

The 17th  
**FEDERAL  
FORECASTERS  
CONFERENCE**

Forecasting  
and Risk

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September 24, 2009  
at the Bureau of  
Labor Statistics

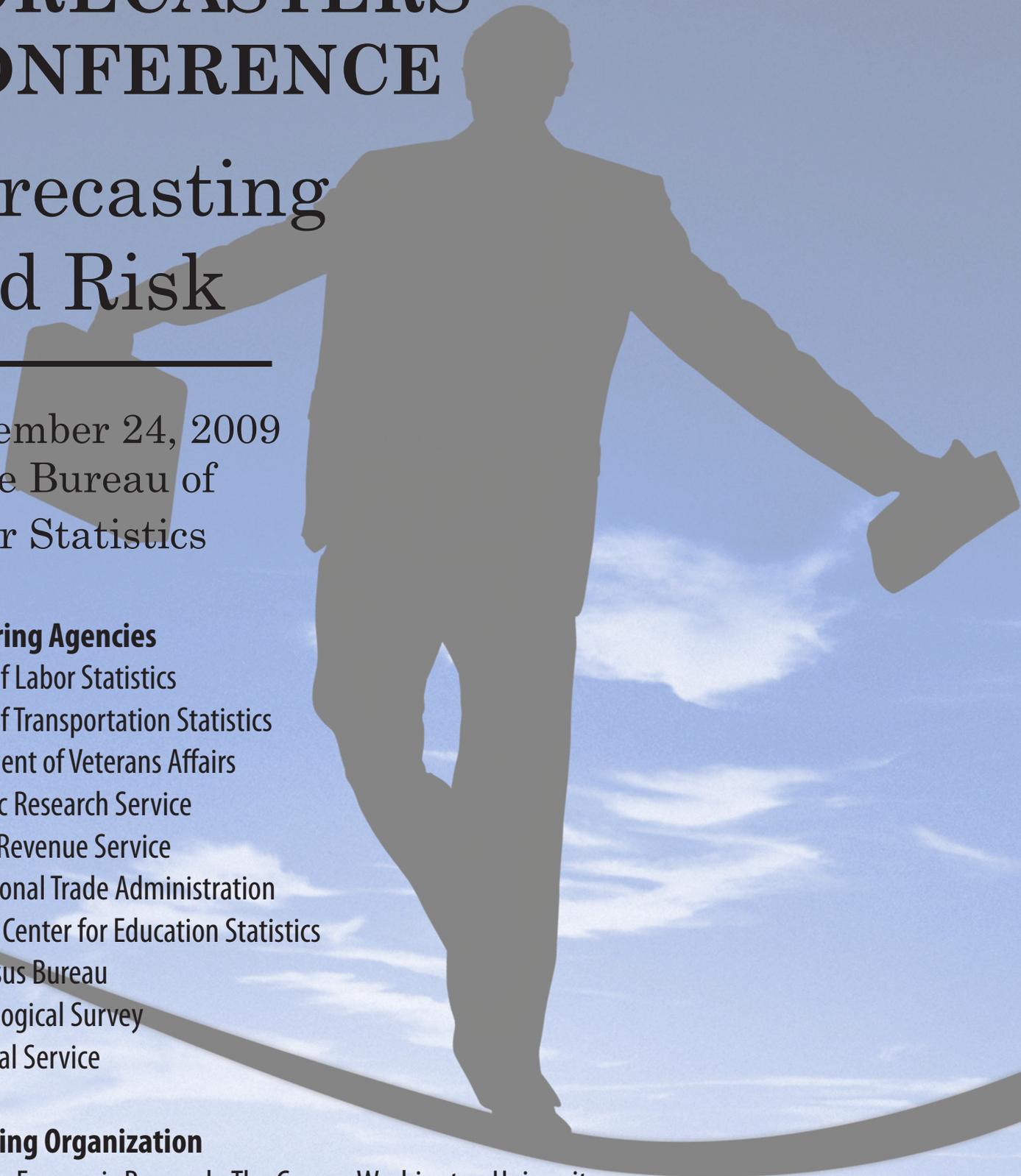
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**FFC/2009**

***The 17th  
Federal Forecasters Conference (FFC)***

**September 24, 2009**

**Forecasting and Risk**

Bureau of Labor Statistics (BLS) Conference and Training Center  
2 Massachusetts Avenue, N.E.  
Washington, DC

SPONSORING AGENCIES

- Bureau of Labor Statistics • Bureau of Transportation Statistics
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Center for Economic Research, The George Washington University

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## 2009 Federal Forecasters Consortium Organizing Board

**Busse, Jeff**

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U.S. Department of the Interior

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**Sloboda, Brian W.**

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**Sinclair, Tara**

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**Weyl, Leann**

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U.S. Department of the Treasury

**Woods, Rose**

Bureau of Labor Statistics  
U.S. Department of Labor

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## 2009 Conference at a Glance

8:00 a.m. - 9:00 a.m.                    **Registration — Lobby**

### **Morning Session — Room 1 — 9:00 a.m. - 12:00 p.m.**

9:00 a.m. - 9:05 a.m.                    **Opening Remarks**  
Stephen MacDonald, Chair, Federal Forecasters Consortium  
Economic Research Service  
U.S. Department of Agriculture

9:05 a.m. - 9:10 a.m.                    **Welcome**  
Keith Hall, Commissioner  
Bureau of Labor Statistics  
U.S. Department of Labor

9:10 a.m. - 9:20 a.m.                    **Award Announcements**

#### ***FFC/2009 Forecasting Contest Winners***

Brian W. Sloboda  
Pricing and Classification  
U.S. Postal Service

#### ***FFC/2008 Best Conference Paper Awards***

Fred Joutz  
Center for Economic Research  
The George Washington University

9:20 a.m. - 11:45 p.m.                    **Panel Discussion (See Page 6)**

***There will be a 15-minute break at 10:20 a.m.***

11:45 a.m. - 12:00 p.m.                    **Award Presentations and Photos**

Jeff Busse  
U.S. Geological Survey  
U.S. Department of the Interior

12:00 p.m. - 1:00 p.m.                    **Lunch (On Your Own)**

### **Afternoon Concurrent Sessions — 1:00 p.m. - 4:15 p.m.**

1:00 p.m. - 2:30 p.m.                    **Concurrent Sessions I**

2:30 p.m. - 2:45 p.m.                    **Afternoon Break**

2:45 p.m. - 4:15 p.m.                    **Concurrent Sessions II**

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9:00 a.m. – 12:00 p.m. .... Room 1

## **Morning Session**

9:00 a.m. – 9:05 a.m.

### **Opening Remarks**

Stephen MacDonald  
Chair, Federal Forecasters Consortium  
Economic Research Service  
U.S. Department of Agriculture

9:05 a.m. – 9:10 a.m.

### **Welcome**

Keith Hall  
Commissioner  
Bureau of Labor Statistics  
U.S. Department of Labor

9:10 a.m. – 9:20 a.m.

### **Award Announcements**

#### **FFC/2009 Forecasting Contest Winners**

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9:20 a.m. – 11:45 a.m.

### **Panel Discussion**

11:45 a.m. – 12:00 p.m.

### **Award Presentations and Photos**

Jeff Busse  
U.S. Geological Survey  
U.S. Department of the Interior

12:00 p.m. – 1:00 p.m.

### **Lunch (On Your Own)**

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## **Panel Discussion — 9:20 a.m. - 11:45 a.m.**

### **Forecasting and Risk**

Risk is an ever-present phenomenon. Economic adversity, natural disasters, transportation disasters, health epidemics, and other misfortunes are always a possibility. Forecasters are accustomed to uncertainty, but must address the potential for loss or injury with particular care. Forecasters also aid in establishing recommendations for resolving the outcomes of those uncertainties, especially if the loss or injury would be of catastrophic proportions. Turning points, unusual events, and low-probability shocks can take on enormous significance when their consequences are damaging. FFC/2009 will examine this intersection between risk and forecasting as participants review how forecasters deal with risk and how they can help policy-makers and other decision-makers use forecasts to respond to potential adversity.

#### **Moderator**

#### **Grayson Vincent**

U.S. Census Bureau  
Department of Commerce

#### **David Applegate, Ph.D.**

Senior Science Advisor for  
Earthquake and Geologic Hazards  
U.S. Geological Survey

#### **Richard A. Brown, Ph.D.**

Chief Economist and Associate Director  
Risk Analysis Branch  
Federal Deposit Insurance Corporation

#### **Robert E. O'Connor, Ph.D.**

Program Director  
Decision, Risk, and Management Sciences  
National Science Foundation

#### **Jack Wells, Ph.D.**

Chief Economist  
U.S. Department of Transportation

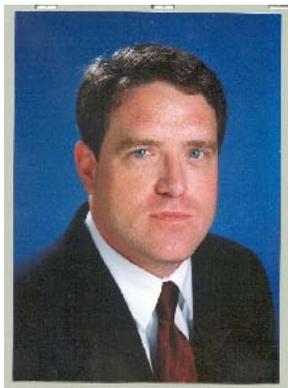
### **Question and Answer Discussion with Audience**



**David Applegate, Ph.D.**  
Senior Science Advisor,  
Earthquake and Geologic Hazards  
U.S. Geological Survey

### **Forecasting the Big One: Risks and Impacts of Earthquakes that Lurk Beneath our Feet**

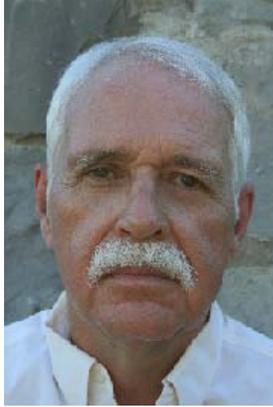
Of all natural hazards facing the United States, earthquakes have the greatest potential for inflicting casualties, damage, economic loss, and disruption. A major earthquake in an urbanized region of the United States could cause several thousand deaths and a quarter trillion dollars in losses, impacting the national economy. Although seismologists have long sought the "holy grail" of earthquake prediction, seismic risk reduction in the United States has come from other avenues of work. This presentation will describe remarkable gains that have been made in forecasting the probability of strong shaking, damage and losses, knowledge that underlies modern building codes, earthquake insurance, and engineering of key structures and lifelines. It will also explore how improvements in seismic networks have enabled ever-faster assessment of the size and impacts of a quake that has just occurred and a growing suite of rapid information products that guide emergency response and minimize losses.



**Richard A. Brown, Ph.D.**  
Chief Economist and Associate Director,  
Risk Analysis Branch  
Federal Deposit Insurance Corporation

### **Economic Trends, Risk Analysis and the FDIC Mission**

The analysis of economic conditions and emerging risks is central to the FDIC's core mission in the areas of bank supervision, failed bank resolution, and the management of the deposit insurance fund. This analysis is carried out by a combination of quantitative and non-quantitative methods. The goal is to anticipate, prepare for, and respond to downside risks in banking through analysis of key economic trends and data derived from bank examinations and quarterly financial reports. While consensus economic forecasts are considered, stress testing is more commonly used to assess the magnitude of downside risks. Moral suasion with regard to emerging risks is one policy response that is used alongside more formal supervisory orders and guidance. The presentation will include some examples of how these methods were used in the period leading up to the recent financial crisis.



**Robert E. O'Connor, Ph.D.**  
Program Director,  
Decision, Risk, and Management Sciences  
National Science Foundation

### **Linking Risk Analysis to Forecasting**

This presentation will summarize the current state of risk analysis and the efforts by the National Science Foundation to advance risk research. Analytic methods vary greatly for different types of risks. The presentation will suggest why forecasting is harder than risk analysis and how good risk analysis can contribute to better forecasting. The presentation will explain why policy makers often ignore both risk analyses and forecasts. Despite the absence of a “rational” policy process, the presentation concludes on a realistic and optimistic note regarding the crucial utility of risk analyses and forecasts.



**Jack Wells, Ph.D.**  
Chief Economist  
U.S. Department of Transportation

### **Forecasting the Recovery: Leading the Horse to Water**

Macroeconomists are fond of saying, in describing the difficulties of making macroeconomic forecasts, “You can lead a horse to water, but you can’t make him drink.” That is, you can give consumers and investors spending power, but you can’t make them spend. This problem has been particularly acute in the case of the current recovery, where psychological factors, heavily conditioned by the collapse in asset values, have reduced consumers’ propensity to consume, while similar factors, heavily conditioned by the collapse of credit markets, have reduced investors’ propensity to invest. Forecasting the effects of federal government spending has been perplexing both because of these psychological factors and because of conflicts among fundamentally different forecasting models (input-output and structural macroeconomic). Forecasts have also been subject to uncertainties about the rate at which federal funds could be spent, based on varying estimates of bureaucratic inertia and industry capacity. Psychological uncertainties also emerged in forecasting the impact of the “Cash for Clunkers” act. These psychological and other exogenous factors have created unusual risk factors and made forecasting the economic recovery particularly hazardous.

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## Afternoon Concurrent Sessions

**1:00 p.m. - 2:30 pm**

### Concurrent Sessions I

Recession Effects.....	Room 1
Building a Simple Econometric Forecasting Model.....	Room 2
Forecasting and Modeling Economic Needs .....	Room 3

**2:30 p.m. - 2:45 p.m.**

### Afternoon Break

**2:45 p.m. - 4:15 p.m.**

### Concurrent Sessions II

Risk in Agriculture.....	Room 1
Predicting Labor Force and the Economy .....	Room 2
Employment and Paradigm Shifts .....	Room 3

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## Concurrent Sessions I

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1:00 p.m. – 2:30 p.m. .... Room 1

### Recession Effects

*Session Chair: Pheny Weidman, Department of Transportation*

#### **The Marginal Impact of the 2008 Economic Stimulus Payments on Filing Behavior**

Leann Weyl and Sandy Lin, Internal Revenue Service

The Economic Stimulus Act of 2008 authorized payments of up to \$600 (\$1,200 for married couples) plus \$300 for eligible children for qualifying people. Payment amounts were based on Tax Year 2007 returns. The Economic Stimulus payments were thus a natural experiment testing the effect of monetary incentives on taxpayers' decisions to file or not file. Our research examines the effect of the stimulus payments by comparing changes in the filing population for processing year 2008 against historical trends. This study summarizes our current understanding of the marginal impact of the Economic Stimulus Program on 2008 return filings, as well as initial refinement of our understanding of the behavioral response for certain subpopulations of taxpayers.

#### **The Effects of the Housing Crisis on the Real Economy: A Regional Analysis**

Brian W. Sloboda, United States Postal Service and Wenxiong Vincent Yao, Fannie Mae

This paper will examine the effects of the current housing crisis on the real economy on the state level. More specifically, does the current financial crisis spill over to the housing sector which would affect the real economy? Much of the current research (Tong and Wei, 2008 and others) examines the effect of the current financial crisis on the national real economy without an explicit examination of these effects on the real economy on a state or regional level. Put in another way, the current research examines these effects on the national, real economy and does not take into account that each of the states will experience this problem differently. That is, the effects of this current housing crisis are not evenly distributed across states and a disaggregation on a state level would allow for a greater assessment of the potential effects on a state's real economy. In addition, the more affected states could provide spillover effects on surrounding states. This paper will also examine corresponding spillover effects from other states, and these spillover effects will show a more realistic economic assessment of this current problem.

#### **Forecasting Electronic Filing of Federal Tax Returns**

Manuel Brown, Internal Revenue Service

Several factors motivate people to file federal individual tax returns electronically. Several factors impact the filing of returns electronically such as; socioeconomic level, age, and education. This paper will explore items that motivate people to file federal individual tax returns electronically and will present a predictive modeling method to forecast returns filed electronically. The model will extrapolate the rate of returns filed electronically over a period of time. The model can be used to support analysis of taxpayer behavior at macroeconomic levels.

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1:00 p.m. – 2:30 p.m. .... Room 2

**Building a Simple Econometric Forecasting Model — Interactive Exercise**

*Fred Joutz, The George Washington University*

Professor Joutz will discuss recent developments in forecasting theory to illustrate modeling and forecasting in a world with structural change. Using EVIEWS and/or OxMetrics, he will lead an interactive exercise in building a model and forecasting the data. Audience participation is expected.

**Forecasting and Modeling Economic Needs**

*Session Chair: Jeff Busse, United States Geological Survey*

**Profile of Copper Consumption Over the Development Cycle – Republic of Korea, 1971 – 2001**

James J. Barry and W. David Menzie, U.S. Geological Survey,

Throughout the development cycle, the consumption of mineral commodity inputs is allocated into economic sectors at varying levels. For example, sectors associated with infrastructure (construction) tend to have greater consumption of copper earlier in the development phase of a nation's economy. This paper uses indicator variables over a 30-year period to estimate the allocation of copper used by sector (construction, transportation, consumer goods/durable, and electrical and electronic products) in the Republic of Korea. This structural and temporal profile of copper use over the development phase can then be applied to other developing economies, such as China.

**Forecasting Trainee Numbers for VA Workforce Needs: Description of a Strategic Planning Process in Associated Health**

Dilpreet K. Singh, Robert Zeiss, Karen Sanders, Malcolm Cox, and Debbie Hettler, Veterans Affairs

A statutory mission of the Department of Veterans Affairs (VA) is to educate health care professionals for VA and the Nation. Each year, more than 100,000 health professions trainees receive training in VA facilities. These training programs serve as a major source of health care professionals for VA's recruitment needs.

Forecasting the appropriate number of trainee positions to create and maintain workforce requires attention to many external as well as internal factors. This paper presents the Strategic Planning Process developed to estimate Associated Health trainee needs, and thus satisfy, in part, VA's workforce needs for the next decade.

**Information 2.0: Examination of the Role of the Internet and Computers in the Information Industry**

Sam Greenblatt, Bureau of Labor Statistics (BLS)

North American Industry Classification System (NAICS) industry 51, Information, can be divided into sub categories of industries whose growth are obviously tied to computers and those that are not. These industries would appear to have very different prospects as innovations in technology drive consumers to products and services that rely on new technology and away from those that maintain use of older technologies. Are these two categories really as dissimilar as they initially appear? Are traditional forms of publishing necessarily hurt by newer electronic media? These questions will be examined through study of BLS historic output data, along with key economic indicators.

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## Concurrent Sessions II

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2:45 p.m. – 4:15 p.m. .... Room 1

### Risk in Agriculture

*Session Chair: Carol Skelly, U.S. Department of Agriculture, World Agricultural Outlook Board*

#### **The World Financial Crisis and Agriculture: A case study in implementing and developing alternative macroeconomic scenarios**

David Torgerson, Economic Research Service, United States Department of Agriculture

The development of alternative macroeconomic scenarios is a case study in characterizing risk in an uncertain macroeconomic environment. Such an enterprise is inherently fraught with risk as there is considerable uncertainty as to how the world economy will evolve over the next ten years. USDA recently published the report, "What the 2008/2009 World Economic Crisis Means for Global Agricultural Trade." The team developing this analysis was constrained by a need for (1) broad consistency with the USDA budget baseline (2) transparency, and (3) timeliness. The paper focuses how and why the alternative macroeconomic scenarios presented in this report were developed in the context of these constraints.

#### **Worldwide Contamination of Grains and Food Stuffs and Forecasts for Human Illness**

Carolyn Carroll, Stattech

Fungal diseases are a serious international health problem. In the west, they include disease caused by opportunistic pathogens while the developing world sees illness and disease caused by eating contaminated foods, skin contact, or inhalation of spores covered by toxins. Contact can arise from grains. Grains can contain mycotoxins such as aflatoxin, fumonsin, and deoxynivalenol (DON). Aflatoxins are known to be hepatotoxic, carcinogenic, and teratogenic ; there is an established positive association between consumption of aflatoxin-contaminated foods and the increased incidence of liver cancer worldwide: Aflatoxin B<sub>1</sub> , a secondary metabolites from *Aspergillus flavus*, a mold found in the field and in grain storage, is classified as a Class A toxin. Symptoms of mycotoxicosis depend on factors such as the type of mycotoxin; amount and duration of exposure; age, health, and sex of the exposed individual; and poorly understood synergistic effects I. e., genetics, dietary status, and interactions with other toxic. Exposure to mycotoxins has been tied to large scale episodes of vomiting, some deaths and in children stunting of growth. In animals deoxynivalenol (DON) causes vomiting, feed refusal, growth retardation, and affects the immune system. The human health effects of DON, a common contaminant of wheat, however, are less well known.

In this presentation, statistics on human exposure and outcomes derived from controlled studies and statistics on observed levels of contamination in various grain worldwide supplies will be used to forecast illness.

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## **The Current Economic Recession: Implications for Future Economic Growth and its Impact on the Relative Financial Stress in Agriculture**

Paul Sundell, Economic Research Service, United States Department of Agriculture

The first section of the paper briefly examines the current U.S. recession relative to previous U.S. recessions since 1960. In terms of severity the current recession is the most severe U.S. recession of the last 50 years in terms of length and depth. Given the large and diverse financial strains from the recession on borrowers and lenders and the necessity of financial regulatory reform, with likely accompanying higher capital standards, it likely will take a few years for the vast majority of the recession's financial strains to be eliminated. In addition, given the global nature of the current recession and financial problems, the pace of global economic recovery is likely to be weaker than normal. Interest rates, credit availability, and overall capital costs for moderate and high risk borrowers are expected to continue to improve but are not expected to revert back to the easy credit standards of the mid 2000s.

The second part of the paper examines the performance of agriculture in the current downturn relative to nonagricultural business and consumers. Agriculture has weathered the U.S. and world economic downturn much better than nonagricultural industries and consumers. Delinquency and default rates on agricultural loans at commercial banks and the Farm Credit System have remained far below those on other types of loans due to outstanding growth in farm income in recent years, the lower use of financial leverage in the farm sector, the prolonged growth in farm real estate values, the less income sensitive nature of agricultural products in general, and the relative financial health of their primary lenders.

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**2:45 p.m. – 4:15 p.m. .... Room 2**

## **Predicting Labor Force and the Economy**

*Session Chair: James Franklin, Bureau of Labor Statistics (BLS)*

### **The Next Four Decades: The United States Population, 2010 to 2050**

Grayson K. Vincent, Jennifer M. Ortman, and W. Ward Kingkade, U.S. Census Bureau

Using data from the U.S. Census Bureau's 2008 National Population Projections, we will present information on how the composition of the U.S. population will change over the next four decades in terms of age, sex, race, and Hispanic origin. Between 2010 and 2050, the U.S. population is projected to grow from 310 million to 439 million, an increase of 42 percent. The nation will also become more racially and ethnically diverse, with minorities projected to become the majority in 2042. The population is also expected to become much older, with nearly one in five U.S. residents being 65 or older by 2030.

### **Projecting Labor Force Participation Rate; an Alternative Approach**

Mitra Toossi, Bureau of Labor Statistics

The size and demographic composition of the population, as well as changes in the labor force participation rate have been the main factors explaining the projected growth in the labor force projections of the BLS. The objective of this paper is to compare the present BLS model with a new behavioral model in which economic factors determine the individual's decision to participate in the labor force. Many factors—such as the economic cycle, workers' wages, and school enrollment—impact participation in the labor force. To project the labor force participation rate, a model that accounts for these factors can provide greater insight into the future activity rates of groups with different behavioral constraints. The projected participation rates of the new model have been compared with actual data and the most recent BLS projections to evaluate the usefulness and effectiveness of this new approach.

### **Can the Fed Predict the State of the Economy**

Tara M. Sinclair, Fred Joutz, H. O. Stekler, The George Washington University

Recent research has documented that the Federal Reserve produces systematic errors in forecasting inflation, real Gross Domestic Product (GDP) growth, and the unemployment rate, even though these forecasts are unbiased. We show that these systematic errors reveal that the Fed is "surprised" by real and inflationary cycles. Using a modified Mincer-Zarnowitz regression, we show that the Fed knows the state of the economy for the current quarter, but cannot predict it one quarter ahead.

## Employment and Paradigm Shifts

*Session Chair: Eric Figueroa, Bureau of Labor Statistics (BLS)*

### **Induced Employment: Its Effects on Gross Domestic Product (GDP) and Employment**

Carl Chentrens, Bureau of Labor Statistics and Arthur Andreassen, retired from Bureau of Labor Statistics

Induced consumption is created by employees spending their wages, i.e., it is the multiplier effect of increased demand. The BLS presently calculates the direct and indirect employment generated by demand; this paper presents a procedure to calculate the added induced employment. It has been calculated that at least 30 percent of Personal Consumption Expenditures (PCE) is a result of induced consumption.

### **Defense Spending and Defense Related Employment Growth**

Mirko Novakovic and Carl Chentrens, Bureau of Labor Statistics

The end of the war in Vietnam and especially the end of the Cold War in general had initiated a decline in military spending in the USA. By applying an employment requirements analysis, we link this decline in military expenditure to a decline in government defense related direct as well as indirect employment in many industries. The government employment expenditure relating to defense issues has been changing in recent years, particularly since the 2001 destruction of the World Trade Center and the subsequent beginning of the war in Iraq. The object of the paper is to analyze changes in defense related government expenditures, as well as in industry employment, during the period from 1993 through 2008. Ultimately, the existing data could give us some insight relating to the possible future changes of overall industry employment following a rise or fall in defense related government expenditures.

### **Forecasting for Nonlinear Systems: the Paradigm Shift**

Foster Morrison & Nancy L. Morrison, Turtle Hollow Associates, Inc.

The paradigm for the industrial era has been “Exponential growth fueled by the consumption of nonrenewable resources.” This is not a sustainable policy, since nothing can keep doubling in fixed time intervals and nonrenewable resources cannot be replaced. Since the global and national economies are complex, nonlinear systems, precise long-range forecasts are not possible. However, by applying the qualitative properties of nonlinear systems and the numerical results from ecological “footprint” analysis, adequate guidelines for policy makers can be provided. A brief, qualitative evaluation is provided.



