SUMMARY OF PROFESSIONAL QUALIFICATIONS OF DR. CHRISTOPHER THORNBERG

EDUCATION

Ph.D in Business Economics from The Anderson School at UCLA
B.S. in Business Administration from the State University of New York at Buffalo

QUALIFICATIONS/EXPERIENCE

Dr. Christopher Thornberg, who oversaw and led all research connected with this SOQ, is a renowned and highly experienced PhD economist with training from one of the nation’s top-tier economics’ departments. Directly relevant to the current project are two comprehensive analyses that Dr. Thornberg has conducted in recent years on water projects in California for The Metropolitan Water District of Southern California.

In 2015, Dr. Thornberg was contracted by The Metropolitan Water District of Southern California to conduct a thorough evaluation of a number of high-level cost-benefit analyses focused on the Bay Delta Conservation Plan. The previously drafted analyses had come to starkly different conclusions about the net benefit of this major 50-year plan to re-establish water supply reliability and help restore and preserve the ecosystem of the Sacramento-San Joaquin River Delta. Dr. Thornberg was brought in to assess the methodology and conclusions of each study and provide a critical and accurate assessment to the Water District. Additional details about this project are included in the “Past Performance/Technical Approach” section of this SOQ.

In 2007, Dr. Thornberg was one of two lead researchers on a large study focused on the potential benefits and costs to the State of California from land fallowing water transfer programs. The study used an innovative approach of looking to past natural experiments—largely the drought of the early 1990’s—to estimate the impact of a reduction in water available for agricultural uses in the state. This report was a follow up to earlier work done by Dr. Thornberg in which he critiqued two economic impact studies done by other researchers on this same topic.

In addition to water specific work, Dr. Thornberg also has extensive experience conducting economic impact analyses for a wide variety of public projects and policies, conducting economic and revenue forecasting, and conducting economic policy analysis.

PAST PROJECT PERFORMANCE/TECHNICAL APPROACH

Prior to launching Beacon Economics, Dr. Thornberg was a senior economist with UCLA’s Anderson Forecast where he regularly authored economic outlooks for California, Los Angeles, the East Bay, and developed specialized forecasts for a variety of public and private entities. He previously taught in the MBA program at UCLA’s Anderson School, in
Dr. Thornberg has extensive experience working with private and public sector clients to conduct economic and data analysis that supports successful decision-making. Included in this response are detailed descriptions of select projects and work products that illustrate Dr. Thornberg’s relevant experience. The following list of projects is organized by the RFP task for which each is applicable in terms of expertise.

➢ **Cost-Benefit Analysis, Bay Delta Conservation Plan**

*Client:* The Metropolitan Water District of Southern California  
*Address:* P.O. Box 54153, Los Angeles, CA 90054; Fax: 213-217-6052  
*Contact:* Jeff Kightlinger, General Manager and CEO, 213-217-6139 or jkightlinger@mwdh2o.com

In 2015, Dr. Thornberg conducted a comprehensive cost-benefit analysis of the potential impacts of the Bay Delta Conservation Plan (BDCP), a proposal that would create a system for moving water from the northern Sacramento-San Joaquin Delta to south and west of the Delta. For this project, staff built on and assessed the findings of three earlier analyses conducted for the BDCP.

The analysis then presented original estimates of the value of BDCP water exports and the value of reducing risk to the state’s water supply from an earthquake. The goal was to determine if the BDCP is most likely to have a positive net benefit from a statewide perspective. To make this determination, the researchers conducted Monte Carlo simulations of expected BDCP benefits. These simulations are compositions of thousands of different scenarios that reveal the most frequent outcomes for each scenario.

For this project, the researchers applied four different water export scenarios:

- A restoration of water exports from 4.7 million acre-feet per year on average (without the BDCP) to either 5.6 million acre-feet per year or to 5.2 million acre-feet per year (with the BDCP);
- Or, a restoration from as low as 3.2 million acre-feet per year due to restrictions on exports (without the BDCP) to either 5.6 million acre-feet per year or to 5.2 million acre-feet per year (with the BDCP).

The total value of Delta water exports was then estimated with respect to a wide variety of variables including real Delta water price appreciation, inflation effects, growth in the cost of delivering Delta water to local agencies, price elasticity of Delta water, and the proportion of Delta water for urban and agricultural water agencies.
Benefits and Costs For California From Water Transfers

Client: The Metropolitan Water District of Southern California
Address: P.O. Box 54153, Los Angeles, CA 90054; Fax: 213-217-6052
Contact: Jeff Kightlinger, General Manager and CEO, 213-217-6139 or jkightlinger@mwdh2o.com

In 2007, Dr. Thornberg was one of two lead researchers on a large study focused on the benefits and costs to the State of California from water transfers. The project focused on a cost benefit analysis of water transfers in the state, by looking at the potential costs to agricultural output and the potential benefits for urban areas. On the cost side the report used a natural experiment, the California drought of the early 1990s, to estimate the impact of reduced water supply on agricultural output. This methodology is preferable to other techniques since it automatically builds in the mitigation efforts of farmers. Other studies have assumed a proportionate decline in output, which will inherently overestimate the potential impact. On the demand side the researchers traditional elasticity analyses to gauge the value of additional consumption on the consumer market.

Economic Advisor, Office of the California State Controller

Client: Office of the California State Controller
Address: 300 Capitol Mall, Suite 621, Sacramento, CA 95814; Fax: 916-322-4404
Contact: David O’Toole, Director of Policy, 916-327-1091 or dotoole@sco.ca.gov

Between 2008 and 2012, Dr. Thornberg served as a chief economic advisor/forecaster for the Office of the California State Controller. In this role Dr. Thornberg delivered comprehensive revenue and economic forecasts for the state to the Controller’s Office twice per year. Dr. Thornberg also updated current revenue flows and provided economic background regarding why certain trends were occurring in the state’s economy for the Controller’s monthly revenue report.

The economic forecast models that Dr. Thornberg implemented for the State Controller’s Office included projections of state unemployment rates, payroll employment, taxable sales, personal income, home construction sales and prices, non-residential construction permits, inflation, and population growth. Additionally, the forecasts were modeled to provide both long-and short-run outlooks. The long-run forecast was forward-looking and used long-run information, not simply information about current conditions. The firm forecast the state’s underlying economic drivers before forecasting its revenues based on these projections. In its work for the State Controller, Dr. Thornberg applied its capability to build new long-run projections on top of already existing models.

Dr. Thornberg also provided a short-run forecast on cash flows to the Controller’s Office on a month-to-month basis. This was done in part to allow the long-run forecast to be broken
down into monthly revenue flows in order to promote proper cash management. Dr. Thornberg’s short-run forecasts are based on time series approaches where current trends in the data – along with monthly information on leading business indicators such as employment, unemployment, and building permits – are incorporated.

- **Economic Benefit Analysis, State Route 91 Corridor Improvement Project**

  **Client:** Riverside County Transportation Commission  
  **Address:** 4080 Lemon Street, 3rd Floor, Riverside, CA 92501; Fax:  
  **Contact:** Theresia Trevino, Chief Financial Officer, 951-787-7926, ttrevino@rctc.org

Dr. Thornberg conducted an analysis of the planned expansion of the State Route 91 Corridor, specifically focusing on the economic impact of the investment, the time-savings the project would generate, and the impact the project would have on future economic growth in the region. Specifically, the analysis evaluated direct and indirect job creation from actual construction work, the value of time-savings by commuters, and the indirect impact on retail sales growth along the corridor. The analysis estimated that the $1.3 billion project would generate more than $2 billion in economic output, $9.3 million annually in tax revenue, create 1800 jobs per year in Riverside County, and create a time savings value that would grow to between $90 and $129 million per year by 2015. Dr. Thornberg acted as media spokesperson for the analysis and regularly responded to requests for interviews and expert commentary.
Christopher Thornberg

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**Professional Experience**

**Partner and Founder, Beacon Economics, LLC**  
2006-present  
Regional and State Economic Forecasts, Industry Analysis, Litigation Consulting, Regional Economic Forecast Conferences, Economic Impact Studies, Board Briefings, Public Speaking.

**Member, Advisory Board, Paulson & Co. Inc.**  
2006-present  
Sits on the Advisory Board of one of Wall Street’s most successful hedge funds.

**Chief Economist, California State Controller John Chiang**  
2008-2012  
Chief economic advisor and forecaster to California State Controller and key staff members.

**Chair, Council of Economic Advisors, California State Controller John Chiang**  
2008-2012  
Chair of advisory group that counsels California’s top fiscal officer about current and emerging issues affecting the state economy.

**Editorial Board Member, Graziadio Business Report, Graziadio School of Business and Management, Pepperdine University**  
2006-2011  
Editorial board member of quarterly peer-reviewed report.

**Visiting Lecturer, Rady School of Business at UC San Diego**  
2007-2008  
MBA Level Macroeconomics

**Senior Lecturer, The Anderson School at UCLA**  
2000-2007  
MBA Level Managerial Economics, Global Economics, Business Forecasting

**Senior Economist, UCLA Anderson Forecast**  
2000-2006  
Produced short and long run economic and demographic
forecasts for California, the East Bay, and Los Angeles. Conducted a variety of special studies and regional forecasts on consulting basis. Managed business development, conference content, and seminar organization.

**Assistant Professor, Economics Departments at Clemson University** 1997-2000

**Lecturer, USC Marshal School of Business** 1996-1997

**Education**

**Ph.D., Management** 1997
*Concentration in Business Economics*
*The Anderson School at the University of California, Los Angeles*

**B.S., Business Administration** 1989
*State University of New York at Buffalo*

**Refereed Publications**


“Ports Trade and Terrorism, Balancing the Catastrophic and the Chronic” with E. E. Leamer. Published in *Protecting the Nation’s Seaports: Balancing Security and Costs*. Public Policy Institute of California. 2006


Selected Other Publications and Projects


Special Regional Economic Forecasts. Riverside County, San Bernardino County, San Diego County, Orange County, Oakland MSA, San Francisco MSA, San Jose MSA, City of Los Angeles. 2002-2009


“Waiting to Save: A Crisis of the Young” with Jon Haveman. Research report conducted for the AICPA. 2008

“Savings And Asset Accumulation Among Young Americans 25 to 34” with Jon Haveman. Research report conducted for the AICPA. 2006

“The Economic Impact of Land Fallowing Programs” with M. Bazdarich. Research report for the Metropolitan Water District. 2006

“Evaluation of Economic Impact of Proposed Hotel Development.” Special Report for Concord Wilshire Hoover, LLC. 2005

“The California Economic Forecast” in California Policy Options. UCLA School of Public Policy. 2002-2005


“Healthcare and the Economy: Train or Drain?” The UCLA Anderson Forecast for the Nation and California. 2002


“The Causes of the California Energy Crisis” in California Policy Options, UCLA School of Public Policy. 2002
“Short Circuit: Will the California Energy Crisis Derail the State’s Economy?” CERA Special Report, with various authors. 2001

“Whither the New Economy?” The UCLA Anderson Forecast for the Nation and California. 2001


“A Year of NAFTA and a Peso Earthquake,” with E. E. Leamer. The UCLA Anderson Forecast for the Nation and California. 1995

**Litigation: Estimating Economic Damages**
(Sampling of recent cases)

Saenz v. Carl Karcher Enterprises, Inc. For Plaintiff. Case in progress. 2011

Leslie v. Karmel Shuttle. For Plaintiff. Case settled prior to trial. 2011


Robert Carlseen v. Malin. For Plaintiff. Case settled in arbitration. 2011

Keck v. Mike Thompson. For Plaintiff. Case settled. 2010

Davis v. Laguna Collision. For Plaintiff. Case settled prior to trial. 2010

Dian Ashley v. Hilton Nashville. For Defendant. Case in progress. 2010

Kenneth Gillissie v. THD At-Home Services. For Plaintiff. Case settled prior to trial. 2010

Olympic Securities v. Fremer/Savel Architects. For Defendant. 2010
Case in progress.

Jill Moulton v. Donald Primack. For Plaintiff. Case settled prior to trial. 2010

Howard Marguleas v. Cuatro Del Mar & Three Flags. For Plaintiff. Case in progress. 2010

**Selected Public Presentations**

Allied Social Science Association  
Alquist California Fiscal Retreat  
American Institute of CPAs  
American Soc. of Women Accountants  
Antelope Valley Board of Trade  
Appraisal Institute  
Bank of America  
Beverly Hills Chamber of Commerce  
Builder 100 Conference  
Building Industry Assoc. Orange County  
Burr, Pilger & Mayer  
California Advancement Partnership for Schools  
California Capital Market Place Group  
California Cntr. for Regional Leadership  
California Credit Union League  
California Department of Finance  
Calif. Employment Development Dept.  
California Independent Bankers  
California Institute of Technology  
California Republican Party Retreat  
California School Board Association  
California Self Storage Association  
California Society of CPAs  
California State Association of Counties  
CIO Executive Summit  
City of Beverly Hills  
City of Concord  
City of Los Angeles  
Citizens Business Bank  
Colliers International  
Contra Costa Economic Partnership  
County Auditor’s Assoc. of California  
Cushman and Wakefield  
East Bay Business Times  
Economics Dept, Layola Marymount University  
Entrepreneurs Organization  
Federal Home Loan Bank of Pittsburgh  
Federal Home Loan Bank of San Francisco  
Information Technologies Credit Union Assoc.  
Institute of Real Estate Management  
International Council of Shopping Centers  
Investment Advisors Association  
Judicial Council of California  
Kaiser Permanente  
Los Angeles Business Council  
Los Angeles Business Journal  
Los Angeles Chamber of Commerce  
Los Angeles City Council  
Los Angeles City Homeland Security Summit  
Monterey County Board of Supervisors  
Moriah Society  
National Assoc. of Business Economists  
National Council of Postal Credit Unions  
NewWest.Net Conference  
Pepperdine School of Public Policy  
Public Policy Institute of California  
REOMAC  
Rutgers University, Money and History Workshop  
San Diego Regional Chamber of Commerce  
Sonoma County Economic Dev. Board  
South Bay Business Resource Network  
Sperry Van Ness  
The East Bay Economic Development Alliance  
The Pension Bridge  
The Riordan Programs  
UCLA Ziman Center for Real Estate  
UC San Diego Economics Roundtable  
Urban Land Institute  
Urban Self Storage, Inc.  
USC Real Estate Law Conference  
Von Gremp Workshop, UCLA
Testimony

U.S. Congress House of Representatives Committee on Financial Services
“The Effect of the Lehman Brothers Bankruptcy on State and Local Governments.”
On behalf of the County of San Mateo California.
May 5, 2009

Teaching Experience

Undergraduate: Microeconomics, International Trade, Managerial Economics, International Economics

Graduate: (MBA) Managerial Economics, Government and Regulation, Business Forecasting, Macroeconomics; (Ph.D.) International Finance, International Trade

Reviewed Articles and Books


Grants, Awards and Service

Member, America’s Edge 2010
Price Center Research Grant, UCLA 2005
CIBER Research Grant, UCLA 2002
Clemson University Center for International Trade, 2000
Summer Research Grant
Lead Faculty Member- Clemson Summer Study 1999-2000
Abroad to Asia
Faculty Committee for the Office of International Affairs, 1999-2000
Clemson University
Faculty Advisor, MBA Student Association, 1999-2000
Clemson University
Provost Grant for Computational Resources, Clemson University 1999
CIBEAR Registration Award Recipient 1999
Masters Thesis Chair for Pei Huang “The Impact of Capital Controls on Capital Flows” 1999
MBA Advisory Council and Curriculum Committee, 1998-2000
Clemson University
Spiro Center Research Grant, Clemson University 1998
Foundation for Research in Economics and Education 1998
Research Grant
Hayek Fund Research Grant 1998