

MANDATORY LABELING OF BIOENGINEERED FOODS

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I. INTRODUCTION

Under 7 U.S.C. § 1639b, food products containing bioengineered organisms must be clearly identified as such on their labeling or packaging. The statute, alternatively titled the Establishment of National Bioengineered Food Disclosure Standard (“NBFDS”), was made effective on July 29, 2016. Notably, it will not be enforced until July 29, 2018. NBFDS was a product of compromise after a similar piece of mandatory labeling legislation, the Deny Americans the Right to Know (“DARK”) Act (i.e., H.R. 1599),¹ had already failed in the Senate.

The compromise weakened the labeling requirements provided in NBFDS. First, Congress permitted labeling exemptions for food products containing less than a certain percentage of bioengineered parts.² Strikingly, Congress neglected to define the threshold percentage necessary to qualify for the exemption. Second, animals that consume bioengineered substances are not themselves considered bioengineered food or organisms.³ Third, manufacturers are permitted to disclose the required information by “text, symbol, or electronic or digital link,”⁴ which even includes the use of QR codes (a machine-readable code consisting of an array of black and white squares, typically used for storing URLs or other information for reading by the camera on a smartphone).⁵ However, the effectiveness of

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¹ Anna Roth, *5 Things to Know About the DARK Act*, CIVIL EATS (Sept. 20, 2015), <http://civileats.com/2015/07/20/5-things-to-know-about-the-dark-act/> [https://perma.cc/F3KM-57GY].

² 7 U.S.C. § 1639b(b)(2)(B) (2016).

³ § 1639b(b)(2)(A).

⁴ § 1639b(b)(2)(D).

⁵ Dan Charles, *Congress Just Passed a GMO Labeling Bill. Nobody's Super Happy About It*, NPR (July 14, 2016, 5:34 PM),

electronic disclosures are unknown and will require further study by the United States Department of Agriculture (“USDA”) which was to begin no later than July 29, 2017.⁶ The factors that are to be focused on when performing the study are:

The availability of wireless Internet or cellular networks, the availability of landline telephones in stores, challenges facing small retailers and rural retailers, the efforts that retailers and other entities have taken to address potential technology and infrastructure challenges, and the costs and benefits of installing in retail stores electronic or digital link scanners or other evolving technology that provide bioengineering disclosure information.⁷

“If the [USDA] determines . . . that consumers while shopping, would not have sufficient access to the bioengineering disclosure through electronic or digital disclosure methods, the Secretary, after consultation with food retailers and manufacturers, shall provide additional and comparable options to access the bioengineering disclosure.”⁸

This Note contends that NBFDS should be repealed or not enacted after review by the USDA. Part II includes a brief history of the issues presented in this Note. After which, Part III argues that the statute’s express preemption clause does not have a discernable intent from Congress and consequently will have no effect on states that wish to legislate on bioengineered foods. Part III also argues the statute will fail if the USDA does not conduct the study as prescribed by Congress. Part IV argues that even if the USDA conducts the study, it will still fail as a cost-benefit analysis will show that the costs incurred will outweigh benefits in the form of increased food prices to consumer, and other various factors. Part V will look at individuals who reside in the U.S. and either are or are on the brink of food insecurity, and the

<http://www.npr.org/sections/thesalt/2016/07/14/486060866/congress-just-passed-a-gmo-labeling-bill-nobodys-super-happy-about-it> [<https://perma.cc/HK4Z-PXCU>].

⁶ 7 U.S.C. § 1639b(c)(1).

⁷ § 1639b(c)(3)(A)–(E).

⁸ § 1639b(c)(4).

possible effects on those individuals if this legislation is implemented.

II. BRIEF HISTORY

With Congress' narrower definition of bioengineered foods, NBDFS rejects "brute force" DNA replications and focuses only on rDNA foods, which cannot be found naturally. To further clarify, "rDNA techniques allow scientists to introduce genetic traits from one species to another, a crossover that is impossible through conventional breeding techniques."⁹

Congress has defined a bioengineered food as that which is fit "for human consumption . . . [but] contains genetic material that has been modified through in vitro recombinant deoxyribonucleic acid ("rDNA") techniques; and for which the modification could not otherwise be obtained through conventional breeding or found in nature."¹⁰ This definition includes terms used interchangeably with bioengineered foods such as genetic engineering, genetic modification, and biotechnology.¹¹ As an alternative to the Congressional definition, many experts provide that genetic modification is "any intentional alteration to the genomes of living organisms, whether [accomplished] with selection pressures over repeated generations, . . . hybridizing two different but related organisms, . . . or by splicing new genes into the organism's genome."¹² This broader definition includes more types of genetic modifications, from producing alcoholic beverages from yeast to producing Penicillin from bacteria.¹³

Regardless of definition, proponents of bioengineered foods often point to their economic and humanitarian benefits while critics warn of their unknown consequences. Proponents argue that bioengineering decreases the time needed to produce beneficial mutations to the selected crops and no longer requires waiting for those mutations to occur naturally—a process which

⁹ Doug Farquhar & Liz Meyer, *State Authority to Regulate Biotechnology Under the Federal Coordinated Framework*, 12 DRAKE J. AGRIC. L. 439, 441 (2007).

¹⁰ § 1639.

¹¹ HENRY I. MILLER & GREGORY CONKO, *THE FRANKENFOOD MYTH: HOW PROTEST AND POLITICS THREATEN THE BIOTECH REVOLUTION* 3 (2004).

¹² *Id.*

¹³ *Id.*

could span millennia. Thus, both desired results and benefits are realized more quickly.¹⁴ Such benefits include “increased production of agriculture, forestry, and fisheries in a world rapidly depleted of its resources and where many people starve to death.”¹⁵ Moreover, “[t]his technology can develop strains of crops that produce higher yields on marginal lands, allowing countries to increase food production and crops to survive extreme weather such as prolonged droughts.”¹⁶ Currently, up to 15 percent of corn, globally known as maize, is lost per year to drought.¹⁷ However, this can be combated by modifying genes within the crop which “can increase the plants’ abiotic stress tolerance, or rather, increase the plants’ ability to prevent water loss to the environment.”¹⁸ Further, a meta-analysis comparing results from 147 different sources found that “[genetic modification] technology adoption has reduced chemical pesticide use by 37 percent, increased crop yields by 22 percent, and increased farmer profits by 68 percent.”¹⁹

Alternatively, arguments advanced by critics of bioengineered foods are typically concerned with how they may negatively contribute to reduced human health, cross-contamination, and environmental degradation.²⁰ “In particular, transgenic contamination threatens the preservation and longevity of local conventional crops, organic crops, and wild populations.”²¹ “Additionally, many [genetically engineered] crops are designed to tolerate herbicides, which contributes to the development of ‘superweeds’ as well as increased levels of toxins

¹⁴ *Id.* at 442.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ *Genetically Modifies Crops*, MASS. INST. TECH., <http://12.000.scripts.mit.edu/mission2017/genetically-modified-crops/> (last visited Dec. 31, 2016) [<https://perma.cc/8M32-R9BD>].

¹⁸ *Id.*

¹⁹ Wilhelm Klumper & Matin Qaim, *A Meta-Analysis of the Impacts of Genetically Modified Crops*, PLOS (Nov. 3, 2014), <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0111629#s5> [<https://perma.cc/7EGA-DBB4>].

²⁰ Laura Murphy et al., *Seeking Pure Fields: The Case Against Federal Preemption of State Bans on Genetically Engineered Crops*, 49 U.S.F. L. REV. 503, 504 (2015).

²¹ *Id.*

in the environment that threaten human health and wildlife.”²² There is the additional fear that cross-pollination from genetically engineered plants with other plants will introduce genes into the human food chain that regulators have not approved for human consumption.²³

III. EXPRESS PREEMPTION

The federal preemption doctrine originates from the Supremacy Clause of the U.S. Constitution.²⁴ The doctrine “states that federal laws ‘shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any state to the Contrary notwithstanding.’”²⁵ Federal regulations may preempt state law.²⁶ Accordingly, courts are required to invalidate challenged state laws to the extent they conflict with federal laws and regulations.²⁷ There are three ways courts exercise federal preemption: express, field, and conflict preemption.²⁸

“Express preemption occurs when Congress explicitly states, in the statute’s language, the limits of state laws in the regulated field.”²⁹ When analyzing preemption issues, the U.S. Supreme Court assumes that historic state powers are not to be superseded by Federal law unless there is a clear and manifest purpose of Congress to do so.³⁰ The legislative history behind the NBFDS does not show a clear and manifest purpose of Congress. It can best be told by the speech given by the Hon. Chris Van Hollen, of Maryland, who rose reluctantly in opposition to the bill:

[M]ost scientists agree that GMO seeds and foods are safe for consumption. At the same time, a majority of Americans have consistently stated that

²² *Id.* at 505.

²³ *Id.* at 443.

²⁴ Bruce Friedrich, *Meat Labeling Through The Looking Glass*, 20 ANIMAL L. 79, 83 (2013).

²⁵ *Id.* at 83-84; U.S. CONST. art. VI, cl. 2.

²⁶ Murphy et al., *supra* note 23, at 508.

²⁷ Friedrich, *supra* note 28, at 84.

²⁸ *Id.*

²⁹ Farquhar & Meyer, *supra* note 16, at 444.

³⁰ Cipollone v. Liggett Group, Inc., 505 U.S. 504, 516 (1992).

they want to know if their food contains GMOs. Supporters of more comprehensive food labeling have argued that this bill contains large loopholes that would keep many consumers in the dark. *Unfortunately, not a single hearing was held on this bill to listen to the competing perspectives and recommendations. I am also disappointed that on such a controversial and important subject, members were not given the opportunity to offer any amendments.*

I am concerned that a hastily written and passed federal bill will now preempt state laws that seek to provide their consumers with more comprehensive and readily accessible information. While I do not believe that an inconsistent patchwork of individual state regulations is the long term answer, I do believe we could improve on the provisions of this bill (emphasis added).³¹

Subsequently, the Hon. Joseph Crowley voiced his support of the bill while acknowledging its' shortcomings.³² He first argued the bill established a national standard that would preempt the patchwork of similar state and local laws. He then stated that manufacturers would respond by working together to create one uniform method for consumers to access the required disclosures on their labels.³³ However, Mr. Crowley's optimistic presumption fails to provide mention of specific incentives that would persuade competing manufacturers to collaborate.

Eleven days later, the bill became NBFDS.³⁴ Even where "presumption against federal preemption of state law applies, it will be overcome when a congressional purpose to preempt . . . [is] clear and manifest."³⁵ This seems to be satisfied under NBFDS. The statute provides that no state, or political subdivision thereof, may enact or continue to regulate foods in any manner

³¹ 162 CONG. REC. E1151 (daily ed. July 18, 2016).

³² 162 CONG. REC. E1153 (daily ed. July 18, 2016).

³³ *Id.*

³⁴ 7 U.S.C § 1639b (2016).

³⁵ *Fellner v. Tri-Union Seafoods, L.L.C.*, 539 F.3d 237, 243 (3rd Cir. 2008).

which would affect labeling or disclosure of “food [which] is bioengineered or was developed or produced using bioengineering . . . that is subject to the national bioengineered food disclosure standard” unless it is identical to the statute.³⁶ While the language of the statute seems to clearly provide that states laws cannot run contrary to its intent, the argument can be made, based on legislative history, there is no clear and manifest congressional purpose.

Even if the congressional intent prong of express preemption fails, federal regulations enacted by the USDA generally have the force of law.³⁷ However, there are exceptions to this rule. “When Congress has delegated the authority to regulate a particular field to an administrative agency, the agency’s regulations issued pursuant to that authority have no less preemptive effect than federal statutes, assuming those regulations are a valid exercise of the agency’s delegated authority.”³⁸ *Fellner v. Tri-Union Seafoods, L.L.C.* provides a great example of what amounts to “a valid exercise of the agency’s delegated authority.” In *Fellner*, the plaintiff brought a claim within the state for failure to warn of the risks of mercury in tuna.³⁹ This claim was originally dismissed due to the Food & Drug Administration’s (“FDA”) preemption clause.⁴⁰ The appellate court later ruled the claim was not preempted as the FDA’s actions on mercury in tuna were not rigorous enough to be considered law-making, as they had not adopted a regulatory scheme respecting mercury in tuna products of a type that could conflict with, and thus preempt, state law claims.⁴¹ The FDA had merely published advisory warnings, but this was not enough to amount to granting deference to the agency for engaging in “law-making.”⁴² This principle holds true for all administrative

³⁶ 7 U.S.C. § 1639b(e).

³⁷ See, e.g., *Hillsborough Cty. v. Automated Med. Labs., Inc.*, 471 U.S. 707, 713 (1985); *Capital Cities Cable, Inc. v. Crisp*, 467 U.S. 691, 699 (1984) (citations omitted); *New York v. FCC*, 486 U.S. 57, 63 (1988) (“The phrase ‘Laws of the United States’ [in the Supremacy Clause] encompasses both federal statutes themselves and federal regulations that are properly adopted in accordance with statutory authorization.”).

³⁸ *Fellner*, 539 F.3d at 243.

³⁹ *Id.*

⁴⁰ See generally *id.*

⁴¹ *Id.* at 251-52.

⁴² *Id.*

agencies. If the USDA fails to take appropriate actions when creating or implementing the regulations controlling bioengineered labeling, it may not rise to the level of law-making and would not preempt state regulation or state claims.

To rise to level of lawmaking, the USDA must begin their study by July 29, 2017, and has until July 29th, 2018, to enact the mandatory disclosure to those who are affected.⁴³ Should the USDA fail to begin the study within a reasonable time or fail to go through some reasonable process to be considered law-making, then it would likely be found to not meet the fairness and deliberation requirements for their actions to be a binding federal law.⁴⁴

IV. ECONOMIC ANALYSIS OF MANDATORY LABELING FOR BIOENGINEERED FOODS

A. Introduction

The full implementation of NBFDS hinges on the USDA performing a cost-benefit analysis. The statute provides five factors to be considered when performing the study of electronic or digital link disclosure. While only one of those factors explicitly states that there must be a cost-benefit analysis of installing electronic or digital link scanners in retail stores, the other factors are impliedly included in the last factor.⁴⁵ However, Congress has too narrowly defined the mandate of the USDA by only requiring the agency to perform a cost-benefit analysis on the retail side. A “cost-benefit analysis is an analytic procedure which estimates the *net economic value of a given policy* or project. It converts *all costs and benefits* into a monetary metric and then measures whether the benefits outweigh the costs.”⁴⁶ The procedural steps behind a cost-benefit analysis are: (1) to hold all constraints as given and ask if the policy change is for

⁴³ 7 U.S.C. § 1639b(a).

⁴⁴ Friedrich, *supra* note 28, at 102.

⁴⁵ 7 U.S.C § 1639b.

⁴⁶ Tyler Cowen, *Using Cost-Benefit Analysis to Review Regulation* 1 (1998), <https://www.gmu.edu/centers/publicchoice/faculty%20pages/Tyler/Cowen%20on%20cost%20benefit.pdf> [https://perma.cc/H2ZB-3ALX].

the better; (2) to specify all relevant benefits and costs of that policy; (3) to measure the costs and benefits in monetary terms; and (4) to net the costs against the benefits.⁴⁷ It is impossible to contain a cost-benefit analysis to one section of the supply chain, in this case the retailers, as there are causal effects that ripple out to all participants when considering food, which is such a basic resource of life. To contain the analysis to only retailers is naive, if not impossible.

B. Economic Analysis

The use of economic analysis as a method to create and interpret law by judges has been a controversial issue since Richard Posner first published his book *Economic Analysis in Law* in 1972.⁴⁸ According to Posner, the use of economics in the courtroom allows the science of rational choice in a world where resources are limited in comparison to what people want.⁴⁹ Posner states that the three fundamental principles of economics are: “the inverse relation between price charged and quantity demanded; the presumption that all consumers and sellers try to maximize utility; and that resources tend to gravitate toward their most valuable uses in a free market.”⁵⁰

There are two main approaches in applying economic analysis to the law. The first is the positive approach, which is objective and fact based.⁵¹ Additionally, a positive science is not content with trying to state the facts as they are, but one that uses and relies on accepted scientific methods that are repeatable, consistent, and can be tested in the negative.⁵² The second is the normative approach, which is subjective and value

⁴⁷ *Id.*

⁴⁸ Larry Chubb, *Economic Analysis in the Courts: Limits and Constraints*, 64 IND. L.J. 769, 769 (1989) (emphasis added).

⁴⁹ *Id.* at 771.

⁵⁰ *Id.*

⁵¹ Amy Fontinelle, *What is the Difference Between Positive and Normative Economics?*, INVESTOPEDIA (Oct. 20, 2016), <http://www.investopedia.com/ask/answers/12/difference-between-positive-normative-economics.asp> [https://perma.cc/YT3V-2STT].

⁵² See Fred S. McChesney, *Positive Economics and all That—A Review of the Economic Structure of Corporate Law by Frank H. Easterbrook & Daniel R. Rischel*, 61 GEO. L. REV. 272 (1992).

based.⁵³ Like positive economic analysis, normative economic analysis must be internally consistent and use accepted economic principles.⁵⁴ However, normative economics are disfavored because the requirements to prove a normative model are too lax.⁵⁵ Internal consistency and adherence to accepted economic principles do not impose many burdens, and are almost unassailable, as the proponent can make any assumptions they need to fit their cause.⁵⁶ The drawback to a positive analysis are the amount of resources required to complete a study and the difficulty sometimes associated with placing a dollar value on costs and benefits.⁵⁷

i. Varying methodologies in positive economic analysis

Three of common positive economic approaches used when analyzing repercussions from policy changes are the: cost accounting approach, equilibrium displacement model, and computable general equilibrium model. The simplest cost-benefit analysis would be an economic cost accounting approach. This approach simply sums the anticipated costs on the proposed changes over a baseline level of production and consumption.⁵⁸ Though it may be appropriate for initial costs, the accounting approach is disfavored as a primary model because it does not consider how prices or quantities may react to those increased costs.⁵⁹ There are two alternative methods for performing an economic analysis that are more comprehensive, and therefore preferable.

The first alternative is the equilibrium displacement model (“EDM”). EDMs are basically “logarithmic equations characterizing comparative statistics of a system of equations

⁵³ Fontinelle, *supra* note 54.

⁵⁴ McChesney, *supra* note 55.

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ Richard Whisnatt & Diane Dewitt Cherry, *Economic Analysis or Rules: Devolution, Evolution, and Realism*, 31 WAKE FOREST L. REV. 693, 726 (1996).

⁵⁸ *Economic Analysis of Country of Origin of Labeling*, U.S. DEP’T AGRIC. 4 (Apr. 2015), https://www.usda.gov/oce/economics/reports/COOL_ReportToCongress.pdf [<https://perma.cc/9J8H-F3EB>].

⁵⁹ *Id.*

describing movement from one equilibrium to another resulting from a change in one or more of the parameters of the equation system.”⁶⁰ More simply put, EDMs attempt to predict the cumulative effect of a change in a set of parameters, in this case a labeling policy change, but is not confined to a simplistic linear projection. The simplest example of an EDM is a derivation function when one is trying to solve where equilibrium demand equals equilibrium supply.⁶¹ This basic EDM takes it a step further than simply trying to solve where the equilibrium price would be given a static supply and demand, and tries to describe equilibrium displacement for a single good in a market by focusing on the relative change of multiple variables, such as changes in demand, supply, market equilibrium price, or the price elasticity of supply or demand.⁶² To fully understand how this model is used, EDMs in vertical industries must be observed.

Many products supplied in the agricultural industry are homogeneous in nature, and the supply chain for these products has been consolidated greatly over the past 100 years—creating a vertical industry—to realize greater farm-to-table margins at each step of the supply process.⁶³ “A vertical [industry] is a group of companies that serve each other’s specialized needs and that do not serve a broader market.”⁶⁴ The first example of how EDMs apply to vertical industries relates to a study focused on an “analysis of the retail-farm price ratio,” with a prediction on the effects of increased or decreased consumer demand, increased or decreased farmer supply, and the effects of supply side marketing on the retail-farm price ratio.⁶⁵ The results revealed that in a

⁶⁰ JAYSON L. LUSK & JUTTA ROOSEN, *THE OXFORD HANDBOOK OF THE ECONOMICS OF FOOD CONSUMPTION AND POLICY* 292-93 (2011), https://books.google.com/books?id=TQ4oAAAAQBAJ&pg=PA305&lpg=PA305&dq=define+muth+EDM+in+vertical+industries&source=bl&ots=RfeonOma79&sig=N0VEoFG6berp5eQJNn02As0fLsU&hl=en&sa=X&ved=0ahUKEwinjc6d17_RAhUiJsAKHVrTDBwQ6AEIH DAA#v=onepage&q&f=false [https://perma.cc/W6G8-HZYJ].

⁶¹ *Id.* at 295.

⁶² *Id.*

⁶³ See generally Robert J. Myers et al., *A Century of Research on Agricultural Markets*, 92 AM. J. AGRIC. ECON. 376 (2010).

⁶⁴ *Vertical Market*, Investopedia, <http://www.investopedia.com/terms/v/verticalmarket.asp> (last visited Sep. 2, 2017).

⁶⁵ LUSK & ROOSEN, *supra* note 63, at 305-06.

vertical industry such as agriculture, vegetables carry a price elasticity of demand of .54.⁶⁶

Price elasticity of demand is the “measure of the relationship between a change in the quantity demanded of a particular good and a change in its price.”⁶⁷ The range for price elasticity of demand can range from zero to boundless. When the price elasticity of demand for a good is zero, then regardless of what the price change is, the demand for the good stays constant.⁶⁸ If the price elasticity of demand is 1, then the good is called “unit elastic”, which means that the percent change of demand equals the percent change in price.⁶⁹ If the price elasticity of demand is a value greater than 1, then demand is affected downward to a much larger degree than the percent change in the price of the good.⁷⁰ This has been a relatively stable ratio throughout the years, with recent data showing a price elasticity of demand for vegetables at .58.⁷¹ We will explore this concept further when comparing the Country of Origin Labeling (“COOL”) Act to the mandatory bioengineered food labeling act this note covers. This was the preferred methodology performed by the USDA when analyzing a similar issue under the COOL Act.⁷²

An alternative analysis could be performed using a computable general equilibrium (“CGE”) modeling approach. This model is similar to EDM, as it allows “prices and quantities for affected sectors . . . to adjust to higher costs of production.”⁷³ The CGE model follows the basic principles of economics which, assuming all other variables are constant, states that demand

⁶⁶ *Id.* at 307.

⁶⁷ *Price Elasticity of Demand*, INVESTOPEDIA, <http://www.investopedia.com/terms/p/priceelasticity.asp> (last visited Jan. 13, 2017) [<https://perma.cc/S7BM-3PZY>].

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ See Tatiana Andreyeva et al., *The Impact of Food Prices on Consumption: A Systematic Review of the Research on the Price Elasticity of Demand for Food*, 100 AM. J. PUB. HEALTH 216 (Feb. 2010), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2804646/> [<https://perma.cc/WH8F-UA3A>].

⁷² U.S. DEPT AGRIC., *supra* note 61, at 3-4.

⁷³ *Id.*

decreases as prices increase.⁷⁴ Unlike an EDM, CGE models allow other sectors in the economy, as a whole, to respond to changes in other areas of the economy.⁷⁵ One example of this is the thought that retailers who incur higher labor costs from increased labeling requirements would therefore pay higher wages to their employees, who would then spend their increased wages on other goods or services in the economy.⁷⁶ Essentially, “the CGE approach provides estimates for a longer run time frame to a new regulation such as COOL. Those economic impacts would typically be smaller than those developed from partial equilibrium approach (PE) such as the EDM models, which consider a fraction of the economy.”⁷⁷

While it would generally seem preferable to calculate a CGE instead of an EDM, that is not the case here. A CGE is a great tool for looking at impacts on other sectors of the economy when there is a “shock” to the affected market.⁷⁸ CGE models are also great at tracking the impacts of changes in consumer income and provide the flexibility needed to handle sweeping policy issues, such as a mandatory labeling law.⁷⁹ However, the analysis and data collecting required to compute a CGE are time and resource consuming. Conversely, an EDM requires fewer resources because it does not analyze the entire economy but focuses on the specific market at hand. Findings show that when using both models to study a food supply chain, there is little to no statistical significance between the results calculated.⁸⁰ If the comparative empirical results of an EDM are similar to those of a CGE model, then it would maximize efficiency by choosing the

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.*

⁷⁷ *Id.*

⁷⁸ Dhazn Gillig & Bruce A. McCarl, *Introduction to Computable General Equilibrium Model*, DEPT AGRIC. ECON. TEX. A&M UNIV., <http://agecon2.tamu.edu/people/faculty/mccarl-bruce/685/topic1-introce.pdf> (last visited Jan. 13, 2017) [<https://perma.cc/KM6G-GH4M>].

⁷⁹ *Id.*

⁸⁰ See generally Sherman Robinson et al., *Comparing CGE and PE Supply-Side Specifications in Models of the Global Food System* (2013), <https://www.gtap.agecon.purdue.edu/resources/download/6530.pdf> (last visited Jan. 13, 2017) [<https://perma.cc/33CB-P6CC>].

model that requires the least amount of resources. Consequently, here, an EDM should be applied.

ii. Country of Origin Labeling (COOL) as a comparative framework

BRIEF HISTORY

The U.S. published its COOL rule on January 15, 2009, which became effective on March 16, 2009.⁸¹ “COOL is a labeling requirement that applies to retailers and their immediate suppliers.”⁸² The legislation further required retailers to inform consumers of where certain products originated.⁸³ While the USDA study mainly focused on beef, pork, and chicken markets, other products, such as nuts and perishable agricultural commodities, are also subject to the COOL Act.⁸⁴

The underlying basis for enacting the mandatory COOL Act seems to be protectionist; a desire to give domestic laborers, such as farmers and other similarly situated agricultural entrepreneurs a competitive advantage.⁸⁵ Similarly, NBFDS seems to exist for the “protection” of the nation’s health, giving a competitive advantage to farmers and retailers who opt to not grow or use bioengineered foods.

COMPARING COOL & NBFDS

Given the similar nature of implementation and methodology, both acts will have similar economic repercussions on the economy. COOL and NBFDS share several similarities: both require retailers to label certain commodities sold to

⁸¹ U.S. DEP’T AGRIC., *supra* note 61, at 1.

⁸² *Id.* at 8.

⁸³ *Id.*

⁸⁴ See generally U.S. DEP’T AGRIC., *supra* note 61 (referring to the “Economic Analysis of Country of Origin Labeling”) [hereinafter Economic Analysis].

⁸⁵ See generally Peter Chang, *Country of Origin Labeling: History and Public Choice Theory*, 64 FOOD DRUG L.J. 693 (2009).

consumers while allowing exemptions to “establishments such as restaurants, cafeterias, lunchrooms, food stands, bars, taverns, lounges, and delicatessens”;⁸⁶ and both laws were enacted as protection measures, albeit from slightly different problems. That is, COOL was enacted in an effort to protect the local economy while NBFDS was enacted in the effort to protect Americans health.

However, the main difference between the two are the permitted labeling methods. The COOL Act requires labeling to be accurate and specific while holding the retailer responsible for providing the country of origin information to consumers.⁸⁷ It also allows an exhaustive list of acceptable labels, including: labels, placards, stamps, stickers, twist ties, bands, signs, and pin tags.⁸⁸ As previously covered, NBFDS allows retailers to disclose information by “text, symbol, or *electronic or digital link*.”⁸⁹ While the COOL Act requires labeling with clear and prominent disclosures, NBFDS allows manufacturers to “hide” information about their product containing bioengineered food behind inconspicuous QR codes. However, while the method of labeling differs, it is important to note that both laws require a physical label which will increase costs for the entire supply chain: farmers, producers, and consumers.

ECONOMIC IMPACT: LEARNING FROM COOL

A congressional report, on the implementation of COOL, found that costs would increase throughout the supply chain for commodities covered by the statute. “To enable retailers to provide verifiable COOL information to their customers, information must flow down the entire production and marketing chain from farmers and ranchers to packers and processors to wholesalers and retailers.”⁹⁰ While the wording of COOL does not suggest that its impact would be felt beyond retailers and their

⁸⁶ *Country of Origin Labeling: Just the Facts*, AVERY DENNISON 1 (Jan. 2009), https://www.foodprocessing.com/assets/wp_downloads/pdf/Avery_whitepaper.pdf [<https://perma.cc/4PMX-8GD5>].

⁸⁷ *Id.* at 3.

⁸⁸ *Id.*

⁸⁹ 7 U.S.C. § 1639b(b)(2)(D) (2016).

⁹⁰ U.S. DEPT AGRIC., *supra* note 61, at 8.

direct suppliers, the congressional report recognized that the shock to the market would reach farmers and consumers as well.⁹¹ This is directly comparable to NBFDS, where the cost-benefit analysis states on its face that it should only look at the impact to retailers. This is untenable. The costs cannot be fully absorbed by the producer, and should tell us that at least some of these costs will be borne by subsequent links in the supply chain or market. Specifically, the study states:

The out-of-pocket costs that each entity in the supply chain must incur to implement COOL paint only part of the picture in terms of costs to the industry. Because of the interaction of supply and demand relationships at different levels in the supply chain, some of the marginal costs incurred by an individual producer, packer, or retailer may be passed up and down in the form of higher and lower prices. . .

An EDM is most likely the preferred cost-benefit analysis method. The EDM analysis in the COOL congressional report found that, absent an increase in consumer demand, industry compliance would lead to increased production, processing, and marketing costs, resulting in economic losses to producers, packers, retailers, and consumers.⁹² Consequently, these conditions would shrink the overall industry, as fewer products would be available at higher prices.⁹³ These consequences of the COOL Act would similar occur with the enforcement of NBFDS model that is strikingly similar to the COOL Act.

First, the price increases that producers would have to impose under NBFDS would not offset the loss in quantity demanded. As projected under the COOL report, two out of the three studied industries would lose roughly \$897 million over a 10-year timespan on the supply side, with retailers absorbing

⁹¹ See generally *id.*

⁹² *Id.* at 9.

⁹³ *Id.*

roughly 54 percent of the losses incurred.⁹⁴ The total loss to the studied industry was approximately \$832 million.⁹⁵ This is explained by the supply curve shifting left due to the increased costs of production, meaning there were reductions in quantities produced and an increase in the price demanded.⁹⁶ Similarly, Congress has asked the USDA to perform a cost-benefit analysis to retailers to calculate the impact of implementing an almost identical scheme.

With the schemes being so similar the results would likely be the same. Enforcing the COOL Act requires information not only about a product's country of origin, but also that product's subsequent movement. This requires original producers, such as farmers, to keep extensive verified records, which increases administrative costs. Similarly, NBFDS will undoubtedly cause administrative costs to increase due to its' requirement of greater record keeping. However, it is impossible to precisely predict future administrative costs because Congress did not define the percentage of bioengineering necessary for a modified food to qualify as such. If they require disclosure for any presence of bioengineered foods, then costs will be high. Conversely, if they require a label only for foods that are 100 percent bioengineered, then there will be essentially no costs and NBFDS will basically have no impact. Given the similarities between the two laws, it is highly likely we will see losses in the market due to increased supplier costs without a significant increase in consumer demand.

Second, given the rules of economics, if consumers demand disclosure of products containing bioengineered food then markets will voluntarily respond accordingly. It has been argued by opponents of mandatory labeling that labels are unnecessary, costly, and are ignored by consumers. Simultaneously, proponents argue labels help consumers save money, avoid serious risks, and protect third parties.⁹⁷ Proponents of

⁹⁴ *Id.* at 66.

⁹⁵ *Id.*

⁹⁶ *Id.* at 65.

⁹⁷ Cass R. Sunstein, *On Mandatory Labeling, With Special Reference to Genetically Modified Foods*, U. PA. L. REV. 6 (forthcoming 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2824461 [<https://perma.cc/K8Q3-AXCR>].

mandatory labeling further state when there is asymmetric information in which the consumers have less power or information, mandatory labeling might overcome a collective action problem.⁹⁸ However, in many cases, we would expect producers to voluntarily offer information desired by consumer.⁹⁹ According to Cass. R. Sunstein, the most cited legal scholar in recent years,¹⁰⁰ producers will voluntarily label their products as non-bioengineered if such demand exists.

Assume that consumers are willing to pay \$10 for genetically modified salmon and \$20 for salmon if it is not genetically modified. Further assume that genetically modified salmon costs \$5 to produce, whereas non-GM salmon costs \$7 to produce. Finally, assume that, initially, half the salmon on the market is genetically modified and half is not. Without any labeling, the consumer would not know what kind of salmon she is buying and would, therefore, be willing to pay \$15 ($= 0.5 \times \$10 + 0.5 \times \20). This state of (consumer) ignorance benefits the producers of GMO salmon and harms the producers of non-GM salmon. But this state of ignorance is not an equilibrium. The non-GM sellers will voluntarily add a “No GMOs” label, so that they can charge \$20, rather than \$15 per salmon (as long as the cost of adding such a label is less than \$5 per salmon). The GM salmon will not be labeled, *but GM labeling would not be necessary – rational consumers would infer that non-labeled salmon is genetically modified*. As Bar-Gill and Board explain, “An implication of this result is that

⁹⁸ *Id.* at 7.

⁹⁹ See Howard Beales et al., *The Efficient Regulation of Consumer Information*, 24 J.L. & ECON. 491, 502 (1981).

¹⁰⁰ Brian Leiter, *Top Ten Law Faculty (by area) in Scholarly Impact, 2009-2013*, BRIAN LEITER'S L. SCH. RANKINGS (June 11, 2014), http://www.leiterrankings.com/faculty/2014_scholarlyimpact.shtml [https://perma.cc/NQ6R-RDC6].

*mandatory disclosure of product-attribute information is often unnecessary.”*¹⁰¹

Consumers willing to pay premiums for products not containing GMO's incentivize producers to voluntarily engage in that behavior for profit-maximizing reasons. The behavior of local grocers confirms this. The Non-GMO Project has been applying their “butterfly” stamp of approval to products that have been verified to be GMO-free since 2010.¹⁰² The Non-GMO Project has recognized at least 3,022 different brands that are distributed to 2,430 participating retailers, which are easily searchable online, for consumers who are concerned about purchasing foods free of GMOs.¹⁰³ The fact that many producers are voluntarily offering this information, usually at a cost, suggests that there is not a market failure via asymmetrical information. Accordingly, implementing NBFDS would simply increase costs while benefiting very few. Those desiring disclosure of bioengineered foods are already receiving it voluntarily from producers, while those who are indifferent to bioengineered foods are free to buy lower cost products if they please.

Third, we must recall the price elasticity of demand that is currently .58 for vegetables. With an increase of production costs in implementing the new labels, the new additional costs would trickle down the supply chain. This would in turn be reflected in higher retail prices, thus increasing the price elasticity of demand ratio. Recall, “price elasticity of demand is a term in economics often used when discussing price sensitivity.”¹⁰⁴ “When the value of elasticity is greater than 1, it suggests that the demand for the good or service is affected by the price. A value that is less than 1 suggests that the demand is insensitive to price.”¹⁰⁵ While the ratio is currently below one, showing the market is somewhat inelastic, the ratio is moving in the wrong direction. An increase in the price elasticity of demand

¹⁰¹ Sunstein, *supra* note 99, at 8 (emphasis added).

¹⁰² *History*, NON-GMO PROJECT, <http://www.nongmoproject.org/about/history/> (last visited Jan. 16, 2016) [<https://perma.cc/85C8-JGFY>].

¹⁰³ *Verified Products*, NON-GMO PROJECT, <http://www.nongmoproject.org/find-non-gmo/verified-products/> (last visited Jan. 16, 2016) [<https://perma.cc/4SBE-BX2Q>].

¹⁰⁴ *Price Elasticity of Demand*, INVESTOPEDIA, <http://www.investopedia.com/terms/e/elasticity.asp> (last viewed Sep. 4, 2017).

¹⁰⁵ *Id.*

would mean consumers are more willing to switch to other products in response to new higher prices, which would effectively shrink the market.

Recalling the COOL study reported to Congress, it also found that there was a disconnect between consumers words and actions; consumers indicated interest in the COOL information but this additional information did not increase demand for the products.¹⁰⁶ The passing of NBFDS clearly shows that some consumers desire to know if their food contains bioengineered food. However, to be effective, “the label must be clear, concise, and informative.”¹⁰⁷ If the label is misread or misunderstood, the consumer will make uniformed decisions, which may increase search and information costs.¹⁰⁸ In the current structure under NBFDS, manufacturers could require consumers to scan a QR code by smart-phone, or equivalent technology, before they see the actual disclosure. This process inherently hinders consumers in gaining access to clear, concise, or informative statements about foods containing bioengineered parts. The placement of a QR code would actually undermine the intent of the law, making information available consumers who demand it.

Given these increased costs, NBFDS could be valuable if the benefits are large enough to outweigh the costs. The COOL study had conflicting views as to whether Americans valued origin labeling.¹⁰⁹ However, the study did state that consumer preference research indicated consumers may be willing to spend more for domestic than foreign products.¹¹⁰ This was proven false. A 2013 post-evaluation of meat consumption patterns found that even after the implementation of COOL, there was no evidence that demand for the domestic meat products increased. Currently, 66 percent of Americans favor the mandatory labeling of foods while only about 40 percent say the presence of a

¹⁰⁶ U.S. DEP’T AGRIC., *supra* note 61, at 8.

¹⁰⁷ Elise Golan et al., *Economics of Food Labeling, Agricultural Economic Report No. 793*, U.S. DEP’T AGRIC. 17-18 (2000), https://www.ers.usda.gov/webdocs/publications/aer793/18885_aer793.pdf [<https://perma.cc/UMK6-27KK>].

¹⁰⁸ *Id.* at 108.

¹⁰⁹ U.S. DEP’T AGRIC., *supra* note 61, at 33.

¹¹⁰ *Id.*

bioengineered food is important.¹¹¹ This disconnect seems to follow the same pattern recognized in the COOL report; most people claim to care about the presence of bioengineered foods, but do not put their money where their mouth is.

While Congress has called for the USDA to perform a cost-benefit analysis, they did not specifically state the preferred method. The economic cost-accounting approach is too simplistic and only captures the upfront costs while ignoring future repercussions. A CGE model consumes more resources than necessary for significantly similar results to an EDM. Thus, the best approach to perform a cost-benefit analysis is an EDM. An EDM allows one to measure the ripple effects of implementing a proffered change while isolating specific markets and conserving resources. In comparing the COOL Act and NBFDS, it is apparent they have similar goals to be achieved by similar processes. In 2015, The USDA reported an EDM study to Congress which spoke to the effects of implementing COOL in the state of the then economy. It was found that implementation costs would outweigh any subsequent benefits. The study particularly noted the costs that would be added to supply side. Interestingly, while consumers said they would prefer to know where their food products originated, it was found to have no effect at the point of sale, and purchase patterns remained static. Given the similarities of the goals and procedures of the two laws, it seems to support that NBFDS will reach the same conclusions as found in COOL. For these reasons, the NBFDS will likely fail if or when the USDA conducts the required analysis.

V. FOOD INSECURITY: RAMIFICATIONS OF PRICIER FOOD

The USDA defines food insecurity as a lack of access to enough food for an active, healthy life of all members of a household.¹¹² “Food insecurity is a serious public health problem

¹¹¹ *GMO foods: Most Americans want labeling, though don't care about eating genetically modified food, poll finds*, ASSOCIATED PRESS, http://www.oregonlive.com/today/index.ssf/2015/01/gmo_foods_most_americans_want.html (last updated Jan. 13, 2015) [<https://perma.cc/FC5P-FC2Z>].

¹¹² *Hunger Study Finds Food Insecurity Levels Remain Historically High*, KY. DEP'T AGRIC., <https://www.kyagr.com/Kentucky-AGNEWS/2016/Hunger-study-finds-food->

associated with poor cognitive and emotional development in children and with depression and poor health in adults.”¹¹³ “Further, food insecurity has been associated with . . . adolescent suicidal ideation. Even the mildest form of food insecurity is associated with risk of poor cognitive, social, and emotional development of children younger than 3 years.”¹¹⁴ Currently, Kentucky has a food insecurity incidence of roughly 17 percent; slightly higher than the national average of 15 percent.¹¹⁵ Food insecurity is an issue that exists in every county within Kentucky.¹¹⁶ The percentage of people who face food insecurity within in each county ranges from a maximum of 22.8 percent to a minimum of 9 percent.¹¹⁷ Perhaps even more shocking is that children suffer from higher rates of food insecurity in Kentucky, hovering around 22 percent.¹¹⁸ While current Kentucky food insecurity rates are lower than the 2011 average, it is still higher than the pre-Great Recession rates.¹¹⁹

The two major reasons why food insecurity rates have remained high since the Great Recession are due to the effects of higher inflation and higher relative food prices. “Inflation is the rate at which the general level of prices for goods and services is rising and, consequently, the purchasing power of currency is falling.”¹²⁰ NBFDS will have little to no effect on inflation and is consequently not contemplated when analyzing how the implementation of NBFDS may increase food insecurity. Conversely, there is a strong correlative as well as causal connection between the implementation of NBFDS and increased food price and food insecurity.

insecurity-levels-remain-historically-high.html (last visited Jan. 20, 2017) [https://perma.cc/47K4-QQ73].

¹¹³ Mariana Chilton & Donald Rose, *A Rights-Based Approach to Food Insecurity in the United States*, 99 AM. J. PUB. HEALTH 1203 (2007), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2696644/> [https://perma.cc/PY4Q-YLP8].

¹¹⁴ *Id.*

¹¹⁵ KY. DEPT AGRIC., *supra* note 113.

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ *Inflation*, INVESTOPEDIA, <http://www.investopedia.com/terms/i/inflation.asp> (last viewed Jan. 20, 2017) [https://perma.cc/DMF9-2ZN8].

When the USDA performed a linear regression analysis¹²¹ on the effects of unemployment rates, inflation, and food prices, they found that a 1 percent increase in the relative price of food contributed to a .583 percent increase in food insecurity.¹²² This coefficient was higher than both unemployment rates and inflation which suggests a stronger link between food insecurity and food price than any other variable.¹²³ NBFDS will increase the cost of producing food. This will lead to higher prices of food products, as food producers either cannot or will not absorb these additional costs. It is uncertain to what extent food prices will increase because we do not know how many products will be affected until the law has been fleshed out. Regardless, any additional costs incurred by consumers through mandatory labels for bioengineered food will not only lead to more hungry Kentuckians, but Americans at large.

The ultimate question is whose interests are more deserving of protection? As Congress believes, there is a strong belief their constituents want to know when their food contains bioengineered food. Alternatively, implementing mandatory labeling laws will affect those already living on the margin, and will push once food secure individuals towards food insecurity, and ultimately malnutrition. The law should implement voluntary instead of mandatory compliance. It will not lower or raise the cost of food and thus maintain the status quo. Companies who want to realize premiums on foods that are free of bioengineered food will still be allowed to market them as such. People who attach value to consuming bioengineered-free food and are willing to pay the included premium will still have plenty

¹²¹ *What is Linear Regression?*, STAT. SOLUTIONS (2017), <http://www.statisticssolutions.com/what-is-linear-regression/> ("Linear regression is the most basic and commonly used predictive analysis. Regression estimates are used to describe data and to explain the relationship between one dependent variable and one or more independent variables. It can be used to forecast effects or impacts of changes. That is regression analysis helps us to understand how much the dependent variable will change, when we change one or more independent variables.") [<https://perma.cc/XVS8-RFSM>].

¹²² Mark Nord et al., *Prevalence of U.S. Food Insecurity is Related to Changes in Unemployment, Inflation, and the Price of Food*, U.S. DEPT AGRIC. 11 (June 2014), https://www.ers.usda.gov/webdocs/publications/err167/48167_err167.pdf?v=41828 [<https://perma.cc/9WX3-URRD>].

¹²³ *Id.*

of options available to them. Most importantly, though, we would not be pushing more families towards food insecurity who are unable to otherwise shift their consumption. There have not been any sound scientific studies that show genetically modified organisms pose any health risks to people. It seems egregious to harm the poorest in this country for an imagined benefit. For policy reasons alone, Congress should repeal this law.

VI. CONCLUSION

NBFDS should be found invalid at the federal preemption level, fail at the cost-benefit analysis level, or be repealed for policy reasons. There is no intent discernable when it passed Congress, outside a belief that people wanted it. It also passed without a single hearing being held for competing perspectives. There is also the probability of inaction from the USDA which would be an alternative ground for showing the lack of preemption. Next, even if the bill is found to preempt state laws and regulations, the law will likely fail under the EDM cost-benefit analysis. If the USDA conducts the study, similarly structured to the COOL Act, it will likely play out in a similar fashion. The parameters are distinctly similar with the same effects on the market, on both the supply and demand side. There will surely be additional costs passed from suppliers to consumers with no offsetting effect from the demand side to supply. When the study of the cost-benefit analysis is finally presented to Congress unfavorably, the discussion surrounding the mandatory labeling law should be ended and the law left unimplemented. Lastly, if Congress somehow finds that the law is not preempted and the benefits outweigh the costs, then it should still be repealed based on policy grounds. The nation is currently experiencing food insecurity levels that remain higher than those measured during the Great Recession. Implementing this law will only drive more Americans to hunger for no reason other than a misguided effort by Congress. To push marginalized families further into poverty with a law that offers no clear benefits is reckless and inhumane. When the benefits can only be recorded in a ledger, but the costs can be heard in the rumbling of

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a hungry child's stomach, humanity must conquer rushed
legislation.

