

# Inforum in 2012: Information and Technology

Ronald Horst<sup>1</sup>

<sup>1</sup>Inforum – Department of Economics  
University of Maryland

Inforum World Conference, 2012

# Outline

## 1 Motivation

- The Basic Problem That We Studied
  - Distribution of Information
  - Tools for Applied Economists
- Previous Work

## 2 Our Results and Contributions

- [www.Inforum.umd.edu](http://www.Inforum.umd.edu)
- Software Documentation
- G7
- Compare

# Outline

- 1 Motivation
  - The Basic Problem That We Studied
    - Distribution of Information
    - Tools for Applied Economists
  - Previous Work
- 2 Our Results and Contributions
  - [www.Inforum.umd.edu](http://www.Inforum.umd.edu)
  - Software Documentation
  - G7
  - Compare

# Distribution of Information

- Learn about who is using the web site.
- Understand what material is sought.
- Provide better documentation and easier access to information.

# Distribution of Information

- Learn about who is using the web site.
- Understand what material is sought.
- Provide better documentation and easier access to information.

# Distribution of Information

- Learn about who is using the web site.
- Understand what material is sought.
- Provide better documentation and easier access to information.

# Tools for Applied Economists

- Improvements for data work, econometrics, and modeling.
- Improved document generating tools.
- More help through demonstrations and better documentation.

# Tools for Applied Economists

- Improvements for data work, econometrics, and modeling.
- Improved document generating tools.
- More help through demonstrations and better documentation.



# Tools for Applied Economists

- Improvements for data work, econometrics, and modeling.
- Improved document generating tools.
- More help through demonstrations and better documentation.

# Outline

## 1 Motivation

- The Basic Problem That We Studied
  - Distribution of Information
  - Tools for Applied Economists
- Previous Work

## 2 Our Results and Contributions

- [www.Inforum.umd.edu](http://www.Inforum.umd.edu)
- Software Documentation
- G7
- Compare

## A Sample of Previous Work

- Clopper Almon (1967). Time Series Regressions with Plot
- Clopper Almon (1988). The Craft of Economic Modeling
- ...
- Wittek and Horst (2010). Updates to *G7, Compare*, and the Inforum Web Site
- Horst (2011). Inforum Software Development in 2011
- Horst (2012). Inforum in 2012: Information and Technology

# Outline

## 1 Motivation

- The Basic Problem That We Studied
  - Distribution of Information
  - Tools for Applied Economists
- Previous Work

## 2 Our Results and Contributions

- [www.Inforum.umd.edu](http://www.Inforum.umd.edu)
- Software Documentation
- G7
- Compare

# Inforum Web Site

- Learn about who is using the web site
  - Google Analytics: Visitor Profiles, Referring Sites
- Understand what material is sought
  - Google Analytics: Download Summaries, Page Views, Traffic Patterns, Google Searches
- Provide better documentation and easier access to information

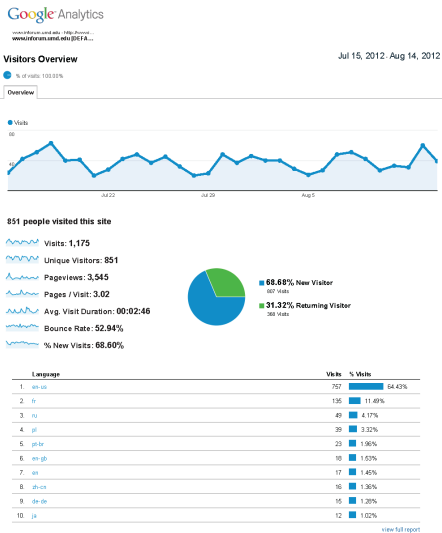
# Inforum Web Site

- Learn about who is using the web site
  - Google Analytics: Visitor Profiles, Referring Sites
- Understand what material is sought
  - Google Analytics: Download Summaries, Page Views, Traffic Patterns, Google Searches
- Provide better documentation and easier access to information

# Inforum Web Site

- Learn about who is using the web site
  - Google Analytics: Visitor Profiles, Referring Sites
- Understand what material is sought
  - Google Analytics: Download Summaries, Page Views, Traffic Patterns, Google Searches
- Provide better documentation and easier access to information

# Google Analytics: Visitor Profiles





# Google Analytics: Geographic Location

Google Analytics

www.inform.uni.edu - http://www...  
www.inform.uni.edu (DEFA...

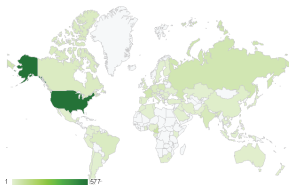
## Location

Jul 15, 2012 - Aug 14, 2012

% of visits: 100.00%

Map Overlay

Site Usage



Visits <b>1,175</b> % of Total: 100.00% (1,175)	Pages / Visit <b>3.02</b> Site Avg: 3.02 (3.02%)	Avg. Visit Duration <b>00:02:46</b> Site Avg: 00:02:46 (0.02%)	% New Visits <b>69.60%</b> Site Avg: 69.60% (0.02%)	Bounce Rate <b>52.94%</b> Site Avg: 52.94% (0.02%)
---	--	--	---	--

Country / Territory	Visits	Pages / Visit	Avg. Visit Duration	% New Visits	Bounce Rate
1. United States	577	3.01	00:02:17	74.52%	55.11%
2. Cameroon	75	2.64	00:06:28	29.33%	49.33%
3. France	52	2.33	00:03:30	45.15%	59.62%
4. Russia	52	4.29	00:07:19	30.77%	53.85%
5. Poland	48	3.98	00:05:14	47.50%	52.50%
6. India	36	2.56	00:02:01	77.78%	44.44%
7. Brazil	26	1.23	00:00:30	96.15%	76.92%
8. Canada	25	2.28	00:00:24	76.00%	44.00%
9. Germany	25	5.84	00:03:38	84.00%	48.00%
10. Italy	22	2.32	00:02:31	90.91%	54.55%

Row 1 - 10 of 20



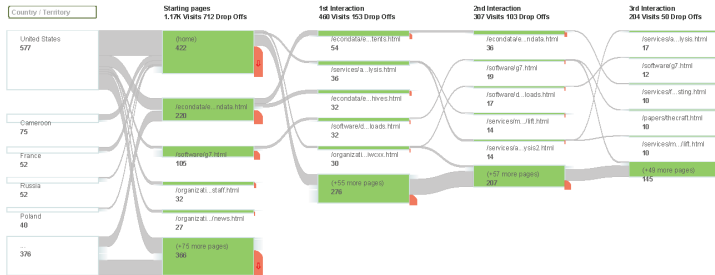
# Google Analytics: Traffic Flow



www.inforum.umd.edu - http://www...  
www.inforum.umd.edu [DEF A...

## Visitors Flow

Jul 15, 2012 - Aug 14, 2012



© 2012 Google



# Google Analytics: File Downloads

Google Analytics

www.inform.umd.edu - http://www...  
www.inform.umd.edu/DEFA...

## Events Overview

Jul 15, 2012 - Aug 14, 2012

● % of unique events: 100.00%

Overview

● Total Events



## 2,557 of your visits sent events

Total Events: 121  
 Unique Events: 70  
 Event Value: 0  
 Avg. Value: 0.00  
 Visits with Event: 65  
 Events / Visit: 1.86

Event Category	Total Events	% Total Events
1. Research	43	35.54%
2. Software	41	33.88%
3. EconData	32	26.45%
4. EconDataArchive	4	3.31%
5. Maryland	1	0.83%

[view full report](#)



# Better Documentation and Easier Access to Information

- Tools to Improve Site
  - Google Webmaster Tools
  - LinkChecker
- New EconData, Papers, and Partner Information
- New Section with Software Documentation

# Better Documentation and Easier Access to Information

- Tools to Improve Site
  - Google Webmaster Tools
  - LinkChecker
- New EconData, Papers, and Partner Information
- New Section with Software Documentation

# Better Documentation and Easier Access to Information

- Tools to Improve Site
  - Google Webmaster Tools
  - LinkChecker
- New EconData, Papers, and Partner Information
- New Section with Software Documentation

# Outline

- 1 Motivation
  - The Basic Problem That We Studied
    - Distribution of Information
    - Tools for Applied Economists
  - Previous Work
- 2 Our Results and Contributions
  - [www.Inforum.umd.edu](http://www.Inforum.umd.edu)
  - Software Documentation
  - G7
  - Compare

# Document Types

- HTML (Available for browsing on web site)
- PDF (May be printed as book)
- Compiled Help (Integrated with G7)

All feature full indexes, searching, cross references, external links



# Document Types

- HTML (Available for browsing on web site)
- PDF (May be printed as book)
- Compiled Help (Integrated with G7)

All feature full indexes, searching, cross references, external links

# Document Types

- HTML (Available for browsing on web site)
- PDF (May be printed as book)
- Compiled Help (Integrated with G7)

All feature full indexes, searching, cross references, external links

# Document Types

- HTML (Available for browsing on web site)
- PDF (May be printed as book)
- Compiled Help (Integrated with G7)

All feature full indexes, searching, cross references, external links

# Source Material

- G7 Reference Manual, Users' Guide, Help, Tutorial
- *Compare* Manual
- *Build* and *IdBuild* Manuals
- *Fixer* and *MacFixer* Manuals
- *Banker* Guide

# HTML Help

Firefox

www.inforum.umd.edu/papers/inforum/software/html/source/introduction.html

Inforum Help >

## An Introduction to Inforum

Inforum, or the Interindustry Forecasting Project at the University of Maryland, was founded 45 years ago by Dr. Clopper Almon, now Professor Emeritus of the University. It is dedicated to improving business planning, government policy analysis, and the general understanding of the economic environment. Inforum accomplishes this mission through:

- Building and using structural economic models of U.S. and other economies. Inforum pioneered the construction of dynamic, interindustry, macroeconomic models that portray the economy in a unique "bottom-up" fashion.
- Working with government and private sector research sponsors to investigate a variety of issues. Economic projections and analysis using Inforum econometric models are distinguished by detail at the industrial and product level.
- Serving as a training crucible for University of Maryland graduate students who receive valuable training in empirical economics. Indeed, Inforum graduate research assistants have completed over 40 Ph.D. dissertations, most of which have contributed directly to the infrastructure of Inforum.
- Maintaining active and productive ties with a world-wide network of research associates, each of which uses Inforum modeling methods and software. The Inforum partners have held annual conferences since 1993.

In 2012, Inforum proudly celebrated its 45th anniversary. Since its founding in 1967 by Dr. Clopper Almon, Inforum has operated at the University of Maryland, serving clients in business and government and providing training for many university students, visiting scholars, and others. Inforum continues to foster cooperation and development of economic knowledge and techniques with partners around the world.

- [An Introduction to G7](#)
- [G7: New for 2012](#)
- [G7: New for 2011](#)
- [G7: New for 2010](#)
- [G7: New for 2009](#)
- [G7: New for 2008](#)
- [G7: New for 2007](#)

Inforum Help >

© Copyright 2012, Inforum. Created using [Sphinx](#) 1.1.3.

previous | next | index



## AN INTRODUCTION TO INFORUM

Inforum, or the Interindustry Forecasting Project at the University of Maryland, was founded 45 years ago by Dr. Clippner Almon, now Professor Emeritus of the University. It is dedicated to improving business planning, government policy analysis, and the general understanding of the economic environment. Inforum accomplishes this mission through:

- Building and using structural economic models of U.S. and other economies. Inforum pioneered the construction of dynamic, interindustry, macroeconomic models that portray the economy in a unique "bottom-up" fashion.
- Working with government and private sector research sponsors to investigate a variety of issues. Economic projections and analysis using Inforum econometric models are distinguished by detail at the industrial and product level.
- Serving as a training crucible for University of Maryland graduate students who receive valuable training in empirical economics. Indeed, Inforum graduate research assistants have completed over 40 Ph.D. dissertations, most of which have contributed directly to the infrastructure of Inforum.
- Maintaining active and productive ties with a world-wide network of research associates, each of which uses Inforum modeling methods and software. The Inforum partners have held annual conferences since 1993.

In 2012, Inforum proudly celebrated its 45th anniversary. Since its founding in 1967 by Dr. Clippner Almon, Inforum has operated at the University of Maryland, serving clients in business and government and providing training for many university students, visiting scholars, and others. Inforum continues to foster cooperation and development of economic knowledge and techniques with partners around the world.

### 1.1 An Introduction to G7

G7 is a data base, regression, and econometric model-building program for Windows. It is designed for estimation of regression equations with annual, quarterly, or monthly time-series data. G7 takes its name from Carl Friedrich Gauss, the originator of the method of least squares. The G7 project is maintained at the University of Maryland, but is supported by contributions of Inforum colleagues around the world. Please visit the Inforum web site for more information and the latest version of the G7 software. The latest edition of these help files and additional documentation also may be found there. Please report any problems with the software, and please send questions and comments by email to the Inforum webmaster.

Several sources of information are available for G7. These include the G7 Help Files that include the G7 User Guide and Reference Manual, the G7 Tutorial, and the Software Demonstrations courses that are available from the Inforum web site.

# Compiled Help

The screenshot shows a web browser window titled "Inforum Help". The address bar shows "Inforum Help >". The page title is "An Introduction to Inforum". The main content area contains the following text:

Inforum, or the Interindustry Forecasting Project at the University of Maryland, was founded 45 years ago by Dr. Clopper Almon, now Professor Emeritus of the University. It is dedicated to improving business planning, government policy analysis, and the general understanding of the economic environment. Inforum accomplishes this mission through:

- Building and using structural economic models of U.S. and other economies. Inforum pioneered the construction of dynamic, interindustry, macroeconomic models that portray the economy in a unique "bottom-up" fashion.
- Working with government and private sector research sponsors to investigate a variety of issues. Economic projections and analysis using Inforum econometric models are distinguished by detail at the industrial and product level.
- Serving as a training crucible for University of Maryland graduate students who receive valuable training in empirical economics. Indeed, Inforum graduate research assistants have completed over 40 Ph.D. dissertations, most of which have contributed directly to the infrastructure of Inforum.
- Maintaining active and productive ties with a world-wide network of research associates, each of which uses Inforum modeling methods and software. The Inforum partners have held annual conferences since 1993.

In 2012, Inforum proudly celebrated its 45th anniversary. Since its founding in 1967 by Dr. Clopper Almon, Inforum has operated at the University of Maryland, serving clients in business and government and providing training for many university students, visiting scholars, and others. Inforum continues to foster cooperation and development of economic knowledge and techniques with partners around the world.

- An Introduction to G7
- G7: New for 2012
- G7: New for 2011
- G7: New for 2010
- G7: New for 2009
- G7: New for 2008
- G7: New for 2007

The left sidebar shows a tree view of the help contents, with "An Introduction to Inforum" selected. The bottom of the window shows the copyright notice: "© Copyright 2012, Inforum. Created using Sphinx 1.1.3."



# Outline

- 1 Motivation
  - The Basic Problem That We Studied
    - Distribution of Information
    - Tools for Applied Economists
  - Previous Work
- 2 Our Results and Contributions
  - [www.Inforum.umd.edu](http://www.Inforum.umd.edu)
  - Software Documentation
  - **G7**
  - Compare



# Developments in G7

- Successful testing under Windows 8
- Extensions to the Excel Interface
- Graphical Interface Improvements
- Programming Logic and Strings
- Data Management and Development

# Developments in G7

- Successful testing under Windows 8
- Extensions to the Excel Interface
- Graphical Interface Improvements
- Programming Logic and Strings
- Data Management and Development

# Developments in G7

- Successful testing under Windows 8
- Extensions to the Excel Interface
- Graphical Interface Improvements
- Programming Logic and Strings
- Data Management and Development

# Developments in G7

- Successful testing under Windows 8
- Extensions to the Excel Interface
- Graphical Interface Improvements
- Programming Logic and Strings
- Data Management and Development

# Developments in G7

- Successful testing under Windows 8
- Extensions to the Excel Interface
- Graphical Interface Improvements
- Programming Logic and Strings
- Data Management and Development

## Extensions to the Excel Interface

- Read time series, vectors, and matrix data
- Print labels and data to Excel documents
- New features
  - Set text and data formatting: control fonts, colors, ...
  - Merge cells, freeze panes, insert formulas, subscripts and superscripts, ...
  - Create graphs from printed data

# Extensions to the Excel Interface

- Read time series, vectors, and matrix data
- Print labels and data to Excel documents
- New features
  - Set text and data formatting: control fonts, colors, ...
  - Merge cells, freeze panes, insert formulas, subscripts and superscripts, ...
  - Create graphs from printed data

## Extensions to the Excel Interface

- Read time series, vectors, and matrix data
- Print labels and data to Excel documents
- New features
  - Set text and data formatting: control fonts, colors, . . .
  - Merge cells, freeze panes, insert formulas, subscripts and superscripts, . . .
  - Create graphs from printed data



## Extensions to the Excel Interface

- Read time series, vectors, and matrix data
- Print labels and data to Excel documents
- New features
  - Set text and data formatting: control fonts, colors, . . .
  - Merge cells, freeze panes, insert formulas, subscripts and superscripts, . . .
  - Create graphs from printed data

# Graphical Interface Improvements

- Minor improvements to show, look, and editor windows
- G7 Graphs
  - Improved layout of graph legends
  - Allow longer series names to be displayed
  - Allow up to seven series to be shown at once
  - Partially restored the display of line styles
  - Allow algebraic expressions to be graphed

gr GDP (C+I+G) 2000 2010 2020

# Graphical Interface Improvements

- Minor improvements to show, look, and editor windows
- G7 Graphs
  - Improved layout of graph legends
  - Allow longer series names to be displayed
  - Allow up to seven series to be shown at once
  - Partially restored the display of line styles
  - Allow algebraic expressions to be graphed

gr GDP (C+I+G) 2000 2010 2020

# Graphical Interface Improvements

- Minor improvements to show, look, and editor windows
- G7 Graphs
  - Improved layout of graph legends
  - Allow longer series names to be displayed
  - Allow up to seven series to be shown at once
  - Partially restored the display of line styles
  - Allow algebraic expressions to be graphed

gr GDP (C+I+G) 2000 2010 2020

# Graphical Interface Improvements

- Minor improvements to show, look, and editor windows
- G7 Graphs
  - Improved layout of graph legends
  - Allow longer series names to be displayed
  - Allow up to seven series to be shown at once
  - Partially restored the display of line styles
  - Allow algebraic expressions to be graphed

gr GDP (C+I+G) 2000 2010 2020

# Programming Logic and Strings

- Strings

- Ex: `str sector = 'Petroleum and Gas'`

- Keywords

- Ex: `%date, %fdate1, %rsq, %beta1`

- Scripting Functions

- Ex: `title %s(sector) Output (2010):  
%getval(a.out5, 2010)`

- Ex: `if( %mod( %1, 3 ) == 0 ){ ... }`

- Ex: `str bank = %if("%s(model)"=="Lift" ), "a", "b")`

# Programming Logic and Strings

- Strings

- Ex: `str sector = 'Petroleum and Gas'`

- Keywords

- Ex: `%date, %fdate1, %rsq, %beta1`

- Scripting Functions

- Ex: `title %s(sector) Output (2010):`

- `%getval(a.out5, 2010)`

- Ex: `if( %mod( %1, 3 ) == 0 ){ ... }`

- Ex: `str bank = %if("%s(model)"=="Lift" ), "a", "b")`



# Programming Logic and Strings

- Strings

- Ex: `str sector = 'Petroleum and Gas'`

- Keywords

- Ex: `%date, %fdate1, %rsq, %beta1`

- Scripting Functions

- Ex: `title %s(sector) Output (2010):`

- `%getval(a.out5, 2010)`

- Ex: `if( %mod( %1, 3 ) == 0 ){ ... }`

- Ex: `str bank = %if("%s(model)"=="Lift" ), "a", "b")`



# Data Management and Development

- Resector commands: vector and matrix aggregation, disaggregation, and scaling
- Extended Workspace
  - Assemble large data sets (millions of series)
  - Operates at higher speed
  - Currently saves data as text (compile with *Banker*)

# Data Management and Development

- Resector commands: vector and matrix aggregation, disaggregation, and scaling
- Extended Workspace
  - Assemble large data sets (millions of series)
  - Operates at higher speed
  - Currently saves data as text (compile with *Banker*)

# Outline

- 1 Motivation
  - The Basic Problem That We Studied
    - Distribution of Information
    - Tools for Applied Economists
  - Previous Work
- 2 Our Results and Contributions
  - [www.Inforum.umd.edu](http://www.Inforum.umd.edu)
  - Software Documentation
  - G7
  - Compare

# Compare

- Print data to Excel workbook
- Control typeface, pitch, other formatting
- Name each worksheet, freeze panes
  
- Create Excel graphs
  - Formatted dates on horizontal axis
  - Graph up to 29 series
  - Choose from a large number of graph styles
  - Currently specify series names, title, subtitle, and vertical axis title

# Compare

- Print data to Excel workbook
- Control typeface, pitch, other formatting
- Name each worksheet, freeze panes
- Create Excel graphs
  - Formatted dates on horizontal axis
  - Graph up to 29 series
  - Choose from a large number of graph styles
  - Currently specify series names, title, subtitle, and vertical axis title

# Summary

We are

- Learning more about research sponsors, partners, and other visitors.
- Providing more and better information.
- Continuing to improve and extend Inforum software.
- What is next
  - Improve documentation by integrating other/newer material.
  - Extend the Excel graphing capability.
  - Complete improvements to scaling and matrix balancing routines.
- For more, see Demonstration routines on the web and CD



# Summary

We are

- Learning more about research sponsors, partners, and other visitors.
- Providing more and better information.
- Continuing to improve and extend Inforum software.
- What is next
  - Improve documentation by integrating other/newer material.
  - Extend the Excel graphing capability.
  - Complete improvements to scaling and matrix balancing routines.
- For more, see [Demonstration routines on the web and CD](#)



# Summary

We are

- Learning more about research sponsors, partners, and other visitors.
- Providing more and better information.
- Continuing to improve and extend Inforum software.
- What is next
  - Improve documentation by integrating other/newer material.
  - Extend the Excel graphing capability.
  - Complete improvements to scaling and matrix balancing routines.
- For more, see Demonstration routines on the web and CD





# For Further Reading I



Inforum.

*Software Documentation.*

[www.inforum.umd.edu/software/documentation.html](http://www.inforum.umd.edu/software/documentation.html).



Ronald Horst.

*Inforum in 2012: Information and Technology.*

[www.inforum.umd.edu/organization/conferences/iwcxx/iwcxx.html](http://www.inforum.umd.edu/organization/conferences/iwcxx/iwcxx.html).