

ECONOMIC IMPACT OF AFFORDABLE HOUSING PROGRAMS IN UTAH - 2012

PREPARED FOR UTAH HOUSING COALITION

PREPARED BY JAMES WOOD

Introduction

This study was undertaken by James Wood at the request of the Utah Housing Coalition. The purpose of this study was to estimate the economic impact generated by affordable housing programs in 2012 on Utah's employment, earnings and tax revenues.

The development of affordable housing has many benefits for the Utah economy. First and foremost increasing the affording homeownership and rental housing opportunities for Utah's low and very low income population. Safe, affordable housing is crucial to the economic well-being of low income households. The development of affordable housing also creates more economically stable neighborhoods, generates local economic development, improves regional competitiveness by enhancing an employer's ability to attract and retain employees and produces additional jobs, earnings and taxes for the local economy. The impact of the development of affordable housing on employment, earnings and taxes is the subject of this study. In a single year affordable housing programs generate millions of dollars in new construction and rehabilitation activity, provide rental revenue to landlords and give down payment assistance to hundreds of households.

The Executive Summary provides the key findings of the study. Section I describes the methodology used to derive the economic impacts of affordable housing programs on the Utah economy. Section II discusses the economic impact by type of affordable housing program. Section III tallies the total economic impact by sector. And Section IV discusses the fiscal impacts from the increase in employment and earnings attributable to affordable housing programs.

There are a large number of federal, state and local agencies as well as non-profit organizations that participate in affordable housing programs. All of the major participants were interviewed regarding their 2012 activity by program type. Those interviewed were: Utah Housing Corporation, HUD, Rural Development, Olene Walker Housing Trust Fund (State and Federal allocations), Utah Division of Community Development, Community Development Corporation of Utah, Rural Community Assistance Corporation and Neighbor Works of Salt Lake and Murray. This study relied on the cooperation of a significant number of individuals in these agencies and organizations. Their experience and willingness to provide information on their respective programs was essential for this work.

Executive Summary

The economic impact of affordable housing programs is generated by the construction of new rental and owner occupied units, rental assistance through a number of voucher programs, rehabilitation of existing units and a variety of grants that assist low income households with their housing. The economic impacts, in terms of employment, wages and state and local tax collections are summarized below.

Total Economic Impact

¶The total economic impacts includes direct, indirect and induced impacts created by the multiplier effects (defined in methodology section). In 2012 the total economic impact generated by residential construction, voucher payments to landlords, HUD's capital and operating assistance programs for housing authorities and miscellaneous grant program was 6,342 jobs and \$182.8 million in earnings. The total impact generated through the construction of new residential units, voucher payments to landlords and operating assistance to housing authorities (real estate) is shown below:

Table 1
Employment and Earnings Impact of Affordable Housing Programs in Utah
2012

Initial Sector	Employment*	Earnings (Millions)
Construction	4,230	\$143.3
Real Estate	2,112	\$39.5
Total	6,342	\$182.8

* Includes full and part-time jobs.

Economic Impact by Sector

¶The economic impact resulting from residential construction activity related to affordable housing was 4,230 jobs and \$143.3 million in earnings. This total impact is comprised of the direct impact and the indirect and induced impacts. In 2012 the direct economic impact of new construction and rehabilitation of affordable housing units in Utah was 2,004 jobs and \$77.9 million in wages, which accounted for 3.5 percent of all new residential construction in the state and 2.5 percent of the employment and wages in the construction sector. The indirect and induced impacts created by direct construction activity results in an additional 2,226 jobs and \$65.4 million in wages for the Utah economy.

¶Landlords, whether private owners or public owners (housing authorities), receive considerable revenue from a variety of affordable housing programs. The largest is HUD's Section 8 Housing Choice Voucher, which paid landlords \$63.6 million in rental assistance in 2012. Two other HUD rental assistance programs also provide considerable income for landlords; project based subsidy \$47.1 million and Section 202 grants (senior assistance) \$44.0 million. Other programs include Rural Development's rental assistance program, HUD's operating and capital funds assistance to housing authorities and competitive homeless funding. All of these programs provide landlords with revenue to pay debt service and operate and maintain their units. In 2012, the \$177.7 million in program payments generated a total of 2,112 jobs and \$39.5 million in earnings comprised of 1,300 direct jobs and 812 indirect and induced jobs and \$11.6 million in direct wages and \$27.9 million in indirect and induced wages.

Fiscal Impacts

¶Another measure of economic impact is state and local taxes generated by the increase in earnings. The estimated income, sales and property tax generated by affordable housing programs in 2012 was \$16.7 million. This estimate was derived by applying an effective state and local tax rate of 9.17% to the \$182.8 million in income generated by affordable housing programs.

Affordable Housing Programs by Type

¶ In 2012 there was an estimated \$382.9 million in affordable housing activity. New construction accounted for the largest share with \$190.3 million in value. Voucher and tenant base rental assistance provided \$170.1 million in assistance and operating and capital funds for housing authorities at \$6.8 million Table 2.

Table 2
Funding for Affordable Housing by Program Type

Type	Value (Millions)	% Share
New Construction	\$190.3	49.7%
Vouchers, TBRA etc.	\$170.1	44.4%
Operating and Capital Funds	\$6.8	1.8%
Other	\$15.7	4.1%
Total	\$382.9	100.0%

Source: Interviews with agencies.

I. Estimating Economic Impact Using RIMS II

The economic impact estimates presented in this study utilize a standard tool of regional economic impact analysis known as the Regional Input-Output Modeling Systems (RIMS II). Developed by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce, RIMS II provides a 480-sector input-output model of the Utah economy. This model tracks the flow of spending or input requirements through the Utah economy. The model then infers the amount of output required from each industrial sector to satisfy a company's purchase requirements.

In the analysis the total impact of spending for construction, rehabilitation and assistance programs for affordable housing includes direct, indirect and induced impacts. Direct impacts, for example, include purchases made by construction firms from other businesses and purchases of construction labor from Utah workers. Indirect impacts are the effects of secondary spending on the Utah economy. These indirect impacts result from spending that occurs when Utah suppliers purchase additional requirements from yet other Utah vendors. Indirect impacts also include "induced impacts." Induced impacts occur when employees of a construction company and employees of Utah companies that provide goods and services for construction of new affordable housing spend their earnings on goods from other Utah vendors.

RIMS II models the relationship between direct, indirect and induced purchase requirements for each industrial sector of the Utah economy. Given the direct purchases made by a construction company from specific industrial sectors, RIMS II estimates the corresponding indirect and induced requirements from all other sectors. The model then measures these requirements in terms of employment and earnings. The most recent available RIMS II multipliers are 2010 multipliers. Therefore these multipliers were adjusted to 2012 by deflating both the 2010 earnings and employment multipliers by five percent, which represents the change in Consumer Price Index from 2010 to 2012 and improve productivity in the construction and real estate sectors.

The sum of the direct, indirect and induced requirements represents the total economic impact of affordable housing expenditures (construction, rehabilitation, grants, etc.) in the Utah economy for 2012. The impacts estimated with the RIMS II multipliers provide information about the activities under study, not about alternative uses of resources.

Methodology and Assumptions

To accurately assess the economic impacts it was first necessary to identify the amount of expenditures in each category of activity: new construction, rehabilitation, grants, capital and operating funds, etc. For example, all affordable housing programs that provided assistance to new construction were reviewed. One of the most significant programs is the Utah Housing Corporation's FirstHome homebuyer programs. These programs offer a 30-year fixed rate mortgage to qualifying low and moderate income households. The program provides a financing mechanism which provides substantial down payment assistance to home buyers. According to UHC this provision makes the program unique allowing home buyers who otherwise would be unable to qualify for a mortgage the opportunity for homeownership. The underlying assumption is that without the down payment assistance the new home would not have been financed and new construction would not have occurred. It should be noted that only loans for new homes were considered, which amounted to only eight percent of the activity in UHC's homebuyer program in 2012.

Thus a critical assumption, which was applied to all new construction and rehabilitation, was:

- (1) New construction and rehabilitation investment and expenditures would not have occurred without the assistance of Utah Housing Corporation's FirstHome, HomeAgain and Score programs.

The total value in new construction and rehabilitation is used in calculating economic impacts. However, not the entire project cost generates new construction activity. Part of the project cost is the purchase of land.

Land transactions are transfers of assets that don't generate economic impacts. Therefore, the cost of land was "backed out" of the total project costs. In acquisition/rehab projects only the expenditures devoted to rehab were used. Thus the following assumption:

(2) An adjusted project cost was used to calculate economic impacts. The adjusted cost is defined as the project's leveraged cost less cost of land or 85% of the total project cost.

A significant amount of affordable housing assistance is received in the form of voucher programs, project based assistance and RD vouchers. Vouchers, in effect, are payments to landlords.

(3) Vouchers are assumed to be payments to landlords for the operation and maintenance of rental units.

The two sectors directly affected by affordable housing programs are construction and real estate. The new construction of single-family and apartment units and rehabilitation of residential units obviously impacts the residential construction sector. Vouchers, capital and operating grants represent payments to the real estate sector. Each sector has different economic impacts, which are reflected in their multipliers Table 3. As noted these final demand multipliers (BEA RIMS II Multipliers) for Utah were adjusted to 2012.

Table 3
Final Demand Multipliers – 2012
(Per \$1 Million)

Type of Activity	Sector	Final Demand Multipliers	
		Earnings	Employment
Construction and Rehab.	Construction	.7538	19.47
Vouchers	Real Estate	.2226	11.87

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

The final demand multiplier for each sector was applied to the value of construction, rehabilitation, voucher payments, grants etc. For example, the final demand multiplier for employment in the construction sector is 19.47. The direct, indirect and induced employment impacts are derived by applying the final demand multiplier to the value of construction activity. For example, if affordable housing programs generate \$100 million in construction activity then 1,947 total jobs (direct, indirect and induced) are created. In other words, for every \$1 million in construction activity 19.47 jobs are generated in the Utah economy.

To continue with the example, the final demand earnings multiplier is also applied to the \$100 million in construction activity to determine total direct, indirect and induced earnings. The \$100 million is multiplied by .7538 to derive total earnings, $.7538 \times \$100 \text{ million} = \75.38 million in total earnings. This is the total earnings resulting from the creation of 1,947 new jobs.

To determine the *direct* jobs for the construction industry it was necessary to divide the number of total jobs 1,947 by the direct effect multiplier. The direct effect multipliers for Utah for each of the relevant sectors are shown in Table 4. Direct effect multipliers are those multipliers most commonly referred to and familiar to the general public.

Table 4
Direct Effect Multipliers - 2012

Type of Activity	Sector	Direct Effect Multipliers	
		Earnings	Employment
Construction and Rehab.	Construction	1.8435	2.1108
Vouchers	Real Estate	3.4123	1.6237

Source: Bureau of Economic Analysis, U.S. Department of Commerce.

In the example the total number of jobs generated from affordable housing programs was 1,947 for \$100 million in construction activity. To derive the *direct* number of new construction jobs generated by the affordable housing programs, 1,947 is divided by the construction sector's direct effect multiplier of 2.11. This yields 922 direct construction jobs from \$100 million in construction activity. The indirect and induced jobs created by the construction activity totals 1,025, or 1,947 less 922 = 1,025. A similar methodology is used to derive the direct earnings impact for the construction sector. In the example again, the \$75.38 million in earnings is divided by the direct effect earnings multiplier for construction of 1.8435. This yields \$40.9 million in direct construction wages and \$34.5 million in indirect and induced wages, \$75.38 million less \$40.9 million = \$34.5 million. The direct, indirect and induced multipliers for the real estate sector were derived using the same methodology.

II. Economic Impact by Type of Affordable Housing Program

Construction and Rehabilitation

In terms of value, the most significant affordable housing programs are those that stimulate new residential construction and the rehabilitation of existing residential units. These programs resulted in \$218.9 million of construction activity in 2012, including the value of the land

Many of the organizations listed below often join together to develop a new affordable housing project. For example, a new affordable apartment project could easily have three different participants involved in the financing and development of the project: a non-profit developer, Olene Walker Housing Trust Fund and low income housing tax credits. Consequently, care was taken to avoid double or triple counting the value of a project. Since the greatest likelihood of double counting was with apartment projects, each apartment project was identified to guarantee that it was used only once in the analysis. Thus, determining the unduplicated adjusted project cost was the key task for the analysis of new construction and rehabilitation activity. For example Olene Walker Housing Trust Fund activities concentrate on providing additional funding for low income tax credit projects. The value of the assistance provided by the trust fund is accounted for, downstream, in the development of the tax credit apartment project and the value of that project as reported by Utah Housing Corporation.

There are seven entities or groups that participated in new construction or rehabilitation of residential units. The list below identifies these groups and where applicable gives the major affordable housing programs used.

List 1
Affordable Housing Organizations

<i>Utah Housing Corporation</i>
FirstHome Home Buyer
HomeAgain
Score
Low Income Housing Tax Credit
Private Activity Bond Program
Crown, Echo Homes
<i>Rural Development</i>
Mutual Self-Help
Direct Loan
Guaranteed Loans
Technical Assistance
Grants
515 Rural Rental Housing Program
<i>HUD</i>
HOME (entitlement cities)
CDBG (entitlement cities and small cities)
Section 8 Housing Choice Voucher
Section 202 Supportive Housing for Elderly
Section 811 Supportive Housing for People with Disabilities
<i>NeighborWorks</i>
Rehabilitation
<i>Olene Walker Housing Trust Fund</i>
Development of new and rehab of existing housing
<i>Community Development Corporation of Utah</i>
Rehabilitation
<i>Non-Profit Developers and For Profit Developers</i>
Use a mix of programs listed above

The estimated number of unduplicated new and rehabilitated units and the leveraged value of the related construction activity is shown in Table 5.

Table 5
Affordable Housing Value and Units

Category	Value Millions	Total Units
Single Family	\$123.7	762
Multi-family	\$66.6	580
Total	\$190.3	1,342

Source: Bureau of Economic and Business Research, David Eccles School of Business, University of Utah.

The total construction activity, excluding the value of land, generated by affordable housing programs was \$190.3 million. About one-third of the construction activity was for multifamily units with the remainder single family construction. The construction sector’s final demand multiplier is applied to the \$190.3 million to determine the total earnings and employment impacts.

The final demand earnings multiplier is .7538, which means that 75 percent of the value of the construction activity of \$190.3 million ends up in direct, indirect and induced wages. Therefore applying the final demand multiplier of .7538 to \$190.3 results in an estimated \$143.3 million in total earnings.

The construction sector’s final demand employment is .2226, which means for every million dollars of construction activity 22 total direct, indirect and induced jobs are created. Therefore multiplying 190 (\$190.3 million divided by \$1 million) by .2226 results in an estimate of 4,230 total jobs created by affordable housing construction activity.

To determine the direct earnings and employment impacts for the construction sector the total impacts are divided by the direct effect multipliers. The construction sector’s direct effect earnings multiplier is 1.84 and the direct effect employment multiplier is 2.11.

\$143.3 million divided by 1.84 = \$77.9 in direct construction earnings
 4,230 jobs divided by 2.11 = 2,004 direct construction jobs

The new building and rehabilitation activity generated by affordable housing represents about 2.5 percent of employment and earnings in the construction sector.

The indirect and induced earnings and employment created by construction activity are derived by subtracting the direct earnings and employment from the total employment and earnings impacts. This procedure results in about \$65.4 million in indirect and induced earnings and 2,226 in indirect and induced employment, see Table 6.

Table 6
Direct, Indirect and Induced Impacts from Construction Activity

Impacts	Earnings (million)	Employment
Direct	\$77.9	2,004
Indirect and Induced	\$65.4	2,226
Total	\$143.3	4,230

Source: Bureau of Economic and Business Research, David Eccles School of Business, University of Utah.

Vouchers, Operating and Capital Funds

Affordable housing programs not only stimulate new construction and rehabilitation of existing units but also provide an important source of revenue to private and public owners of affordable housing. The most important revenue source for owners of property is HUD’s voucher and project based programs, which paid property owners about \$163 million in 2012. Rural Development’s rental assistance program provided another \$7.7 million in payments to landlords. The HUD and RD payments are used by property owners for the operation, maintenance and debt service of their rental units.

In addition to vouchers HUD provides housing authorities with operating and capital funds, which are also used to operate and manage affordable housing programs and units. These payments in 2012 amounted to

\$6.8 million in capital, competitive housing and emergency shelter funds. For the analysis, these operating and capital funds were considered as similar to voucher payments.

Thus vouchers, rental assistance and operating and capital funds were all treated as payments to the real estate sector. Therefore the final demand and direct effect multipliers for this sector were used to determine economic impacts. These multipliers were applied to the \$177.5 million in payments to the real estate sector; \$170.7 million in vouchers and \$6.8 million in capital and operating funds.

The final demand earnings multiplier for the real estate sector is .2226, which means that 22.2 percent of the value of the payments \$177.5 million to real estate ends up in direct, indirect and induced wages. Therefore applying the final demand multiplier of .2226 to \$177.5 million results in an estimated \$39.5 million in total earnings.

The real estate sector’s final demand employment multiplier is 11.9, which means for every one million dollars of real estate operation and maintenance 11.9 direct, indirect and induced jobs are created. Therefore multiplying 177.5 (\$177.5 million divided by \$1 million) by 11.9 results in an estimate of 2,112 total jobs created by affordable housing construction activity.

To determine the direct earnings and employment impacts for the real estate sector the total impacts are divided by the direct effect multipliers. The real estate sector’s direct effect earnings multiplier is 3.4123 and the direct effect employment multiplier is 1.6237.

$$\begin{aligned} \$39.5 \text{ million divided by } 3.4123 &= \$11.6 \text{ in direct real estate wages} \\ 2,112 \text{ jobs divided by } 1.6237 &= 1,300 \text{ direct real estate jobs} \end{aligned}$$

The indirect and induced earnings and employment created by construction activity are derived by subtracting the direct earnings and employment from the total employment and earnings impacts, which results in \$27.9 million in indirect and induced earnings and 812 indirect and induced jobs, see Table 7.

Table 7
Direct, Indirect and Induced Impacts from Payments to Real Estate

Impacts	Earnings (million)	Employment
Direct	\$11.6	1,300
Indirect and Induced	\$27.9	812
Total	\$39.5	2,112

Source: Bureau of Economic and Business Research, David Eccles School of Business, University of Utah.

Down Payment Assistance Programs

Several affordable housing programs provide down payment assistance to moderate and low income households. The value of the down payment assistance programs was capture in either the construction analysis or inclusion of program, e.g. HOME activities. This was necessary since the exact amount of the down payment assistance was not available.

III. Total Impact of Affordable Housing Programs

The total impact of affordable housing programs measures the combined direct, indirect and induced impacts generated by new construction, rehabilitation, capital and operating funding and down payment assistance. The direct impacts begin in the construction, real estate and households sectors and then spread throughout the economy in rounds of secondary and tertiary spending.

In 2012, the total economic impact of affordable housing programs on the Utah economy was \$182.8 million in earnings and 6,342 jobs *Table 8*. Affordable housing programs resulted in the new construction of 1,342 housing units in 2012. Forty-three percent or 580 of the new units were rentals while 762 units were new single-family homes.

Affordable housing programs affecting the construction sector have the most significant impact on the Utah economy creating some 4,230 new full-time jobs and generated \$143.3 million in income. The impact on the real estate sector is considerably smaller in terms of earnings, generating only \$39.5 million in earnings. This relatively low earnings result is due to the very low final demand multiplier for real estate of only .2226; i.e. thus a dollar paid to landlords in rental assistance generates only \$.22 cents in earning compared to \$.75 cents in total earnings generated by construction activity.

Table 8
Total Employment and Earnings Impacts of Affordable Housing Programs

Sector	Employment	Earnings (Millions)
Construction	4,230	\$143.3
Real Estate	2,112	\$39.5
Total	6,342	\$182.8

Source: Derived from BEA RIMS II Multipliers 2010.

IV. Fiscal Impacts of Affordable Housing Programs

Another measure of the economic importance of affordable housing programs is demonstrated by the fiscal impacts they generate. Fiscal benefits arising from affordable housing programs in 2012 totaled \$16.7 million in state and local taxes. Tax revenues are generated by additional sales, property, income and license taxes paid by households with earnings attributable to affordable housing programs.

In 2012 the total personal income in the state of Utah was \$98.8 billion. The amount of taxes paid in 2012 by Utah households was \$9.0 billion, see *Table 9* for detail of taxes paid in Utah. Therefore, state and local taxes paid by households were 9.17 percent of total personal income.

Table 9
State and Local Taxes Paid in Utah – 2012
(thousands)

State and Local Taxes	Taxes Paid
Property	\$2,550,889
Sales and gross receipts	\$3,498,446
General sales	\$2,441,482
Selective sales	\$1,056,984
Individual income	\$2,298,220
Other taxes	\$709,569
Total	\$9,057,134

Source: State and Local Government Finances, U.S. Census Bureau.

Applying 9.17 percent to the total household earnings attributable to affordable housing programs will yield the state and local tax revenue impact. The earnings from affordable housing programs were estimated in Section III to be \$182.3 million. These earnings include direct, indirect and induced earnings. Applying the 9.17 percent rate to the \$182.3 million in taxes yields tax revenues of \$16.7 million for state and local governments due to the increased earnings generated by affordable housing programs in 2012.

VITA

JAMES A. WOOD

P.O. Box 58107
Salt Lake City, Utah 84158

Phone: (801) 581-7165 (office), fax (801) 581-3354
(801) 583-0392 (residence)

EDUCATION

University of Utah, Salt Lake City, Utah; B.S. Finance, June 1967.
University of Utah, Salt Lake City, Utah; Graduate Student in Economics, 1970-1974.

MILITARY EXPERIENCE

United States Army, Military Intelligence 1968-1970; Vietnam 1969-1970.

EMPLOYMENT EXPERIENCE

2002 to present, Director, Bureau of Economic and Business Research, David Eccles School of Business, University of Utah.
1975 to 2002, Senior Research Analyst, Bureau of Economic and Business Research, David Eccles School of Business, University of Utah, Salt Lake City, Utah.
1975 to present, private consultant, James A Wood & Associates, Salt Lake City, Utah.
1974-1975 - Legislative Aide on economic issues for Senator Frank E. Moss, Washington, D.C.
1972-1974 - Research Analyst, Bureau of Economic and Business Research.
1970 (summer) - Accountant, Jacobsen Construction Company, Salt Lake City, Utah.
1966-1967 - Accountant, Utah Idaho Sugar Company, Salt Lake City, Utah.

ADVISORY COMMITTEES AND BOARDS

Ex-Officio Member of the Board of Trustees Downtown Alliance Salt Lake City.
Committee Member of Revenue Assumption Committee, State of Utah.
Board Member of NeighborWorks Salt Lake City
President of Wasatch Economic Forum 2008-2009
Advisory Board Member of the Salt Lake County Housing Trust Fund 2009-2013
Board Member Salt Lake Home Builders Association
Member Salt Lake County Consortium Housing (HOME) Committee

UNIVERSITY RESEARCH STUDIES AND PUBLICATIONS

Housing and Urban Development Sustainable Communities Grant 2011-2014. Grant awarded to Salt Lake County and a research team composed of six participants including the Bureau of Economic and Business Research, University of Utah. The Regional Analysis of Impediments and Fair Housing Equity Assessment for 65 municipalities and four counties will be completed by a four-person team at the Bureau of Economic and Business Research under the direction of James Wood. Purpose of the grant is to improve the regional integration of housing, transportation and economic development to enhance access to opportunities.

"Salt Lake County Real Estate Market: Current Conditions and Forecast for 2012" Volume 71 Number 4, Winter 2011.

"Nonresidential Construction: Past, Present and Future", Utah Economic and Business Review, Volume 70 Number 2, Summer 2010.

"Utah's Home Building Industry: Recovery and Challenges", Utah Economic and Business Review, Volume 70 Number 1, Spring 2010.

Residential and Nonresidential Construction Trends and Forecast for Utah and Wasatch Front Counties. David Eccles School of Business, University of Utah. Prepared for Summit Materials, May 2010.

Utah's Sports Sector: Economic Activity and Impact. David Eccles School of Business, University of Utah. Prepared for Utah's Sports Commission. February 2010.

"Utah's Housing Market: Present Perspective, Future Prospects", Utah Economic and Business Review, Volume 69 Number 1, Spring 2009.

A Review of the Proposed Home Run Grant Program, David Eccles School of Business, University of Utah. Prepared for Utah's Housing Action Coalition. February 2009.

Economic Impact of Bonding for Capital Facilities in Utah, David Eccles School of Business, University of Utah. Prepared for Commissioner's Office of Higher Education. January 2009.

The Economic Impact of Thanksgiving Point on the Utah County Economy. David Eccles School of Business, University of Utah. Prepared for Thanksgiving Point Foundation. November 2008.

Foreclosures in Utah Likely to Hit Record. David Eccles School of Business, University of Utah. Prepared for Foreclosure Prevention Taskforce, October 2008.

Economic Baseline Study for Vernal and Ashley Valley, Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Prepared for Tightline Community Resources, September 2008.

Pathways Project: A Study of the Cost of Services for Chronically Homeless Individuals in Salt Lake County. Funded by Utah State Department of Community and Culture, August 2008

The Changing Structure and Current Baseline of the Davis County Economy, Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Prepared for Davis County Community and Economic Development, June 2007.

Competitive Role of Commercial Development at West Bench, Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Prepared for Kennecott Land. January 2007.

An Analysis of the Land Use and Value of Weber State University's Mountainside Parcel, Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Prepared for Weber State University. Co-authored with Frank Lilly. December 2006.

The Changing Structure and Current Baseline of Draper City, Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Prepared for Draper City Office of Economic Development. Co-authored with Frank Lilly. September 2006.

West Bench Economic Impact: Economic, Demographic and Fiscal Analysis, Bureau of Economic and Business Research, David Eccles School Business, University of Utah. Prepared for Kennecott Land. Co-authored with Pam Perlich. October 2005.

Economic Impact of Affordable Housing: Construction, Rehabilitation and Assistance Programs, Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Prepared for Utah Housing Coalition, September 2004.

"The Utah Economy: Outlook and Review", Utah Economic and Business Review, Volume 64, Numbers 1 and 2, January/December 2004.

Affordable Housing in Utah Cities: New Construction, Building Fees and Zoning. Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Prepared for Fannie Mae Utah Partnership Office, Utah Housing Corporation, Envision Utah and The Olene Walker Housing Trust Fund, June 2003.

Changing Economic Structure of Salt Lake City=s Central Business District, 1990 to 2002. Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Prepared for The Downtown Alliance of Salt Lake City, 2002.

The Impact of Changing Economics and Demographics on the Characteristics of New Homes and Housing Densities (Part II)@, Utah Economic and Business Review, Volume 61 Numbers 9 & 10, September/October 2001.

Utah Residential Construction: A Look at Past and Present Construction Cycles (Part I), Utah Economic and Business Review, Volume 61, Numbers 1 &2, January/February 2001.

A Demand and Use Analysis of Research Park Land and Buildings 2000 to 2015. Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Report prepared for University of Utah Administration. Co-authored with Jan Crispin-Little, May 2000.

Single-Family Construction Bucks Trend@, Utah Construction Report, Volume 42 No 2. April, May, June 1999, published by Bureau of Economic and Business Research, University of Utah.

A Closer Look: Nonresidential Construction in Utah 1985 to 1998, Utah Economic and Business Review, Volume 59, Numbers 5 and 6, May/June 1999.

Residential Construction Remains Surprisingly Strong, Utah Construction Report, Volume 42 No 1. January, February, March 1999, published by the Bureau of Economic and Business Research, University of Utah.

Construction Value Reaches New High, Utah Construction Report, Volume 41 No 4. October, November, December 1998, published by the Bureau of Economic and Business Research, University of Utah.

Retail Trends and the Need for Downtown Revitalization, Utah Economic and Business Review, Volume 58, Numbers 11 and 12, November/December 1998.

Gateway Retail Development and Downtown Revitalization. Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Report prepared for Boyer Company and Salt Lake City Council, October 1998.

"Overview of Construction and Housing in the Utah Economy", Economic Report to the Governor, 1998.

Utah Technology Finance Corporation: Economic Development Policy and Economic Impacts. Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Report prepared for Utah Technology Finance Corporation, June 1998.

“

"Housing Prices and Affordability in Utah", *Utah Economic and Business Review*, Volume 51 Numbers 5 and 6, May/June 1997.

Demographic and Economic Trends for Utah, U.S., the Rocky Mountain Region and Hermes' Market Areas. Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Report prepared for Hermes Associates. Coauthored with Jan Crispin-Little. March 1997.

"Housing Price Trends in Utah 1980-1996", Economic Report to the Governor, 1997.

Impediments to Low and Moderate Income Housing in Unincorporated Salt Lake County and Selected Municipalities. Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Report for Salt Lake County Office of Economic Development and Job Training. December 1996.

The University of Utah Research Park: A Review of Policy and History. Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Report prepared University of Utah Research Park Administration, December 1996.

Demographic and Economic Trends and Forecasts for Utah and Idaho. Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Report prepared for Oldcastle Materials. Coauthored with Jan Crispin-Little. February 1996.

"Construction Cycles in Utah" *Utah Economic and Business Review*, Volume 55 Numbers 11 and 12, November/December 1995.

"Losing Ground: Housing Affordability and Low-Income Renters in Utah", *Utah Economic and Business Review*, Volume 55 Numbers 9 and 10, September/October 1995.

"The Performance of Wage Rates in Utah 1982-1993" *Utah Economic and Business Review*, Volume 55 Numbers 3 and 4, March/April 1995. Coauthored with Kenneth E. Jensen, Utah Department of Employment Security.

Demographic, Economic and Export Statistics for the Salt Lake City Airport Authority. Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Reported prepared for Salt Lake Airport Authority. May 1995.

A Study of the Custom Fit Training Program. Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. Report prepared for Utah State Office of Education. Coauthored with Jan Crispin-Little. March 1995.

"Utah Wage Levels" Economic Report to the Governor, 1995. Coauthored with Kenneth Jensen.

"Management of State Trust Lands in Washington County" *Utah Economic and Business Review*, Volume 54, Numbers 7 and 8, July/August 1994. Bureau of Economic and Business Research, University of Utah, 1994.

"The Changing Demographic and Economic Structure of Washington County, 1970-1993." Utah Economic and Business Review, Volume 54, Numbers 1 and 2, January/February 1994. Bureau of Economic and Business Research, University of Utah, 1994.

An Economic Analysis for the Management of State Lands in Washington County. Bureau of Economic and Business Research, University of Utah. Report prepared for the Division of State Lands and Forestry, Department of Natural Resources, State of Utah, March 1994.

"Economic Impact of Utah Housing Finance Agency's New Residential Mortgage Programs" Utah of Economic and Business Review, Volume 53, Numbers 11 and 12, November/December 1993. Bureau of Economic and Business Research, University of Utah December, 1993.

Economic Analysis for the Salt Lake Courts Complex. Bureau of Economic and Business Research, University of Utah. Report prepared for the Division of Facilities and Construction Management, Department of Administrative Services, State of Utah, October 1992.

"Economic Well-Being of Utah Households: 1979-1989" Utah Business and Economic Review, Volume 52, Numbers 4 and 5, April/May, 1992. Coauthored with R. Thayne Robson. Bureau of Economic and Business Review, Bureau of Economic and Business Research, University of Utah, May 1992.

Economic Impact of the Utah Technology Finance Corporation on the Utah Economy. Bureau of Economic and Business Research, University of Utah. Coauthored with Jan Elise Crispin. Report prepared for the Utah Technology Finance Corporation, State of Utah, 1992.

"Manufacturing in the West Since World War II." Utah Business and Economic Review, Volume 51, Number 3, March 1991. Bureau of Economic and Business Research, University of Utah, 1991.

"Utah's Adjustment to Declining Defense Budgets." Utah Economic and Business Review, Volume 50, Numbers 11 and 12, November/December 1990. Coauthored with Jan Elise Crispin. Bureau of Economic and Business Research, University of Utah, 1990.

"Utah's Electronics Industry." Utah Economic and Business Review, Volume 50, Number 9, September 1990. Bureau of Economic and Business Research, University of Utah, 1990.

Electronics Target Industry Study. Bureau of Economic and Business Research, University of Utah. Report prepared for the Division of Business and Economic Development, Department of Community and Economic Development, State of Utah, 1990.

"Report on Women-Owned Business in Utah." Utah Economic and Business Review, Volume 50, Number 3, March 1990. Coauthored with Rose Ann Watson. Bureau of Economic and Business Research, University of Utah, 1990.

Report on Women-Owned Business in Utah. Bureau of Economic and Business Research, University of Utah. Report prepared for the Women's Business Development Office, Division of Business and Economic Development, Department of Community and Economic Development, State of Utah, 1990.

"Utah Housing Finance Agency: The Economic Impact of Mortgage Programs for New Residential Units." Utah Economic and Business Review, Volume 49, Number 9, September 1989. Bureau of Economic and Business Review, University of Utah, 1989.

Economic Impact of Utah Housing Finance Agency Programs on the Utah Economy. Bureau of Economic and Business Research, University of Utah. Report prepared for the Utah Housing Finance Agency, 1989; annual report 1989 to present.

"Utah's Aerospace Industry." *Utah Economic and Business Review*, Volume 49, Number 8, August 1989. Bureau of Economic and Business Research, University of Utah, 1989.

Utah's Aerospace Industry. Bureau of Economic and Business Research, University of Utah. Coauthored with John Brereton. Report prepared for the Division of Business and Economic Development, Department of Community and Economic Development, State of Utah, 1989.

The Economic Impact of a Catastrophic Earthquake on Utah's Financial Institutions. Bureau of Economic and Business Research, University of Utah. Report prepared for the Division of Comprehensive Emergency Management, Financial Institution Emergency Preparedness Committee, June 1989.

Public Education and Economic Development. Bureau of Economic and Business Research, University of Utah. Report prepared for the Division of Business and Economic Development, Department of Community and Economic Development, State of Utah, 1989.

The Characteristics and Potential of the Health Care and Weight Control/Fitness Industries of St. George. Bureau of Economic and Business Research, University of Utah. Prepared for St. George City, October 1988.

Economic Profile Summit County/Park City. Bureau of Economic and Business Research, University of Utah. Report Prepared for Summit County/Park City Chamber of Commerce and Visitors Bureau, September 1988.

The Economic Impact on Utah of the U.S. Petroleum Corporation's Wax Processing Plant. Report for the Division of Business and Economic Development, Department of Community and Economic Development, State of Utah, October 1987.

Projected Employment Growth Rates for State Government. Bureau of Economic and Business Research, University of Utah. Report prepared for Wallace Associates, Salt Lake City, Utah, October 1987.

A Proposal for US West Advanced Technologies. Bureau of Economic and Business Research, University of Utah. Coauthored with Jan Elise Crispin and Shipley Associates. Prepared for Division of Business and Economic Development, Department of Community and Economic Development, State of Utah, 1987.

"The Utah Housing Market: Demographic and Economic Trends." *Utah Economic and Business Review*, Volume 47, Number 3, March 1987. Bureau of Economic and Business Research, University of Utah, March 1987.

Utah as a Location for Frozen Prepared Food Manufacturing. Bureau of Economic and Business Research University of Utah. Prepared for the Division of Business and Economic Development, State of Utah, 1986.

Capital Flow in Utah. Bureau of Economic and Business Research, University of Utah, 1986. Report prepared for Governor's Economic Development Conference, February 1986.

The Strategy and Economic Impact for the Development of a Western Town in Moab Utah. Report prepared for the Division of Business and Economic Development, Department of Community and Economic Development, State of Utah, June 1985.

"The Changing Conditions of The Salt Lake County Apartment Market." Utah Economic and Business Research, Volume 45, Number 3, March 1985. Bureau of Economic and Business Research University of Utah, 1985.

"Utah's Expanding Service Sector," Utah Economic and Business Review, Volume 44, Number 9, September 1984. Coauthored with Constance C. Steffan. Bureau of Economic and Business Research, September 1984.

Electronics Target Industry. Bureau of Economic and Business Research, University of Utah. Report prepared for the Division of Business and Economic Development, Department of Community and Economic Development, State of Utah, September 1984.

"Salt Lake County Apartment Construction Activity," Utah Economic and Business Review, Volume 44, Number 6, June 1984. Bureau of Economic and Business Research, University of Utah, 1984.

Service Sector Target Industry Study. Bureau of Economic and Business Research, University of Utah, May 1984. Coauthored with Constance C. Steffan. Report prepared for Division of Business and Economic Development, Department of Community and Economic Development, State of Utah, May 1984.

Survey of Utah's Exporting Firms. Bureau of Economic and Business Research, University of Utah, 1983. Report prepared for the Division of Business and Economic Development, Department of Community and Economic Development, State of Utah, 1983.

Market Feasibility Study for Apartment Development. Bureau of Economic and Business Research, University of Utah. Report prepared for Triad Utah, December 1983.

Market Feasibility Study for Luxury Condominiums. Bureau of Economic and Business Research, University of Utah. Report prepared for Triad Utah, October 1983.

"Natural Resource Development and Small Business Opportunities in the Uintah Basin." Utah Economic and Business Review, Volume 43, Numbers 4 and 5, April/May 1983. Bureau of Economic and Business Research, University of Utah, 1983.

Natural Resource Development and Small Business Opportunities in the Uintah Basin. Bureau of Economic and Business Research, University of Utah. Report prepared for the Small Business Development Center, Salt Lake City, Utah, June 1983.

"The Electronics/Information Processing Industry in Utah," Utah Economic and Business Review, Volume 42, Number 10, October 1982. Bureau of Economic and Business Research, University of Utah, 1982.

The Electronic Components and Information Processing Industry and State Industrial Development Programs. Bureau of Economic and Business Research, University of Utah, 1982. Report prepared for the Division of Business and Economic Development, Department of Community and Economic Development, State of Utah, 1982.

"Utah Homebuilding: Decline, Structural Changes, and Demand Factors." Utah Economic and Business Review, Volume 42, Number 9, September 1982. Bureau of Economic and Business Research, University of Utah, 1982.

"Utah's Thrust Belt: Exploration, Development and Economic Impacts." Utah Economic and Business Review, Volume 41, Number 1, January 1981. Bureau of Economic and Business Research, University of Utah, 1981.

Demand for Cold and Frozen Storage in Utah and the Mountain States. Bureau of Economic and Business Research, University of Utah. Report prepared for the Division of Business and Economic Development, Department of Community and Economic Development, State of Utah, 1980.

Proposed Industrial Park Development in Grand County. Bureau of Economic and Business Research, University of Utah. Report prepared for Division of Economic and Industrial Development, Department of Community and Economic Development, State of Utah, October 1979.

Utah Labor Market Conditions for Manufacturing Assemblers and Electronic Technicians 1979. Coauthored with Randy Rogers and Ronda Brinkerhoff. Bureau of Economic and Business Research, University of Utah, 1979.

Utah: A Profitable Location for Headquarters and Administrative Office Facilities, Bureau of Economic and Business Research, University of Utah, September 1979. Report prepared for Division of Economic and Industrial Development, Department of Community and Economic Development, State of Utah, 1979.

Utah Demand for Bricks 1978, 1985, 1990. Bureau of Economic and Business Research, University of Utah. Coauthored with Mark Linford. Report prepared for Interstate Brick, Entrada Industries, July 1979.

Market Feasibility Study for Kaolin Clay Production in Utah. Bureau of Economic and Business Research, University of Utah, May 1979. Coauthored with Mark Linford. Report prepared for Office of Small Business Development, Department of Community and Economic Development, State of Utah, 1979.

Utah: A Profitable Location for the Machinery Industry. Bureau of Economic and Business Research, University of Utah, 1978. Report prepared for Division of Industrial Development, Department of Development Services, State of Utah, 1978.

"Demand for Housing in Salt Lake County." Real Estate Activities in Salt Lake Davis, Weber, Utah and Cache Counties, Fall 1978. Utah Real Estate Research Committee and Bureau of Economic and Business Research, University of Utah, 1978.

An Analysis of the Clay Roofing Tile Market in Utah. Bureau of Economic and Business Research, University of Utah, 1978. Report prepared for Interstate Brick, Entrada Industries, March 1978.

Sandy: An Economic Profile and Land Use Requirements. Bureau of Economic and Business Research, University of Utah. Coauthored with John Brereton and Randall Rogers. Report prepared for Sandy City Planning Office, January, 1977.

Demand for Selected Steel Products. Bureau of Economic and Business Research, University of Utah, October 1976. Coauthored with Dwight Israelsen, Robert Wood and Randall Rogers. Report prepared for Steelco Corporation, Salt Lake City, Utah, 1976.

A Study of the Economic Potential of the Great Salt Lake State Park. Bureau of Economic and Business Research, University of Utah, September 1976. Coauthored with John Brereton and Janet Kiholm. Report prepared for Division of Parks and Recreation, Department of Natural Resources, State of Utah, 1976.

Married Student Housing Survey. Bureau of Economic and Business Research, University of Utah, August 1976. Report prepared for Housing Management, University of Utah, 1976.

"The Changing Composition of the State Budget," Utah Economic and Business Review, Volume 36, Numbers 4 and 5, April/May 1976. Bureau of Economic and Business Research, University of Utah, 1976.

"Utah Building Activity 1970-1975." Real Estate Activities in Salt Lake, Davis, Weber, Utah and Cache Counties, Fall 1975. Coauthored with Kathy Watanabe. Utah Real Estate Research Committee and the Bureau of Economic and Business Research, University of Utah, 1975.

"Condominium Developments in Utah," Utah Economic and Business Review, Volume 34, Number 9, September 1974. Bureau of Economic and Business Research, University of Utah, 1974.

Electronics Industry: Location Potential in Utah. Bureau of Economic and Business Research, University of Utah, June 1973. Coauthored with Jean H. Hanssen. Report prepared for the Division of Industrial Development, Department of Development Services, State of Utah, 1973.