

# The 18th Federal Forecasters Conference

## **Issues in Forecasting and the Environment**

April 21, 2011 at the Bureau of Labor Statistics

### **Sponsoring Agencies**

Bureau of Labor Statistics  
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Department of Veterans Affairs  
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U.S. Postal Service

### **Partnering Organization**

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[www.federalforecasters.org](http://www.federalforecasters.org)

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**FFC2011**

**The 18th  
Federal Forecasters Conference (FFC)**

**Thursday, April 21, 2011**

**Conference Registration Hours: 8:00 AM - 9:00 AM**

**Conference Time: 9:00 AM - 4:15 PM**

**Issues in Forecasting and the Environment**

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 • Department of Veterans Affairs  
Economic Research Service • U.S. Energy Information Administration • Internal Revenue Service  
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U.S. Geological Survey • U.S. Postal Service**

**PARTNERING ORGANIZATION**

**Research Program on Forecasting • The George Washington University**

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## 2011 Federal Forecasters Consortium Organizing Board

**Busse, Jeffrey**

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

**Byun, Kathryn**

Bureau of Labor Statistics  
U.S. Department of Labor

**Figueroa, Eric**

Bureau of Labor Statistics  
U.S. Department of Labor

**Hussar, William**

National Center for Education Statistics  
U.S. Department of Education

**Joutz, Frederick**

Research Program on Forecasting  
The George Washington University

**Lane, Erin**

Bureau of Labor Statistics  
U.S. Department of Labor

**Luisi, Mary**

Bureau of Labor Statistics  
U.S. Department of Labor

**MacDonald, Stephen**

Economic Research Service  
U.S. Department of Agriculture

**Mallik, Arup**

U.S. Energy Information Administration  
U.S. Department of Energy

**Matthews, Marybeth**

Veterans Health Administration  
U.S. Department of Veterans Affairs

**Ortman, Jennifer**

U.S. Census Bureau  
U.S. Department of Commerce

**Sinclair, Tara**

Research Program on Forecasting  
The George Washington University

**Singh, Dilpreet**

Veterans Health Administration  
U.S. Department of Veterans Affairs

**Sloboda, Brian W.**

Pricing and Classification  
U.S. Postal Service

**Vincent, Grayson**

U.S. Census Bureau  
U.S. Department of Commerce

**Waddington, David**

U.S. Census Bureau  
U.S. Department of Commerce

**Weidman, Pheny**

Bureau of Transportation Statistics  
U.S. Department of Transportation

**Weyl, Leann**

Internal Revenue Service  
U.S. Department of the Treasury

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## FFC2011 Conference at a Glance

<b>8:00 AM — 9:00 AM</b>	<b>Registration .....</b>	<b>Lobby</b>
<b>9:00 AM — 12:00 Noon</b>	<b>Morning Session.....</b>	<b>Room 1</b>
9:00 AM — 9:05 AM	Opening Remarks	
9:05 AM — 9:10 AM	Welcome	
9:10 AM — 9:20 AM	Award Announcements	
9:20 AM — 11:45 PM	Panel Discussion	

*There will be a 15 minute break at 10:20 am*

11:45 AM — 12:00 Noon	<b>Award Presentations and Photos</b>	
12:00 NOON — 1:00 PM	<b>Lunch (On Your Own)</b>	
<b>1:00 PM — 4:15 PM</b>	<b>Afternoon Concurrent Sessions .....</b>	<b>Room 1, 2, or 3</b>
1:00 PM — 2:30 PM	Concurrent Sessions I	
2:30 PM — 2:45 PM	Afternoon Break	
2:45 PM — 4:15 PM	Concurrent Sessions II	

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## Morning Session

**9:00 am – 12:00 Noon..... Room 1**

9:00 AM – 9:05 AM	<b>Opening Remarks</b> Dilpreet Singh Chair, Federal Forecasters Consortium Veterans Health Administration U.S. Department of Veterans Affairs
9:05 AM – 9:10 AM	<b>Welcome</b> Keith Hall Commissioner Bureau of Labor Statistics U.S. Department of Labor
9:10 AM – 9:20 AM	<b>Award Announcements</b>  <b>FFC2011 Forecasting Contest Winners</b> Brian W. Sloboda Pricing and Classification U.S. Postal Service  <b>FFC2009 Conference Best Paper Awards</b> Frederick Joutz Research Program on Forecasting The George Washington University
9:20 AM – 11:45 AM	<b>Panel Discussion</b> (15 minute break at 10:20 am)
11:45 AM – 12:00 Noon	<b>Award Presentations and Photos</b> Jeffrey Busse U.S. Geological Survey U.S. Department of the Interior
12:00 NOON – 1:00 PM	<b>Lunch (On Your Own)</b>

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**Panel Discussion..... 9:20 AM – 11:45 AM**

**Issues in Forecasting and the Environment**

Environmental issues have become an increasing priority for governments, businesses, and consumers. Challenges to forecasters include the implementation of programs and policies addressing efficiency, alternative energy sources, jobs, health, air and water quality, transportation, land use, and recycling programs. The 2011 Federal Forecasters Conference will examine how forecasters face these challenges and how policy-makers and other decision-makers use forecasts to make decisions.

**Moderator**

**Grayson Vincent**

Vice Chair, Federal Forecasters Consortium  
U.S. Census Bureau  
U.S. Department of Commerce

**Panelists**

**Joy Harwood, Ph.D.**

Director  
Economic and Policy Analysis Staff  
Farm Service Agency  
U.S. Department of Agriculture

**Arthur Rypinski**

Energy Economist and Policy Advisor  
Office of the Secretary  
U.S. Department of Transportation

**Dixie Sommers**

Assistant Commissioner  
Office of Occupational Statistics and Employment Projections  
Bureau of Labor Statistics  
U.S. Department of Labor

**Question and answer discussion with audience will follow**



**Joy Harwood, Ph.D.**  
Director  
Economic and Policy Analysis Staff  
Farm Service Agency  
U.S. Department of Agriculture

### **Forecasting and Assessing Environmental Performance in a non-Market Economy**

In a time of limited government resources, demonstrating program performance is essential. For environmental and conservation programs in the U.S. Department of Agriculture (USDA), accurately forecasting program performance requires consideration of climatic, economic, and other highly variable factors. An analyst developing a forecast over a specific horizon must handle the uncertainty caused by these variables, while at the same time providing scientific rigor. How do you separate the impacts of programs authorized by Congress from the acts of nature? Forecasting the effect of millions of individual conservation actions (such as buffer strips, nutrient management plans, etc.) must be reconciled with measurable water quality and other environmental outcomes—such as nitrogen concentrations in the Chesapeake Bay or the size of the Gulf of Mexico hypoxic zone (which are dependent on precipitation and other variables). The effects of individual conservation actions are not easily observable and must be modeled. But the outcomes—such as wildlife populations and water quality—are readily observable.



**Arthur Rypinski**  
Energy Economist and Policy Advisor  
Office of the Secretary  
U.S. Department of Transportation

### **Forecasting for Transportation, Energy, and the Environment**

Forecasting plays multiple roles at the U.S. Department of Transportation. The agency develops and maintains travel forecasting models for use by State and local agencies. Forecasting is an important element in both policy-making and rulemaking, both in predicting policy or regulatory outcomes, and in comparing outcomes in with or without a given policy. This presentation will give a concise guided tour of DOT forecasting roles and missions where transportation, energy, and the environment intersect, along with some examples of how forecasting made a difference.



**Dixie Sommers**

Assistant Commissioner  
Office of Occupational Statistics and Employment Projections  
Bureau of Labor Statistics  
U.S. Department of Labor

**BLS Green Jobs Initiative and Why We Are Not Doing Green Jobs Projections**

In response to growing interest in green jobs, the Bureau of Labor Statistics (BLS) began its green jobs initiative in Fiscal Year 2010. The work has developed into the publication of a definition of green jobs, the development of two different data collection efforts consistent with the two-part definition, and production of career information on areas such as wind and solar power and green buildings. This presentation will discuss the green jobs definition and the two green jobs surveys. It will also address why BLS is not planning to include a green jobs component in its Employment Projections program, a result of the nature of the green jobs definition.

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## Afternoon Concurrent Sessions

### 1:00 PM – 2:30 PM            Concurrent Sessions I

Long Term Forecasts ..... Room 1

Consensus and Survey Forecasts ..... Room 2

### 2:30 PM – 2:45 PM            Afternoon Break

### 2:45 PM – 4:15 PM            Concurrent Sessions II

Risk Forecasting ..... Room 1

Topics in Forecasting..... Room 2

Forecasting Dynamics of the Economy..... Room 3

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## Concurrent Sessions I

1:00 PM – 2:30 PM ..... Room 1

### Long Term Forecasts

*Session Chair: Mitra Toossi, Bureau of Labor Statistics, U.S. Department of Labor*

#### **Comparing Government Forecasts of the United States' Gross Federal Debt**

Andrew B. Martinez, George Washington University

I compare annual one-step-ahead forecasts from the Congressional Budget Office (CBO) and the Office of Management and Budget (OMB) of the United States' gross federal debt from 1984 to 2010. While comparisons of these agencies' forecasts have been done before, they have not focused on the debt. I find that both agencies do a good job forecasting the debt except during recessions. Each agency's forecast model lacks something that the other accounts for and an average of both out performs either individually. However, the Analysis of the President's Budget (APB), which includes information from both agencies, performs best.

#### **Language Projections: 2010 to 2020**

Hyon B. Shin and Jennifer M. Ortman, U.S. Census Bureau

The changing landscape of the population living the United States over the past several decades can be seen in many areas throughout the country. Whether it is a road sign written in Chinese or a Spanish-language television station, one can see that the language diversity in the United States is rapidly changing. In 2009, 57.1 million people (20 percent of the population 5 years and older) spoke a language other than English (LOTE) at home. In 1980, there were 23.4 million (11 percent of the population 5 years and older) LOTE speakers.

Overall, the 148 percent increase from 1980 to 2009 in the number of LOTE speakers was not evenly distributed among languages. Polish, German, and Italian actually had fewer speakers in 2009 compared to 1980. Other languages, such as Spanish, Vietnamese, and Russian, had considerable increases in their use. Using data on the language spoken at home from the American Community Survey and the U.S. Census Bureau's 2008 and 2009 National Projections, this paper presents projections of what the LOTE population might look like in 2020, with a focus on the methodology that is used to produce these projections.

#### **Medicare Long Term Projections**

Greg Won, Federal Aviation Administration

The author develops revised long term forecasts of Medicare Part A expenditures. The revisions reflect corrections to the treatment of multifactor productivity that affect the official 2010 Medicare Trustees' long term projection, and an alternative 2010 projection prepared by the Centers for Medicare and Medicaid Services, Office of the Actuary. In particular, the revision to the official Trustees' methodology raises present value Part A projected expenditures from \$17.1 trillion to \$23.3 trillion. The author concludes with recommendations for improving current Medicare long term projection methods.

## Consensus and Survey Forecasts

**Session Chair:** Stephen MacDonald, Economic Research Service, U.S. Department of Agriculture

### **Forecasters vs. Models: a Horse Race on Monthly Indicator Releases**

David Payne, U.S. Department of Commerce

The consensus of private forecasters has previously been shown to consistently beat naïve rules in predicting economic indicator releases. However, the race is neck-and-neck when the consensus competes against real time regression models that are presumably similar to what forecasters use. Despite a finding that forecasters' predictions are biased by over cautiousness, prediction errors are smaller when the consensus is added to the regression models, suggesting a combination approach to forecasting. This result could be interpreted as: the value-added of forecaster judgment, the ability of the consensus to incorporate a wider range of information, or simply as remaining model misspecification.

### **Measuring Green Economic Activity**

Ricardo Limes, Bureau of Labor Statistics

There has been much interest lately in the green economy and green jobs both inside and outside of the United States. Several State government-sponsored surveys have been conducted over the past couple of years. While all of the green surveys have measured green activity in the economy, they have used a variety of definitions and measures. The Bureau of Labor Statistics (BLS) is currently collecting and producing information on the occupational employment and wages of green jobs. After researching previous survey efforts BLS settled on a definition of green jobs and green activities. BLS is using two approaches to measuring green jobs: the *output approach*, which identifies establishments that produce green goods and services, and the *process approach*, which identifies establishments that use environmentally friendly production processes and practices. Two establishment surveys are underway: a recurring industry survey – the Green Goods and Services Survey as part of the output approach, and as part of the process approach, a special topic survey on green process jobs called the Green Technologies and Practices (GTP) Survey. The GTP Survey will measure jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources. This presentation will cover previous green survey efforts in the US and abroad, the measures used by BLS for their green surveys, and the development work that BLS has done for the GTP survey.

### **Evaluating CES/IFO Survey Forecasts of the U.S. Economy**

Mark Hutson, Fredrick Joutz, and Herman Stekler, The George Washington University

Using the Carlson-Parkin framework and employing the Pesaran-Timmerman Predictive Failure statistic, this paper evaluates several CES/IFO consensus forecasts. Examining issues related to interpreting qualitative survey responses, this paper defines what an "about the same" response implies across different economic variables, the value of agreement across the forecast panel, and how to maximize the signal value provided by the survey. This paper finds that survey respondents provide statistically significant directional forecasts, that forecaster agreement does not aid in determining the magnitude of shifts, and that the survey respondents as a group tend to miss downward turning points.

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## Concurrent Sessions II

2:45 PM – 4:15 PM ..... Room 1

### Risk Forecasting

*Session Chair: Grayson Vincent, U.S. Census Bureau, U.S. Department of Commerce*

#### **Anomaly Detection**

Greg Won and Scott Smurthwaite, Federal Aviation Administration (FAA)

Runway Incursions are one of the Department of Transportation's top safety priorities. The most deadly accident in aviation history (Tenerife Airport, 1977, involving two Boeing 747 aircraft) was a runway incursion accident. The authors will demonstrate a tool that uses statistical techniques to provide predictive warning of runway incursion threat, thus allowing the FAA to proactively manage risk.

#### **Risk Reduction Tools on Dairy Producer Margins**

##### **A Production Model with Environmental Effects**

Roberto Mosheim, Don Blayney and Richard Stillman, Economic Research Service (ERS), U.S. Department of Agriculture

Estimates of effects on milk producer margins associated with adoption of risk reduction tools are sought. Producer milk prices have fallen and feed prices have increased recently at the time that both have become more volatile. Exposure to risk is a main driver of decisions of producers wanting to stay in business. These choices can have environmental consequences including changes in land and water use, as well as increases in the number of farms subject to Environmental Protection Agency (EPA) regulation. Time series and simultaneous equations approaches that are part of an ERS dairy forecasting model are used to derive the empirical estimates.

#### **Transition to a Steady State Economy**

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

The challenges of the twenty-first century are the exhaustion of nonrenewable resources and the growth of national debt. There are two national policy alternatives: 1) Attempt to ignore the inevitable and keep promoting growth, and 2) Ease the transition to a steady state economy. Option 1 will fail because resources will become more scarce and their prices will rise. Option 2 consists of supporting research on obtaining both materials and energy from limited renewable resources. Catastrophes can be avoided by recognizing problems before they develop into crises.

### Topics in Forecasting

*Session Chair: Arup Mallik, U.S. Energy Information Administration, U.S. Department of Energy*

#### **The California Low Carbon Fuel Standard (LCFS) and the U.S. Energy Economy**

Michael Cole and Sean Hill, U.S. Department of Energy

The California Low Carbon Fuel Standard requires the carbon intensity (g CO<sub>2</sub>e/MJ) of motor fuels used in California to steadily decrease through 2020. The presentation will examine the projected impacts of the LCFS on the U.S. energy economy through 2035, as shown in the EIA's Annual Energy Outlook. Interactions between the California LCFS and the national Renewable Fuel Standard (RFS) will also be discussed.

#### **Modelling and Forecasting Residential Energy Consumption in the U.S. Mountain Region**

Jason Jorgenson and Frederick Joutz, U.S. Department of Housing and Urban Development and The George Washington University

The U.S. Mountain Region has experienced significant economic and demographic growth since 1990. There have been structural changes as a result of population growth and electricity deregulation. In addition, there has been growing access to natural gas for residential consumers. This research examines the short-run and long-run dynamics of residential electricity and natural gas consumption. We compare our model and forecasts with those of the U.S. Energy Information Administration's (EIA's) Short Term Energy Outlook.

We examine the short-run forecasting properties of our model and again can compare them with the EIA counterpart. Before doing so, the forecasting variables are tested for strong exogeneity. Then we will conduct a forecasting evaluation between our models and the EIA models for the period January 2007 through December 2009. Finally, we use the price and weather responses to perform simulations looking at the impact of higher electricity prices and warmer weather on carbon emissions.

#### **Producer Price Index (PPI) Develops New Experimental Index Aggregation System**

Jonathan Weinhagen, Bureau of Labor Statistics

The Producer Price Index currently emphasizes its stage of processing (SOP) system as the key structure for analyzing producer prices. The SOP system aggregates manufacturers' selling prices for crude, intermediate, and finished goods. Over the past 20 years, however, PPI coverage has expanded to include price indexes for many service and construction activities. PPI has developed an experimental index aggregation system that incorporates these additional indexes and is currently seeking feedback from data users. This paper presents the theoretical background underling the aggregation system and presents preliminary index data from the system.

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**Farm Operator Benefits from Direct Marketing Strategies:  
Does Choice of Local Food Channel Impact Farm Revenue?**

Shawn Wozniak and Timothy Park, Economic Research Service, U.S. Department of Agriculture

Initiatives to create a sustainable food supply chain are an important driving force in the growth of local food sales by farm operators yet there is very little analysis that has examined how participation in these markets affects farm business income. This study uses data from the 2008 Agricultural Resource Management Survey (ARMS) on direct marketing strategies used by farmers. We account for selectivity bias in the observed earnings from a marketing outlet, recognizing that producers choose from a set of marketing options to obtain the highest returns. The results will provide significant information on whether direct sales should be part of a farm business management plan, contingent on the type and location of the operation.

## Forecasting Dynamics of the Economy

*Session Chair: Kathryn Byun, Bureau of Labor Statistics, U.S. Department of Labor*

### **Assessing Global Vector Auto-regressions for Forecasting**

Neil R. Ericsson; Federal Reserve Board

Global vector auto-regressions (GVARs) have several attractive features: a standardized economically appealing choice of variables for each country or region examined a systematic treatment of long-run properties, and flexible dynamic specification. Pesaran, Schuermann, and Smith (2009) generate and evaluate forecasts from a paradigm GVAR with 26 countries. The current paper empirically assesses that GVAR with impulse indicator saturation, a new generic procedure for evaluating parameter constancy--- a central element in model-based forecasting. The results indicate substantial room for an improved, more robust specification of that GVAR, with some tests suggestive of how to achieve such improvements.

### **Compositional Differences in Gross Domestic Product (GDP) Estimates Between Recession and Expansions**

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

The main topic of this paper is to determine whether data revisions could influence forecasting because the composition of GDP varies substantially from one vintage of data to another. We introduce a number of new statistics for measuring the magnitude of these compositional changes. We further specifically investigate the potential role of changes in the state of the economy for these compositional changes. Our analysis shows that the early data generally reflected the composition of the changes in GDP that was observed in the later data. Thus, under most circumstances, an analyst could use the early data to obtain a realistic picture of what had happened in the economy in the previous quarter. However, the differences in the composition of the vectors of the two vintages were larger during recessions than in expansions. Unfortunately, it is in those periods when accurate information is most vital for forecasting.

### **Is the Purchasing Managers' Index Useful for Forecasting Industrial Production? A Directional Analysis**

Yoichi Tsuchiya, State University of New York at Buffalo

We use directional tests to investigate whether the Purchasing Managers Index (PMI) is a useful predictor of Industrial Production (IP). Although the PMI has been used to assess the direction of the economy, there are few attempts to evaluate how well the PMI forecasts the acceleration and slowdown of the IP. We examine various datasets to obtain evidence that the PMI is useful over the past 10 years and in 1950s. Furthermore, the usefulness is robust to peaks and troughs, and expansions and contractions.

