup>35</sup> Research shows that certain sectors of the review process have extremely fast turnaround for drug review and approval, while other sectors lag behind in efficiency. The disparity between these review times results in a major cost on consumer welfare. The authors state the following:

*The median time for approval at the slowest division is three times as long as the approval time at the fastest. The slowest, the Neurology division, took nearly 600 days to approve a drug, and the two fastest units, Oncology and Anti-Viral, took under 200 days... A conservative estimate of the value of each additional year of life expectancy in the United States is \$150,000, which translates to some \$45 trillion for the population as a whole. From 2000 to 2011, life expectancy increased by 0.182 years annually. Assuming that half that increase is due to new pharmaceuticals, the value of the increase in life expectancy created by the drugs is about \$4 trillion a year. That astonishing number is potentially in play if the overall productivity level at the FDA were to get more in line with those of its fastest divisions. If, for example, one generation of new drugs could be introduced just one year faster, the increase in life expectancy would be worth \$4 trillion.<sup>36</sup>*

The above cited data and arguments make evident the truth that FDA regulation of the pharmaceutical industry often hampers the drug development process and harms consumer welfare. Despite the truth of this data, the general consensus of politicians, economists, and consumers is that FDA regulation is a necessary means of protecting the public.

---

<sup>35</sup> Joseph DiMasi, Christopher-Paul Milne, and Alex Tabarrok, “An FDA Report Card: Wide Variance in Performance Found Among Agency’s Drug Review Divisions,” *The Manhattan Institute*, no. 7 (2014), [http://www.manhattan-institute.org/pdf/fda\\_07.pdf](http://www.manhattan-institute.org/pdf/fda_07.pdf).

<sup>36</sup> *Ibid.*, 6.

### **In Support of FDA Regulation**

Compelling arguments exist for upholding strong FDA regulation over the pharmaceutical industry. The reader should note from the history of regulation outlined in the first portion of the paper that much of the legislation that has been put into place over the past several decades is implemented to protect consumers after medical tragedies caused significant harm to the public.<sup>37</sup>

The general opinion on FDA regulation is well-represented in a scholarly article published by the Case Western Reserve Journal of Law-Medicine.<sup>38</sup> The author states that without FDA regulation, no entity would exist that could discern the safety and efficacy of pharmaceutical goods. He writes the following:

*The alternative to regulation in the areas of food, drugs, and medical devices is a marketplace flooded with products which carry no greater assurance of safety, efficacy, and purity than the unverified and self-interested representations of those producing the products. Because of the risks inherent in that alternative, there is a strong consensus in our country and, indeed, across much of the world that regulation in the areas of food and medical products is necessary.*<sup>39</sup>

This author, along with many others, trust that the FDA acts a guardian for public welfare and for safety in the drug development process.

Unsurprisingly, administrators in the FDA itself see themselves as serving a vital role in protecting public welfare. The FDA “Statement of Mission” claims that responsibilities of the department are to “[advance] the public health by helping to speed

---

<sup>37</sup> Daniel B. Klein and Alexander Tabarrok, “History of Federal Regulation: 1902–Present,” *Independent Institute*, [http://www.fdareview.org/01\\_history.php](http://www.fdareview.org/01_history.php).

<sup>38</sup> Ralph Tyler, “The Goals of FDA Regulation and the Challenges of Meeting Them,” *Health Matrix: The Journal of Law-Medicine* 22, no. 2 (2013): 423-431.

<sup>39</sup> *Ibid.*, 424-425.

innovations that make medicines more effective, safer, and more affordable and by helping the public...to maintain and improve their health.”<sup>40</sup> While legislators and administrators tend to agree that regulation over the pharmaceutical industry is necessary, it is also publicly recognized that this regulation is not always efficient. Legislators have worked over the past few decades to implement certain reforms of FDA regulation. The most prominent of these reforms is outlined in the following paragraphs and evaluated for its effectiveness.

### **Case Study of Reform: The PDUFA**

As mentioned above, Congress implemented the PDUFA in 1992 to deal with the slow approval times of pharmaceutical drugs by the FDA review board: “Pre-1992 figures indicated that on average it took the FDA two and a half years to review an NDA and sometimes up to eight years...Applications would sit unexamined for months or even years.” The PDUFA has been renewed four times since the initial legislation.<sup>41</sup> In keeping with the original legislation set in 1992, PDUFA user fees are kept primarily for maintaining the drug review process.<sup>42</sup>

Studies on the effects of the PDUFA have shown that it has aided in speeding up the drug review process. Reports from the FDA financial database state that: “Today, almost 60 percent of new active substances approved in the world market are launched

---

<sup>40</sup>U.S. Food and Drug Administration, “What We Do: FDA Mission,” last modified October 24, 2016, <http://www.fda.gov/AboutFDA/WhatWeDo/>.

<sup>41</sup>U.S. Food and Drug Administration, “Background: Prescription Drug User Fee Financial Report,” <http://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Reports/UserFeeReports/FinancialReports/PDUFA/UCM499026.pdf>.

<sup>42</sup>Ibid.

first in the United States. That is more than triple the rate approved first in the United States in the first year of PDUFA (1993).<sup>43</sup> A scholarly article published in 2005 claims that the PDUFA has a tremendous positive impact on consumer welfare.<sup>44</sup> The authors state that the “PDUFA raised consumer welfare between \$5 to \$19 billion.”<sup>45</sup> In addition to this research, the U.S. General Accounting Office found that “From 1993 to 2001, the median approval time for new drug applications for standard drugs dropped from 27 months to 14 months” after implementation of the PDUFA.<sup>46</sup> Approval times for other divisions of the drug review process were less positive. Nevertheless, the PDUFA was found to be effective in cutting down FDA drug review times.

While the PDUFA resulted in a decreased review time for drug applications, user fee costs have steadily increased since the PDUFA was passed in 1992. An examination of the PDUFA reveals that pharmaceutical firms pay a steep price for FDA drug review and approval, and the benefits of a swifter drug review process may not cover the costs of user fees.

---

<sup>43</sup>U.S. Food and Drug Administration, “Background: Prescription Drug User Fee Financial Report,” <http://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Reports/UserFeeReports/FinancialReports/PDUFA/UCM499026.pdf>.

<sup>44</sup> Tomas Philipson, et al., “Assessing the Safety and Efficacy of the FDA: The Case of the Prescription Drug User Fee Acts,” *National Bureau of Economic Research*, working paper no. 11724 (2005), 2, <http://www.nber.org/papers/w11724.pdf>.

<sup>45</sup>Ibid.

<sup>46</sup> United States General Accounting Office, “Effect of User Fees on Drug Approval Times, Withdrawals, and Other Agency Activities,” September 2002, 3, <http://www.gao.gov/assets/240/235592.pdf>.

## Data on User Fees

The following paragraphs review the cost of user fees and the revenue gained from user fees. To give the reader a broad brushstroke of how user fees have altered over the past two decades, the following data compares user fees for applications submitted by pharmaceutical firms requiring review of clinical data in 1993 and then 2012. In 1993, it cost a pharmaceutical firm 100,000 dollars to submit a drug application requiring review of clinical data.<sup>47</sup> In 2012, application to that same category of drug review cost 1,841,500 dollars.<sup>48</sup> The most recent PDUFA user fee financial report states that the price for the FDA to review a drug that has clinical trial data is 2,374,200 dollars.<sup>49</sup>

As FDA user fee charges have gone up in the past two decades, so have the revenues collected from them. As reported by in the FY 2015 financial report published on the PDUFA, “In FY 2015, FDA had net collections of \$855.3 million in prescription drug user fees, spent \$796.1 million in user fees for the human drug review process.”<sup>50</sup> User fees are a sizable expense for pharmaceutical firms working to bring new drugs to

---

<sup>47</sup> Amanda Kronquist, “The Prescription Drug User Fee Act: History and Reauthorization Issues for 2012,” *The Heritage Foundation*, December 21, 2011, [http://www.heritage.org/research/reports/2011/12/the-prescription-drug-user-fee-act-history-and-reauthorization-issues-for-2012#\\_ftnref7](http://www.heritage.org/research/reports/2011/12/the-prescription-drug-user-fee-act-history-and-reauthorization-issues-for-2012#_ftnref7).

<sup>48</sup> Ibid.

<sup>49</sup> Federal Register, “Prescription Drug User Fee Rates for Fiscal Year 2016,” *U.S. Food and Drug Administration*, August 3, 2015, <https://www.federalregister.gov/documents/2015/08/03/2015-18914/prescription-drug-user-fee-rates-for-fiscal-year-2016>.

<sup>50</sup> U.S. Food and Drug Administration, “FY 2015 PDUFA Financial Report,” 2015, 2, <http://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Reports/UserFeeReports/FinancialReports/PDUFA/UCM499021.pdf>.

market. One must ask whether the benefits of greater funding for the FDA to review drugs are worth the costs user fees represent for pharmaceutical firms.

While the PDUFA resulted in cut times for new drug approval, this reform is no lasting solution to inefficiency in FDA regulation of the pharmaceutical industry. The PDUFA may be a temporary solution to speed up the drug approval process, but it is resulting in an ever-increasing amount of resources being taken from pharmaceutical firms. It is not a realistic and sustainable model for the FDA to take increasing amounts of resources from companies in order to maintain a low level of efficiency in the review process.

The steep prices of drug development coupled with the price of submitting an application for review to the FDA distances an entire class of innovators from obtaining a competitive position in the pharmaceutical industry. As the interviewed pharmaceutical representative states: “There is an ever present tension between the FDA’s standards and the funding available to satisfy those standards.”<sup>51</sup> Those firms with a smaller pool of funds working to bring new drugs to market are automatically put at a disadvantage by both regulatory and fiscal requirements of the FDA.

### **Free Market Framework**

*“Who will reform the reformers?”*

-Juvenal

In noting suggested and actual reforms put into place over FDA regulation, one often neglects to ask whether the FDA should be in a position to implement national standards of regulation in the first place. The following paragraphs include an argument

---

<sup>51</sup> Pharmaceutical Executive Board Interview, interview by Emily El Sanadi, November 27, 2016, transcript.

that the FDA should not be the creator and enforcer of national standards concerning the pharmaceutical industry. Regulation of the pharmaceutical industry can occur both safely and effectively within the auspices of free market competition.

### **The Rule of Competition**

Economists at the National Bureau of Economic Research highlight in one of their articles a great tension within the FDA, a tradeoff that must be resolved, which “involves balancing two goals – fulfilling its [FDA] mission set by Congress to assure the safety and efficacy of drugs, while at the same time advancing the public health.”<sup>52</sup> One may be tempted to accept the existence of this tradeoff without considering the notion that the FDA need not be embraced as the sole guardian of the pharmaceutical industry and public welfare. There is a second force outside of the auspices of the government that is capable of providing regulation for the pharmaceutical industry; that is, the force of competition.

True free-market competition is preferable to the unnatural regulation of the pharmaceutical industry provided by a governmental department such as the FDA. The economist Milton Friedman states that “The great danger to the consumer is the monopoly -- whether private or governmental. His most effective protection is free competition at home and free trade throughout the world.”<sup>53</sup> Friedman’s statement on

---

<sup>52</sup> Tomas Philipson, et al., “Assessing the Safety and Efficacy of the FDA: The Case of the Prescription Drug User Fee Acts,” *National Bureau of Economic Research*, working paper no. 11724 (2005), 3, <http://www.nber.org/papers/w11724.pdf>.

<sup>53</sup> Milton Friedman and Rose Friedman, *Free to Choose: A Personal Statement* (New York: Harcourt Brace Jovanovich, Inc), 1979, 226.

competition is backed by sound praxeology and applies directly to the issue of overregulation in the pharmaceutical industry as explained below.

In a free market stripped of regulatory measures that hamper effective entrepreneurial decision making, firms compete for the goal of profit, and profit is made by pleasing the consumer. The economist Ludwig von Mises states that in the free market, “The consumer is king—the real boss—and the manufacturer is done for if he does not outstrip his competitors in best serving the consumers.”<sup>54</sup> Ultimately, surrendering regulation of the pharmaceutical industry over to the free market would be a simple return to the way things were in the U.S. prior to the passage of major pieces of legislation outlined in the above paragraphs.

### **The Competency of the Free Market**

The following paragraphs provide two examples of the competency of the free market to regulate the pharmaceutical industry independent of governmental departments: first, the development of the modern day clinical trial process; second, the reaction of Johnson & Johnson to the 1982 Tylenol crisis.

The clinical trial process and drug regulation before the FDA had primacy of power in the pharmaceutical industry was conducted largely in the private sector.<sup>55</sup> Before FDA guidance became the sole gateway to the pharmaceutical market, individual

---

<sup>54</sup> Ludwig von Mises, *Liberty & Property* (Auburn, Alabama: Ludwig von Mises Institute), 2009, 20.

<sup>55</sup> Information in this paragraph is summarized from the following source:

Suzanne Junod, “FDA and Clinical Drug Trials: A Short History,” *U.S. Food and Drug Administration*, last modified April, 11, 2016, <http://www.fda.gov/AboutFDA/WhatWeDo/History/Overviews/ucm304485.htm>.

groups, such as the American Medical Association, conducted private tests on the safety and efficacy of drugs. The AMA offered services of testing drugs in the pharmaceutical industry for a fee. If the drug passed through private AMA approval, it could be marketed in the Journal of the American Medical Association.

The framework of the modern clinical trial process was created through the work of A. Bradford Hill who developed a treatment for tuberculosis in the 1940s.<sup>56</sup> Hill worked with American scientists to design a more uniform testing process for drugs.<sup>57</sup> The resultant widely accepted clinical trial process that came from this nascent development of testing included the: “randomized, double-blinded, placebo controlled experiment which became the standard by which most other experimental methods were judged.”<sup>58</sup> The development of the clinical trial process outside of the auspices of federal regulation provides evidence that the free market is competent to not only serve the consumer but also protect him.

Pharmaceutical companies have every incentive to protect the consumer in a free market as a means of attaining profit. An example of this truth is found in the response of the pharmaceutical firm Johnson & Johnson to the 1982 Chicago Tylenol poisoning.<sup>59</sup> In

---

<sup>56</sup> Suzanne Junod, “FDA and Clinical Drug Trials: A Short History,” *U.S. Food and Drug Administration*, last modified April, 11, 2016, <http://www.fda.gov/AboutFDA/WhatWeDo/History/Overviews/ucm304485.htm>.

<sup>57</sup> Ibid.

<sup>58</sup> Ibid.

<sup>59</sup> Information in this paragraph pertaining to the details of the 1982 Tylenol Case is summarized from the following source:

N.R. Kleinfeld, “Tylenol’s Rapid Comeback,” *The New York Times*, September 17, 1983, <http://www.nytimes.com/1983/09/17/business/tylenol-s-rapid-comeback.html>.

1982, Tylenol bottles in Chicago drug stores were tampered with and laced with cyanide. Several individuals died as a result of consuming the Tylenol. The reaction on the part of Johnson & Johnson (J&J) to their product being unsafe due to external factors was swift and effective. J&J leadership issued a national recall of the drug and redoubled efforts to ensure the safety of their drugs. J&J implemented their own tamper-evident drug packaging. The company rebounded from the crisis, suffering little loss of business. While the Tylenol crisis was not the result of negligence on the part of J&J, the actions of the firm after the crisis are demonstrative of basic economic principles at work. Firms desire profit, and profit is made by pleasing the consumer; by default, serving the consumer means ensuring their safety and continued loyalty in using the marketed product. As the J&J case exemplifies, pharmaceutical companies have every incentive to serve and protect the public interest outside of the force of government regulation.

### **Conclusion**

The inherent structure of any governmental regulatory agency discourages the act of serving the consumer because there is no market price structure driving the agency to earn profit. Employees of a federal agency will receive their income regardless of whether or not they serve the consumer well. This principle holds true for an analysis of FDA regulation. Not only does an absence of market accountability implicate less incentive on the part of the FDA to serve the consumer, but the FDA as a centralized agency has no means of administering policies that are beneficial to the individual medical needs of the public. Ludwig von Mises writes on this issue in his work *Bureaucracy*, where he states:

*All specialists, whether businessmen or professional people, are fully aware of their dependence on the consumers' directives. Daily experience teaches them that, under*

*capitalism, their main task is to serve the consumers. Those specialists who lack an understanding of the fundamental social problems resent very deeply this "servitude" and want to be freed. The revolt of narrow-minded experts is one of the powerful forces pushing toward general bureaucratization.*<sup>60</sup>

The regulatory efforts in the FDA are no doubt well-intentioned, but they harm the effective operation of the pharmaceutical industry and the well-being of the public. Similarly, internal efforts to reform FDA regulation and expedite the drug approval process, such as the PDUFA, have failed to provide a sustainable solution to removing FDA regulatory inefficiency. Instead of assuming the necessity of the FDA as a regulatory body over the pharmaceutical industry, legislators should consider opening up the market of regulation for private firms and the self-governing capacity of pharmaceutical companies. By doing so, pharmaceutical firms may better produce safe and effective drugs that serve the needs of the consumer.

---

<sup>60</sup> Ludwig von Mises, *Bureaucracy* (New Haven: Yale University Press), 1944, 89.

### Bibliography

- Abbott, Alden. "FDA Reform: A Prescription for More and Better Drugs and Medical Devices." *The Heritage Foundation*. <http://www.heritage.org/research/reports/2016/06/fda-reform-a-prescription-for-more-and-better-drugs-and-medical-devices>.
- DiMasi, Joseph, Christopher-Paul Milne, and Alex Tabarrok. "An FDA Report Card: Wide Variance in Performance Found Among Agency's Drug Review Divisions." *The Manhattan Institute*, no. 7 (2014).
- DiMasi, Joseph, Henry Grabowski, and Ronald Hansen. "Briefing, Costs of Developing a New Drug: Innovation in the Pharmaceutical Industry: New Estimates of R&D Costs." November 18, 2014. *Tufts Center for the Study of Drug Development*. [http://csdd.tufts.edu/files/uploads/Tufts\\_CSDD\\_briefing\\_on\\_RD\\_cost\\_study\\_-\\_Nov\\_18,\\_2014..pdf](http://csdd.tufts.edu/files/uploads/Tufts_CSDD_briefing_on_RD_cost_study_-_Nov_18,_2014..pdf).
- FDA. "Frequently Asked Questions about the FDA Drug Approval Process." <http://www.fda.gov/Drugs/ResourcesForYou/SpecialFeatures/ucm279676.htm>.
- Federal Register. "Prescription Drug User Fee Rates for Fiscal Year 2016." *U.S. Food and Drug Administration*. August 3, 2015, <https://www.federalregister.gov/documents/2015/08/03/2015-18914/prescription-drug-user-fee-rates-for-fiscal-year-2016>.
- Friedman, Milton and Rose Friedman. *Free to Choose: A Personal Statement*. New York: Harcourt Brace Jovanovich, Inc. 1979.
- Hazlitt, Henry. *Economics in One Lesson*. New York: Harper & Brothers. 1946.
- Higgs, Robert. "Banning a Risky Product Cannot Improve Any Consumer's Welfare (Properly Understood), with Applications to FDA Testing Requirements." *The Review of Austrian Economics* 7, no. 2 (1994): 3-20.
- Higgs, Robert. "Should the Government Kill People to Protect their Health." *Foundation for Economic Education*. January 01, 1994. <https://fee.org/articles/should-the-government-kill-people-to-protect-their-health/>.
- Jordan, James. *Innovation, Commercialization, and Start-Ups in Life Sciences*. Boca Raton, FL: CRC Press. 2015.
- Junod, Suzanne. "FDA and Clinical Drug Trials: A Short History." *U.S. Food and Drug Administration*. Last modified April, 11, 2016. <http://www.fda.gov/AboutFDA/WhatWeDo/History/Overviews/ucm304485.htm>.
- Klein, Daniel and Alexander Tabarrok. "History of Federal Regulation: 1902–Present." *Independent Institute*. [http://www.fdareview.org/01\\_history.php](http://www.fdareview.org/01_history.php).

- Kleinfield, N.R. "Tylenol's Rapid Comeback." *The New York Times*. September 17, 1983. <http://www.nytimes.com/1983/09/17/business/tylenol-s-rapid-comeback.html>.
- Kronquist, Amanda. "The Prescription Drug User Fee Act: History and Reauthorization Issues for 2012." *The Heritage Foundation*. December 21, 2011. [http://www.heritage.org/research/reports/2011/12/the-prescription-drug-user-fee-act-history-and-reauthorization-issues-for-2012#\\_ftnref7](http://www.heritage.org/research/reports/2011/12/the-prescription-drug-user-fee-act-history-and-reauthorization-issues-for-2012#_ftnref7).
- Mises, Ludwig von. *Bureaucracy*. New Haven: Yale University Press. 1944.
- Mises, Ludwig von. *Liberty & Property*. Auburn, Alabama: Ludwig von Mises Institute. 2009.
- Pharmaceutical Executive Board Interview. Interview by Emily El Sanadi. November 27, 2016. Transcript.
- Philipson, Thomas, et al. "Assessing the Safety and Efficacy of the FDA: The Case of the Prescription Drug User Fee Acts." *National Bureau of Economic Research*. Working paper no. 11724 (2005). <http://www.nber.org/papers/w11724.pdf>.
- PhRMA. "2016 Profile: Biopharmaceutical Research Industry." <http://pharmacdn.connectionsmedia.com/sites/default/files/pdf/biopharmaceutical-industry-profile.pdf>.
- Scannell, Jack, et al. "Diagnosing the Decline in Pharmaceutical R&D Efficiency." *Nature Reviews: Drug Discovery* 11, (2012): 191-200.
- Tyler, Ralph. "The Goals of FDA Regulation and the Challenges of Meeting Them." *Health Matrix: The Journal of Law-Medicine* 22, no. 2 (2013): 423-431.
- U.S. Food and Drug Administration, "FY 2015 PDUFA Financial Report," 2015, <http://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Reports/UserFeeReports/FinancialReports/PDUFA/UCM499021.pdf>.
- U.S. Food and Drug Administration. "Background: Prescription Drug User Fee Financial Report." <http://www.fda.gov/downloads/AboutFDA/ReportsManualsForms/Reports/UserFeeReports/FinancialReports/PDUFA/UCM499026.pdf>.
- U.S. Food and Drug Administration. "What We Do: FDA Mission." Last modified October 24, 2016. <http://www.fda.gov/AboutFDA/WhatWeDo/>.
- United States General Accounting Office. "Effect of User Fees on Drug Approval Times, Withdrawals, and Other Agency Activities." September 2002. <http://www.gao.gov/assets/240/235592.pdf>.

Wardell, William. "More Regulation or Better Therapies?" *American Enterprise Institute: Journal on Government and Society*. September/October 1979.  
<https://object.cato.org/sites/cato.org/files/serials/files/regulation/1979/9/v3n5-5.pdf>.