

# Massive Data Institute

## The Evaluation of Regulatory Efficiency on Catfish Imports, from FDA to USDA

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[Joke Alternative Title: "The USDA - America's Latest Weapon in the Catfish War"]



### ABSTRACT

This research will generate an analysis of the difference in rejection rates of catfish/pangasius when regulated by FDA and when regulated by USDA. This research also addresses the effectiveness and implications of shifting regulatory authority over catfish-like seafood industries.

# BACKGROUND

## BACKGROUND

### Vietnamese Catfish Entered US Markets in 1994

Tra and basa fish, also known as pangasius, is a genus of catfish that been traditionally bred by fish farmers in the Mekong Delta of Vietnam (2006, Tu Van Binh). After the United States lifted the embargo on Vietnam in 1994, Vietnamese catfish burst onto the US market, and by 2002 became the main export destination and accounted for 50% of total production (Brambilla,P.,2012). Pangasius quickly snatched a huge market share of the catfish market, and consequently lowered the domestic catfish market price by 66% percent from 1997 to 2002 (Source: Monthly catfish producing report, National Agricultural Statistics Service, USDA).

### US Catfish Farmers Fought Back

In 2002, the US Catfish Farmers' Association (CFA) and eight seafood production companies lodged an application with the US International Trade Commission (ITC) to sue the Vietnamese Association of Seafood Exporter and Processors (VASEP) for dumping catfish products in the US. Despite a bilateral trade agreement (BTA) signed between the US and Vietnam in 2000, in 2003, the US Department of Commerce (DOC) ruled in favor of the CFA's dumping claim and established tariffs ranging from 37% to 64% on imports of frozen catfish from Vietnam (Brambilla, P. ,2012).

Additionally, the Farm Security and Rural Investment Act of 2002, determined that fish belonging to the family of Pangasiidae that are produced in Asia, such as tra and basa, could no longer be marketed with the label of "catfish" within the states. This bill was intended to differentiate domestically produced catfish and maintain a relatively higher market price.

However, the antidumping efforts effectively raised the US domestic price of processed catfish and lowered the Vietnamese export price (Duc, N.,2010), leading to even greater international of catfish exports.

1994	Vietnam catfish entered the US market.
2001	BTA signed between US and Vietnam.
2002	The 2002 farm bill on foreign catfish labelling.
2003	US imposed anti-dumping tariffs on Vietnamese catfish.
2008	The 2008 farm bill required the regulatory authority on catfish to shift from FDA to USDA.
2014	The 2014 Farm bill approved the broad definition of catfish and pushed the implementation of the USDA inspection program.
2017	USDA took over regulatory power on catfish and imposed stricter inspection requirements for catfish imports.
2019	November 5, 2019, FSIS grants equivalence to Vietnam, China, and Thailand regarding catfish exports.

# BACKGROUND

Despite numerous attempts at impeding the imports of catfish from Vietnam, imported catfish-like fillet products have increased their share of the catfish market from 20% to 80% from 2005 to 2013 (2015, Hanson).

[Graph here]

## Regulatory Shift from FDA to USDA

Catfish, as well as all seafood, is traditionally under the regulation of the FDA, however, the Food, Conservation, and Energy Act of 2008 required the catfish to be inspected with a higher standard due to health concerns from polluted water in Mekong River by shifting authority to the USDA. The Obama administration held back in implementing the regulatory transition because of considerations in building its alliance with Vietnam under the long-term goal of establishing the Trans-Pacific Partnership to counter the increasing regional influence of China in Asia-Pacific region.

FSIS began regulating catfish on December 2, 2015, under a transition period that lasted 18 months for both domestic and foreign producers. Catfish exporters were required until September 1, 2017, to submit documentation, and comply with Hazard Analysis and Critical Control Point (HACCP) requirements and good manufacturing practices according to FDA regulation. Foreign countries who wanted to export catfish to the U.S. after September 1, 2017, were required to submit equivalence documentation. FSIS had permitted Vietnam, China and Thailand to continue exporting catfish to the US while they went through the equivalence process.

A final decision to make China, Vietnam and Thailand eligible to export raw siluriformes fish to the U.S. was to open the American market to 30 foreign catfish processors. By the end of 2019, all three countries mentioned above acquired equivalence.

## PROBLEM STATEMENT

We are primarily investigating the effect of USDA authority on refusals of catfish imports. This investigation uses linear regression analysis to isolate and measure the effect of the regulatory shift using by comparing the time period around both agencies' authority. We hope to better understand this policy's effectiveness and its implications on seafood trade for the US.

# DATA & ANALYSIS

## DATA SOURCES

**FDA:** <https://www.accessdata.fda.gov/scripts/importrefusals/>

- Refusal data under FDA

**USDA:** <https://www.fsis.usda.gov/wps/portal/fsis/topics/data-collection-and-reports/data>

- Refusal data under USDA

**NOAA:** <https://www.fisheries.noaa.gov/>

- Import volume from 2012 to 2020

## MODELS

We used linear regression analysis to identify the strength of the effect that shifting regulation from FDA to USDA has on the import refusal rate of catfish.

Model 1:

- Independent: Import Volume + USDA(dummy, 1 for after **2017.09**) + USDAxVolume + Month\* + Country\*
- Dependent: Import Refusal

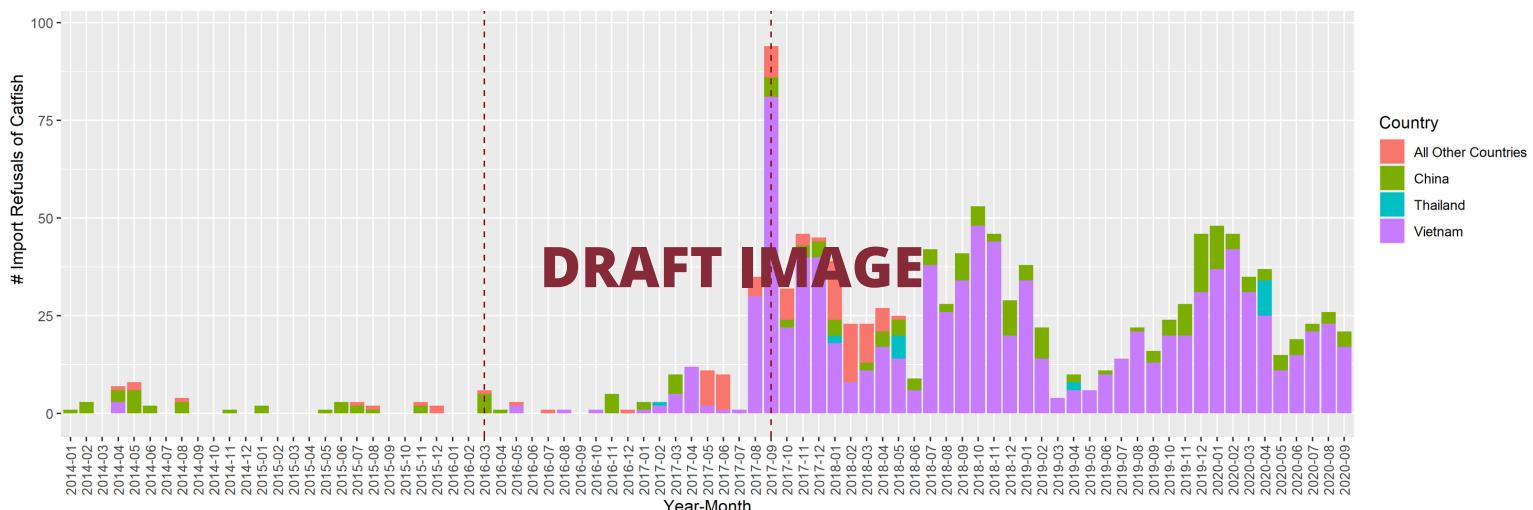
Model 2:

- Independent: Import Volume + USDA(dummy, 1 for after **2016.03**) + USDAxVolume + Month\* + Country\*
- Dependent: Import Refusal

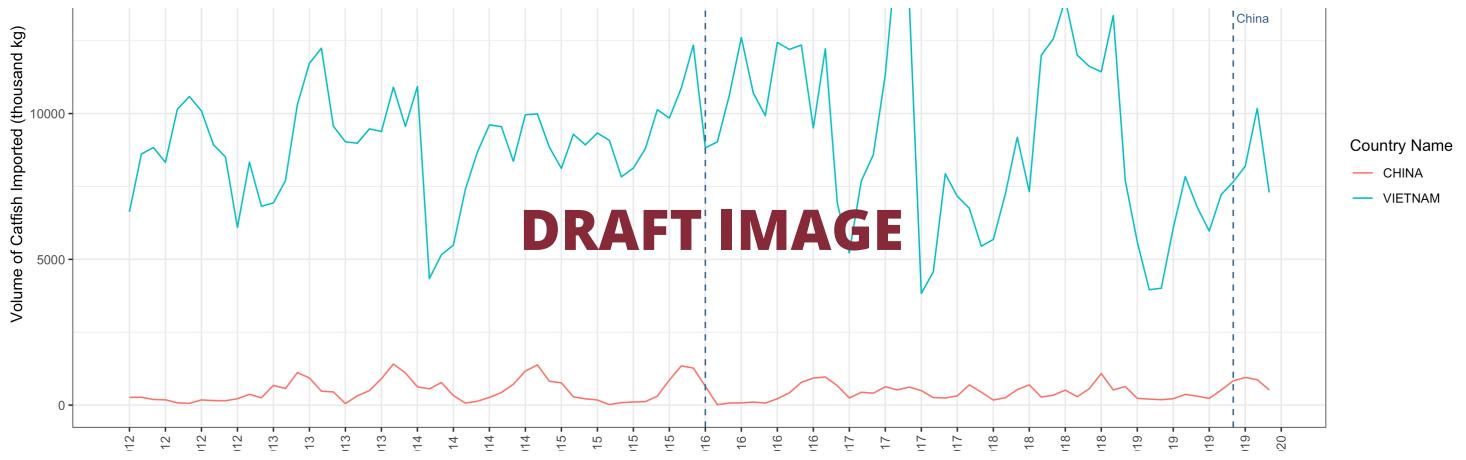
Model 3:

- Independent: Import Volume + USDA(dummy, 1 for after **2017.09**) + USDAxVolume + Month\* + Country\*
- Dependent: Import Refusal (**limited to food safety reasons**)

\* Control variables are included as inputs to separate their effects from the explanatory variables.



# DATA & ANALYSIS CONT.



## FACTORS

USDA

Explain interaction term

Import Volume (FDA)

Import Volume (USDA)

Explain Fixed Effects

Month Fixed Effects to control seasonality

Country Fixed Effects to control regional variation

## ALTERNATIVE DEPENDENT VARIABLE

Explain Model 3 FDA variable

	(1)	(2)	(3)
All Import Refusals	Yes	Yes	No
Start/End of Transition	End	Start	End
Food Safety Refusals	No	No	Yes
USDA	2.739 ***	1.883	-0.567 ***
Import Volume (FDA)	-0.000	-0.000 ***	-0.000 ***
Import Volume (USDA)	0.000 ***	0.000 ***	0.000 *
Month Fixed Effects	11 of 12 months are variables.		
Country Fixed Effects	18 of 19 countries are variables.		
R-Squared	0.597	0.351	0.077
Sigma	6.215	7.892	0.848

\*\*\* Significance at 0.1%  
\*\* Significance at 1%  
\* Significance at 5%

## Results

Model 1 shows a statistically significant coefficient on USDA authority with a coefficient of 2.739, indicating that, between similar conditions, there will be approximately 3 more refusals under USDA authority than FDA. The coefficients of import volume under the FDA lacks statistical significance while import volume under USDA is statistically significant with coefficients of -0.000000234 and 0.000000240, respectively.

Model 2, when expressing USDA authority by the beginning of the transition, no longer shows a statistically significance on USDA authority's coefficient of 1.883. The lack of statistical significance in this specification demonstrates a poorer relationship between USDA authority and refusals compared to Model 1. The coefficients of import volume are statistically significant with coefficients of -0.000000180 and 0.000000158 for FDA and USDA, respectively.

Model 3 limits refusals to only those classified as related to food safety and shows a negative, and statistically significant coefficient of -0.567. This model predicts that under similar conditions, USDA authority leads to less food safety related refusals. The coefficients of import volume under either agency have statistical significance at -0.0000000168 and 0.0000000603 for FDA and USDA, respectively.

# CONCLUSION

The coefficients of import volume demonstrate the effect of a kilogram increase under similar conditions. For a substantive effect, there must be over a hundred thousand kilograms more in imports within a single month, volume levels only exported by China and Vietnam. For example, given Model 1's import volume (USDA) coefficient of 0.00000240, 4166667 kg of imports would predict one additional refusal under USDA authority. As this is the highest value among import volume coefficients, even greater import amounts would be necessary for other Models or to calculate the effect of import volume under FDA authority.

## Conclusion

In shifting import authority from FDA to USDA, catfish products were rejected more often and particularly affected high export countries such as China and Vietnam. However, it is questionable how substantive of an effect the authority shift truly was. From Model 1, the coefficient on USDA authority indicates approximately 3 more refusals per month after the shift, while the import volume (USDA) coefficient indicates that 1,000,000 more kilograms imported would result in approximately 2 more refusals per month. Comparing the peak of refusals, 86 in September 2017, to the near 4 million kilograms imported in the same month and considering that USDA refusals often weighed approximately 6 kg, Model 1 highlights that while refusals have increased, import demand has not been impeded.

Arguably, the shift to USDA authority led to higher food safety standards in exporting countries, leading to improved trade channels. The negative USDA coefficient of Model 3 implies that refusals due to food safety decreased, in which a plausible explanation could be higher internal sanitation requirements in the process of meeting requirements FSIS equivalence. As the major exporters ultimately gained equivalence in November, 2019, and continued exporting throughout the process, the decreasing trend of refusals after the shift may correlate to rising regulation standards among the countries. However, import volume (USDA) is positive and significant in Model 3, which could offset USDA authority's negative effect of food safety refusals. This is unlikely as import volume would have to be approximately 10 million kilograms to only counteract the negative coefficient of USDA and the highest amount exported by a single country during USDA authority was 14 million by Vietnam in September 2018.

This latest maneuver to raise obstacles for catfish exporting countries has found superficial success, definitively reducing imports under USDA authority. However, the paltry amount refused, when compared to trade volume demanded, emphasizes that the enormous bureaucratic effort in shifting regulation authority cannot impede market forces and that this novel policy has not achieved its intended outcome. Additionally, the rapid pace with which countries gained FSIS equivalence further highlights how ineffective these mechanisms were in hindering trade.

# Full Statistical Results

## Table

Featuring coefficient, standard error, p-value, etc.

Add Model 4 details here where weight of rejected items is dependent variable

No statistically significant variables of interest in Model 4, therefore was not included in summary

# Glossary

**ACC**-Affirmation of Compliance Codes. All FDA-regulated products are expected to be in compliance at the time of entry. To help expedite the FDA's review of product compliance, the entry filer can submit additional information at the time of entry, such as registration, listing, and approval numbers.

**BTA**- Bilateral Trade Agreement

**CBP**-U.S. Customs and Border Protection

**CFA**- Catfish Farmers' Association

**DOC** - Import Administration of Department of Commerce

**FDA**-U.S. Food and Drug Administration

**FMIA** -Federal Meat Inspection Act

**FSIS**- U.S. Department of Agriculture's Food Safety and Inspection Service (FSIS)

**FSMA**- Food Safety Modernization Act

**HACCP**- Hazard Analysis Critical Control Point is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product.

**ITC**-International Trade Commission

**NFI**-National Fisheries Institute

**DOC**- United States Department of Commerce

**USDA**-United States Department of Agriculture

**VASEP**-Vietnamese Association of Seafood Exporter and Processors

# Citation

**Brambilla, P. (2012).**

ADJUSTING TO TRADE POLICY: EVIDENCE FROM U.S. ANTIDUMPING DUTIES ON VIETNAMESE CATFISH. The Review of Economics and Statistics, 94(1), 304–319. [https://doi.org/10.1162/REST\\_a\\_00168](https://doi.org/10.1162/REST_a_00168)

**Durkin, E. (2014).**

FDA, USDA Move Ahead With Controversial Catfish Transfer Under Farm Bill. InsideHealthPolicy.com's FDA Week, 20(20), 9–10. <https://www.jstor.org/stable/e26691042>

**Duc, N. (2010).**

Application of econometric models for price impact assessment of antidumping measures and labelling laws on global markets: a case study of Vietnamese striped catfish. Reviews in Aquaculture, 2(2), 86–101. <https://doi.org/10.1111/j.1753-5131.2010.01024.x>

**Flynn, D. (2018).**

Thailand's catfish inspections found to be equivalent to U.S. In Food Safety News [BLOG]. Newstex. <https://www.foodsafetynews.com/2018/09/thailands-catfish-inspections-found-to-be-equivalent-to-u-s/>

**Hanson, T(2015).**

U.S. Farm-Raised Catfish Industry 2014 Review and 2015 Outlook, Database, Auburn University, School of Fisheries, Aquaculture and AquaScience and Mississippi State University, Department of Agricultural Economics, <https://www.agecon.msstate.edu/whatwedo/budgets/docs/catfish2014.pdf>

**Shearer, P. (2016).**

Catfish inspection where does it belong: USDA or FDA? National Hog Farmer. <https://www.nationalhogfarmer.com/marketing/catfish-inspection-where-does-it-belong-usda-or-fda>

**Todd IV, W. (2014).** THE CATFISH SAGA IN THE U.S.-VIETNAM TRADE RELATIONSHIP UNDER THE PRESIDENT BARACK OBAMA ADMINISTRATION: 2009-2014. Georgetown University.**Zhong, S. (2016).**

Channel catfish in China: Historical aspects, current status, and problems. Aquaculture, 465, 367–373. <https://doi.org/10.1016/j.aquaculture.2016.09.032>

Bipartisan E&C Members Urge House Leaders to Schedule Swift Vote to End USDA's Duplicative Catfish Program. (2016). In Congressional Documents and Publications. Federal Information & News Dispatch, LLC. <https://energycommerce.house.gov/newsroom/press-releases/pallone-calls-to-eliminate-duplicative-usda-catfish-program>

Mandatory Inspection of Catfish and Catfish Products by FSIS, USDA:

<https://www.federalregister.gov/documents/2011/02/24/2011-3726/mandatory-inspection-of-catfish-and-catfish-products>