



# Avian Flu Pandemic: Potential Impact of Trade Disruptions

**-name redacted-**

Analyst in International Trade and Finance

May 8, 2008

Congressional Research Service

7-....

[www.crs.gov](http://www.crs.gov)

RS22453

## Summary

Concerns about potential disruptions in U.S. trade flows due to a global health or security crisis are not new. The possibility of an avian flu pandemic with consequences for global trade is a concern that has received attention recently, although some experts believe there is little cause for alarm. Experts disagree on the likelihood of an avian flu pandemic developing at all. This report considers possible trade disruptions, including possible impacts on trade between the United States and countries and regions that have reported avian influenza infections. These trade disruptions could include countries banning imported goods from infected regions at the onset of a pandemic, de facto bans due to protective health measures, or supply-side constraints caused by health crises in exporting countries.

## **Contents**

|  |   |
|--|---|
| Background .....   | 1 |
| Potential Impact of Trade Disruptions with Avian Flu-Affected Countries and Regions..... | 2 |
| China .....  | 3 |
| Thailand, Indonesia, and Vietnam.....  | 4 |
| Iraq .....   | 4 |
| Other Avian Flu-Affected Countries .....   | 4 |
| Poultry Trade .....  | 5 |
| Potential Impact of Global Trade Restrictions.....                                       | 5 |

## **Tables**

|  |   |
|--|---|
| Table 1. U.S. Trade with Avian Flu-Affected Countries..... | 2 |
|--|---|

## **Contacts**

|                                  |   |
|----------------------------------|---|
| Author Contact Information ..... | 6 |
|----------------------------------|---|

## Background

This report examines scenarios in which international trade could be heavily controlled or limited due to an avian flu pandemic.<sup>1</sup> Each of the scenarios presented depicts the possibility that imports of goods into the United States could be curtailed due to the avian flu. Some experts argue that these scenarios are not likely to occur, because they believe that the United States would probably not implement a general ban on the importation of goods from affected regions. It is believed that such a ban would not prevent transmission of the avian flu to the United States, because there is little evidence that inanimate objects could transmit the disease. Furthermore, opponents to a general ban on imports argue that such actions could unnecessarily cause economic and social hardship. The United States depends on global trade for necessities such as food, energy, and medical supplies. Also, some observers point out that the nature of the “just-in-time” global economy is such that the United States does not stockpile these and other necessities. Finally, the World Health Organization does not recommend quarantining any individual country or closing international borders at any phase of an avian influenza pandemic.<sup>2</sup> If international borders are not closed to human passage, then it follows that there will probably not be direct trade restrictions.

While some experts believe that a general ban on imports either globally or from affected regions is highly unlikely, others contend that the strategy cannot be totally ruled out, particularly since there is already a U.S. ban on imports of poultry products from certain H5N1 (highly pathogenic strain of avian influenza)-affected countries and regions.<sup>3</sup> Some experts argue that it may be possible to transmit the virus through any object that has had contact with infected feces, blood, or other bodily fluids. Some policy analysts predict that if the H5N1 virus were to become a pandemic with human-to-human transmission, then the United States might control the movement of people across its borders to slow the virus’ arrival on U.S. soil. This could involve limiting airline passenger flights into the country, but it could also mean limiting entry of cargo ships due to a fear of transmission from ship operators or stowaway birds. These types of restrictions may result in a de facto import ban. Some experts believe these restrictions are unnecessary and potentially harmful, but they might nevertheless be implemented to give the appearance of strong preventative actions, in response to public concerns or political factors. Many believe that if such restrictive measures were adopted, they would likely be short-lived. Once the pandemic reached the United States, such measures would appear to serve little further purpose and could be abandoned.

A more likely scenario is that a supply-side constraint in the exporting country would limit U.S. imports. Pandemic-affected countries could curtail their exports, either voluntarily or involuntarily. Governments may nationalize assets and stop export operations. An outbreak may also constrain production and key export infrastructure through excessive worker absences, to the point where exporting becomes difficult and is involuntarily slowed or halted. Such a slowdown in commerce could cause price increases or temporary shortages in certain goods within the United States, depending on the duration and breadth of the slowdown. It could exacerbate the

---

<sup>1</sup> For more information on the avian flu, see CRS Report RL33219, *U.S. and International Responses to the Global Spread of Avian Flu: Issues for Congress*, by (name redacted); and CRS Report RL33145, *Pandemic Influenza: Domestic Preparedness Efforts*, by (name redacted).

<sup>2</sup> *Influenza Pandemic Risk Assessment and Preparedness in Africa*, World Health Organization Regional Office for Africa, Brazzaville. 2005.

<sup>3</sup> See CRS Report RL33795, *Avian Influenza in Poultry and Wild Birds*, by (name redacted) and (name redacted).

effects of slowed production and distribution networks within the United States, leading to decreased demand and supply and a recession.

Several studies have been undertaken to estimate the effects of a pandemic on the U.S. and global economy. According to one study, a mild pandemic could reduce global economic output by \$330 billion, or 0.8% of global gross domestic product (GDP). The same study estimates that a pandemic of the worst case scenario severity could reduce global economic output by \$4.4 trillion, or 12.6% of global GDP.<sup>4</sup> The Congressional Budget Office (CBO) estimates that a severe influenza pandemic might cause a decline in U.S. GDP of about 4.25%, and that a milder pandemic might cause a decline of about 1%.<sup>5</sup> Other studies have found both greater and lesser economic effects, depending on the methodology and data used. Different studies also disagree on the extent to which international trade would be disrupted by an avian flu pandemic.

## Potential Impact of Trade Disruptions with Avian Flu-Affected Countries and Regions

This section considers the potential economic and trade effects on the United States of import disruptions from countries affected by avian flu, either as a result of border closings in the United States or supply side constraints in the exporting country or region. Only countries with human avian flu cases confirmed by the World Health Organization (WHO) from January 2004 to January 2008 are considered, because these countries are arguably more likely to experience trade disruptions due to avian flu. The relative likelihood of import disruptions from one country or region over another is not considered, because it is too difficult to ascertain.

**Table I. U.S. Trade with Avian Flu-Affected Countries**

| Country    | Confirmed Human Cases, 2003-4/30/2008 | Share of cases occurring in 2007-2008 | 2007 U.S. Imports, billions U.S. \$ | 2007 U.S. Exports, billions U.S. \$ | Rank by Value of 2007 U.S. Imports |
|------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| Azerbaijan | 8                                     | 0%                                    | 1.89                                | 0.18                                | 68                                 |
| Cambodia   | 7                                     | 14%                                   | 2.46                                | 0.14                                | 60                                 |
| China      | 30                                    | 27%                                   | 321.51                              | 65.24                               | 1                                  |
| Egypt      | 50                                    | 64%                                   | 2.38                                | 5.35                                | 62                                 |
| Indonesia  | 133                                   | 44%                                   | 14.30                               | 4.23                                | 26                                 |
| Iraq       | 3                                     | 0%                                    | 11.41                               | 1.57                                | 29                                 |

<sup>4</sup> Warwick J. McKibben, cited in John Reichard, "Models Show Pandemic Could Be Devastating, But Flight Curbs Could Buy Valuable Time," *CQ Healthbeat News*, October 19, 2006.

<sup>5</sup> "A Potential Influenza Pandemic: An Update on Possible Macroeconomic Effects and Policy Issues," Congressional Budget Office. Revised July 27, 2006.

| Country      | Confirmed Human Cases, 2003-4/30/2008 | Share of cases occurring in 2007-2008 | 2007 U.S. Imports, billions U.S. \$ | 2007 U.S. Exports, billions U.S. \$ | Rank by Value of 2007 U.S. Imports |
|--------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| Thailand     | 25                                    | 0%                                    | 22.75                               | 8.44                                | 18                                 |
| Turkey       | 12                                    | 0%                                    | 4.60                                | 6.59                                | 45                                 |
| Vietnam      | 106                                   | 11%                                   | 10.63                               | 1.90                                | 31                                 |
| <b>Total</b> | <b>382<sup>a</sup></b>                | <b>31%</b>                            | <b>391.93</b>                       | <b>93.64</b>                        |                                    |

**Source:** Data compiled from World Health Organization, see [http://www.who.int/csr/disease/avian\\_influenza/country/cases\\_table\\_2008\\_04\\_30/en/index.html](http://www.who.int/csr/disease/avian_influenza/country/cases_table_2008_04_30/en/index.html), and World Trade Atlas. All trade data in this report is from the World Trade Atlas unless otherwise noted.

- a. Column total does not add up to 382 because countries with their first confirmed human cases in 2007 are omitted. These countries include Djibouti, Laos, Myanmar, Nigeria, and Pakistan. Each of these countries had one confirmed human case of H5N1 avian flu in 2007 except Pakistan and Laos, which had three and two, respectively.

## China

As seen in **Table 1**, the United States imports far more from China than any other country that has thus far reported confirmed human cases of the avian flu. In fact, China is the largest source of U.S. imports overall, accounting for over 16% of total U.S. imports in 2007.<sup>6</sup> Therefore, if imports from China were disrupted on a large scale over a long time period, it could have a significant effect on the U.S. economy. However, a short-lived disruption in imports from China may not cause an immediate crisis. Forty-four percent of U.S. imports from China are in the category of machinery or electronic machinery, and include items such as computers, televisions, and parts. A disruption in imports of these items could have implications for the domestic electronics market, but it may have a less severe effect on the U.S. economy as a whole.

One import category of special concern is medical supplies; the United States imported over \$5 billion in optical and medical instruments from China in 2007, representing 10% of such U.S. imports. Many, but not all, products in this category are considered essential medical equipment. For example, China was the second-largest supplier (after Mexico) of respirator equipment to the United States, supplying over 13% of U.S. respirator equipment imports. China has also been an important supplier of bandages (41% of U.S. imports in 2007), boxed first aid kits (53%), clinical thermometers (50%), orthopedic appliances (9%), and syringes (13%).<sup>7</sup> Some observers recommend that U.S. hospitals stockpile essential supplies to take a possible avian flu pandemic into account, especially considering that medical supplies are sourced from potential avian flu hot spots. Many of these essential medical supplies are reportedly not manufactured in the United States.<sup>8</sup>

Almost 15% (about \$1.5 billion) of fish and seafood imports into the United States are from China, second only to Canada (\$1.9 billion). It is not clear whether a trade disruption with China

<sup>6</sup> World Trade Atlas.

<sup>7</sup> Ibid.

<sup>8</sup> VHA Inc. *Survey on Avian Flu Shows Some Hospitals Would Exhaust Supplies in Two Weeks*, VHA Press Release, March 16, 2006. [https://www.vha.com/portal/server.pt/gateway/PTARGS\\_0\\_2\\_2043\\_271\\_0\\_43/http%3B/remote.vha.com/public/news/releases/060316.asp](https://www.vha.com/portal/server.pt/gateway/PTARGS_0_2_2043_271_0_43/http%3B/remote.vha.com/public/news/releases/060316.asp).

alone would have a great impact on the U.S. food supply, since the United States also imports food from other countries and regions, in addition to having domestic production.

Although the United States imports a great deal from China, many of these products originate elsewhere, and only their final stage of production takes place in China. For some items, production could possibly be shifted to another location if a long-term trade disruption were to occur. However, shifting production in the global supply chain may have great costs or not be feasible for other reasons.

### **Thailand, Indonesia, and Vietnam**

Thailand, Indonesia, and Vietnam have similar patterns of exports to the United States, although in different volumes. Among countries with confirmed human avian flu cases, Thailand is the second largest supplier of U.S. imports. However, Thailand's total 2007 exports to the United States were just under \$23 billion, and it ranked 18<sup>th</sup> out of all exporters to the United States, with 1.2% of the U.S. import market. Indonesia and Vietnam were ranked 26<sup>th</sup> and 31<sup>st</sup>, respectively, with \$14 billion and \$11 billion in 2007 U.S. imports. Like China, Thailand's main exports to the United States are electrical machinery and machinery, comprising about 44% of Thailand's exports to the United States. Thailand, Indonesia, and Vietnam all export large quantities of fish to the United States. Thailand is the largest exporter of prepared crustaceans and mollusks (the second largest is China), and the second largest exporter of fresh crustaceans to the United States (after Canada). Indonesia and Vietnam are the third and fifth largest suppliers of prepared crustaceans, and the fourth and third largest suppliers of fresh crustaceans to the United States. Thailand and Indonesia also export optical and medical instruments to the United States, ranking 21<sup>st</sup> and 28<sup>th</sup>, respectively, in 2007 U.S. imports. The United States imports medical supplies such as dialysis instruments, diagnostic instruments, syringes, needles, and ultrasound devices from Thailand and Indonesia.

In analyzing the trade data, it appears that if trade were disrupted between the United States and any one of Thailand, Indonesia, or Vietnam, the effects would probably be minimal. However, if U.S. trade was disrupted with all three countries and China (considered more likely under a flu pandemic), the U.S. supply of seafood and medical supplies could be impaired. Reduced seafood imports could increase not only the price of seafood, but it could cause increased demand and possible price increases in substitute goods. The impact of reduced medical supply imports could be more severe, possibly resulting in a shortage of certain medical supplies, since substitutes are generally not readily available.

### **Iraq**

Oil comprised 95% (\$10.8 billion) of U.S. imports from Iraq in 2007, representing 3% of U.S. oil imports. Iraq is the ninth-largest oil exporter to the United States. If oil imports from Iraq were to stop, the reduced supply of oil could cause domestic energy prices to increase. However, there are many factors determining domestic energy prices, and other events could overshadow, exacerbate, or offset any disruption of trade with Iraq due to an avian flu pandemic.

### **Other Avian Flu-Affected Countries**

Egypt, Turkey, and Azerbaijan all primarily export oil to the United States, though not in significant amounts relative to total U.S. oil imports. In 2007, Azerbaijan, Egypt, and Turkey

ranked 27<sup>th</sup>, 33<sup>rd</sup>, and 49<sup>th</sup>, respectively, in exports of oil to the United States. Turkey's main export to the United States was stone for monuments and construction, with 14% of the U.S. import market. Cambodia's and Azerbaijan's overall exports to the United States are relatively small and would likely have little impact on the U.S. economy if they were to be disrupted.

## **Poultry Trade**

The United States is the largest global producer and exporter of poultry, and the second-largest global producer and exporter of eggs. In 2005, U.S. farm sales of poultry were \$23.3 billion, while U.S. imports of poultry were only \$130 million. In 2007 the U.S. exported \$3.3 billion in poultry, up from \$2.2 billion in 2006. Poultry exports to China have increased exponentially, from \$15.7 million in 2004 to \$578.4 million in 2007. China is the second-largest importer of U.S. poultry, after Russia. Almost all U.S. poultry and egg imports are from Canada, which has not been affected by the highly pathenogenic avian influenza, H5N1.<sup>9</sup> Some observers argue that as long as the United States remains unaffected by avian influenza the U.S. poultry industry may be positively affected by outbreaks of avian influenza elsewhere, as it may increase demand for U.S. poultry exports. On the other hand, news about avian influenza cases in other countries could reduce consumer demand for all poultry, even if it is considered influenza-free.

## **Potential Impact of Global Trade Restrictions**

If the United States were to shut its borders to trade completely, the impact could range from moderate to severe, depending on how long the restrictions were in place. A very short-term trade shutdown of just a few days may not have significant long term effects. As an example, in the days following September 11<sup>th</sup>, 2001, shipments to the United States were slowed dramatically (though not stopped entirely) because of tightened security at the borders. Once the borders were effectively reopened business resumed with little if any economic impact from the slowdown in trade. A longer trade shutdown could have greater implications, both domestically and globally. Much would also depend on how Wall Street reacted. A sharp fall in financial markets would be likely, but the question is how resilient the U.S. economy would be. Many countries rely on the United States as an export market. The loss of that market even temporarily could cause economic hardships around the world and contribute to the beginning of a possible global economic slowdown.

The United States is a large economy and does not rely on trade to the same extent as smaller economies, but it is not self-sufficient. There could possibly be an oil shortage, and energy prices could increase. Oil might not be available to all who need it. This would have implications for the rest of the economy, as transportation costs increase and cause price increases for goods across the economy. Also, many U.S. businesses rely on imports, both for intermediate goods and consumer products. It is difficult to determine which individual products could be in short supply, because many consumer goods that are generally not considered imported products depend on imports at some stage of their production. Also, some consumer goods that are imported have substitutes that may be produced in the United States. Finally, trade disruptions would account for only part of the economic impact of an avian flu pandemic. Other domestic and international

---

<sup>9</sup> For more information on potential effects on the U.S. agricultural economy, see CRS Report RL33795, *Avian Influenza in Poultry and Wild Birds*, by (name redacted) and (name redacted).



economic events could have more severe impacts, which could be compounded by disruptions in global trade.

## **Author Contact Information**

(name redacted)

Analyst in International Trade and Finance  
/redacted/@crs.loc.gov, 7-....

# EveryCRSReport.com

The Congressional Research Service (CRS) is a federal legislative branch agency, housed inside the Library of Congress, charged with providing the United States Congress non-partisan advice on issues that may come before Congress.

EveryCRSReport.com republishes CRS reports that are available to all Congressional staff. The reports are not classified, and Members of Congress routinely make individual reports available to the public.

Prior to our republication, we redacted names, phone numbers and email addresses of analysts who produced the reports. We also added this page to the report. We have not intentionally made any other changes to any report published on EveryCRSReport.com.

CRS reports, as a work of the United States government, are not subject to copyright protection in the United States. Any CRS report may be reproduced and distributed in its entirety without permission from CRS. However, as a CRS report may include copyrighted images or material from a third party, you may need to obtain permission of the copyright holder if you wish to copy or otherwise use copyrighted material.

Information in a CRS report should not be relied upon for purposes other than public understanding of information that has been provided by CRS to members of Congress in connection with CRS' institutional role.

EveryCRSReport.com is not a government website and is not affiliated with CRS. We do not claim copyright on any CRS report we have republished.