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Economic Impact of THDA Activities in Calendar Year 2013 on the Tennessee Economy

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EXECUTIVE SUMMARY

“Leading Tennessee Home by creating safe, sound, affordable housing opportunities” is the mission of Tennessee Housing Development Agency (THDA). A safe, sound affordable home supports family and individual health, economic and employment success, educational achievement, and contributes to the sustainability of the neighborhood and the community.

In addition to benefitting individuals and families, THDA programs create additional jobs, income, and spending in the local economy and add to state and local revenues.

In this study, we developed a comprehensive framework to estimate the economic impact of the THDA activities in providing safe, sound, affordable housing options to households of low- and moderate-income. To this end, we reviewed THDA programs, both loans and grants, to determine the scope and the monetary flows of each program’s activities. Because of the economic multipliers or the “ripple” effect, our affordable housing programs impact all industries in the economy, going far beyond the specific unit or the neighborhood in which THDA program money is spent¹.

Economic Impact of THDA-Related Activities in 2013

Total economic impact described below is the sum of direct THDA spending, indirect business to business transactions in Tennessee’s economy and additional employee spending.

Business revenue

- ✓ The total contribution of THDA-related activities to Tennessee’s economy was estimated at \$835 million in 2013.
 - Of this total, \$411 million was directly injected into the economy by THDA-related activities.
 - Every \$100 of THDA-related activities generated an additional \$103 in the business revenues.

Personal income

- ✓ THDA-related activities generated \$287 million in wages and salaries in 2013.
 - Every \$100 of personal income produced an additional \$105 of wages and salaries in the local economy.

Employment / Job Creation

- ✓ THDA-related activities created 6,360 jobs in 2013.
 - Every 100 jobs created by THDA-related activities, primarily in the construction sector, generated 106 additional jobs throughout the local economy.

State and local taxes

The THDA-related activities accounted for \$32 million in state and local taxes in 2013.

¹ We used the IMPLAN input-output model to calculate these “ripple” effects.

THDA's program accomplishments in 2013 included in this study are as follows:

- Mortgage production reached \$241 million. As a result, 2,071 households became homeowners.
- The Keep My Tennessee Home (Tennessee's Hardest Hit Fund) program issued \$51.4 million in forgivable loans to 2,727 households who were struggling to stay current with their mortgage due to a reduction or loss of employment, divorce or death of a spouse.
- The Medical Hardship Program² provided \$5.5 million in forgivable loans to assist 362 eligible Tennessee homeowners suffering from a long-term medical disability hardship with mortgage payments.
- Low Income Housing Tax Credits (LIHTC) in the amount of \$158.1 million were allocated to create or rehabilitate 2,176 rental units.³
- The Multifamily Bond Authority⁴ used \$20.2 million to create and renovate 512 rental apartments⁵.
- The Section 8 Rental Assistance helped 41,293 households with \$187.9 million for paying rent and utilities.
- The Community Investment Tax Credit⁶ (CITC) assisted lenders who made \$40.6 million in below market loans or contributions to eligible non-profits to assist in creating or preserving 748 units of affordable housing and 833 units of affordable rental housing.
- The Housing Trust Fund supports several affordable housing programs. The Housing Modification and Ramps program provided \$122,413 to make 165 homes accessible for persons with disabilities. In partnership with U.S. Department of Agriculture (USDA), the Rural Housing Repair Program provided an additional \$764,442 to assist 137 elderly and disabled households. The Emergency Repair for the Elderly Program provided \$1.2 million in home repair assistance for 231 eligible households. The Rebuild and Recover Program provided \$1 million to families who were not eligible to access Federal

² Attorneys General National Mortgage Servicer Settlement, Keep My Tennessee Home Long-Term Medical Disability Hardship Program provides forgivable loans to eligible Tennessee homeowners suffering from a long-term medical disability hardship. The first funds were distributed in 2012.

³ For the LIHTC developments, the developers have three years to complete the development and place it in service. Most of the construction spending takes place in the second year and the remaining small portion is completed in the third year. Therefore, for the 2013 economic impact of LIHTC program spending, 80 percent of 2011 and 20 percent of 2012 total development costs are used.

⁴ For the Multifamily Tax-Exempt Bond Authority projects, most of the construction spending takes place in the year after the developers receive the allocations. Therefore, 2012 total development cost is used for the 2013 economic impact of the consumption spending in this program.

⁵ Some multi-family developments receive funding through both the LIHTC and the Multi-Family Bond Authority programs. For these developments, units are counted in the totals for both programs.

⁶ CITC dollars represent the amount of below market loans made that are eligible for CITC rather than the tax credit amount received.

Emergency Management Agency (FEMA) funds to help them fix their weather-damaged homes.

- The Emergency Solutions Grant (ESG) Program awarded \$2.7 million to non-profits serving Tennessee to help area homeless and domestic violence shelters.
- The Foreclosure Prevention Program provided \$1 million to non-profits to assist 2,570 homeowners in preventing foreclosure and mitigating the impact of foreclosure.
- The Homebuyer Education Program provided area agencies \$466,300 to counsel 1,877 families in their home purchase.
- Non-profits and local governments used \$4.3 million in Neighborhood Stabilization Program funds to purchase foreclosed properties for new construction, renovation and demolition, turning them into 71 homes.
- With \$1.7 million, the Weatherization Assistance Program helped an estimated 328 low-income families reduce their energy bills by making their homes more energy efficient.

I. Overview of the THDA Programs and Activities for the Calendar Year 2013

One of the primary ways THDA assists people is by offering fixed-rate loans for first-time homebuyers. In addition to helping homebuyers, THDA also administers several other housing programs to help Tennessee families who are low- and moderate-income through various programs. A brief overview of the programs included in this analysis is provided below. Detailed information about each program is available at www.thda.org.

The THDA programs included in this study

- ✓ The THDA Homeownership programs: Designed for borrowers of low and moderate income, the THDA mortgage programs offer 30-year fixed-rate loans and downpayment assistance for first time homebuyers. The borrowers must meet certain income and credit requirements, and the acquisition cost limits apply to the new and the existing homes.
- ✓ The Keep My Tennessee Home program: Tennessee is one of 18 states plus the District of Columbia that are receiving Hardest Hit Funds from the United States Department of Treasury. Tennessee's Hardest Hit Fund Program provides forgivable loans to households who are in danger of losing their homes to foreclosure or struggling to stay current with their mortgage due to a reduction or loss of employment, divorce, or death of a spouse. The Keep My Tennessee Home program makes homeowners' payments on their mortgage and mortgage related expenses such as property taxes, homeowner insurance, homeowner association dues, and/or past-due mortgage payments that accumulated during a period of unemployment. In 2012, THDA also received funds from the Tennessee Attorney General that were allocated through the National Mortgage Servicer Settlement. Attorneys General National Mortgage Servicer Settlement, Keep My Tennessee Home Long-Term Medical Disability Hardship Program provides mortgage payment assistance to eligible Tennessee homeowners suffering from a long term medical disability, a hardship that is not eligible under the Hardest Hit Fund from the Department of Treasury.
- ✓ The Low-Income Housing Tax Credit (LIHTC): THDA administers the LIHTC program in Tennessee. The program is intended to encourage the construction and the rehabilitation of rental housing for individuals and families who are low-income. The LIHTC provides an incentive for the developers to create affordable rental housing. The incentive is a credit against the federal income tax liability each year for 10 years for the owners and the investors in the low-income rental housing.
- ✓ The Multi Family Tax-Exempt Bond Authority: THDA makes the Multifamily Tax-Exempt Bond Authority available to the local issuers for the permanent financing of the multifamily housing units in Tennessee. The Multifamily Tax-Exempt Bond Authority is not intended for short-term financing, construction financing, "the bridge" financing, or any other financing which is not permanent

financing for the development. It can be used for the construction of new affordable rental housing units, for the conversion of existing properties through adaptive reuse, or for the acquisition and rehabilitation of rental units. Multifamily bond authority deals may apply for the non-competitive tax credits with in the same calendar year as the allocation for bond authority. Therefore, most of the multifamily bond authority deals are counted in LIHTC units.

- ✓ Section 8 Rental Assistance (the tenant-based Housing Choice Voucher assistance program and the project-based contract administration program): The Housing Choice Voucher program provides monthly rental assistance for the participants who want to rent from a private landlord but cannot afford the full monthly rental payment⁷. Additionally, THDA oversees properties with the Section 8 Housing Assistance Payment Contracts.
- ✓ Community Investment Tax Credit (CITC): Financial institutions may obtain a one-time credit against the sum total of the taxes imposed by the Franchise and Excise Tax Laws when the qualified loans, the qualified investments, the grants or the contributions are extended to eligible housing entities for engaging in eligible housing activities. The program is administered in cooperation with the Tennessee Department of Revenue. THDA certifies the housing entity and the activity as eligible to receive the tax credits. The eligible activities include those that create or preserve affordable housing for Tennesseans with low-income, that assist Tennesseans with low-income in obtaining safe and affordable housing, that build the capacity of an eligible nonprofit organization to provide housing opportunities for Tennesseans with low-income, and any other low-income housing related activity approved by the THDA Executive Director and the Commissioner of Revenue.
- ✓ The Housing Trust Fund (HTF) addresses the housing needs of the people who are very low income, the elderly who are very low income and the very low income special needs populations of Tennessee. The Housing Trust Fund funds five programs to address the housing needs of these families and individuals:
 - *The Emergency Repair Program (ERP) for the Elderly*: A program to provide grants (not loans) to elderly homeowners who are low income to repair, or replace an essential system and/or a critical structural problem. The purpose of the program is to stabilize the elderly homeowner's residence by making rapid, essential repairs to make the home livable.
 - *The Rural Repair Program*: A joint program with the USDA Rural Housing Service to deliver a house repair program for the very low-income homeowners residing in the rural counties.

⁷ THDA administers the Housing Choice Voucher program in 72 out of 95 counties in the State. Remaining counties have their own Section 8 program.

- *The Housing Modifications and Ramps Program*: A partnership with United Cerebral Palsy to provide grants to construct ramps for persons with disabilities to allow access to their home.
- *Competitive Grants*: A program supports activities for persons of very low income including the chronically homeless, persons with intellectual disabilities, developmental disabilities, or mental illness, single mothers recovering from substance addiction or physical abuse, veterans with multiple needs and ex-offenders re-entering society.
- *The Manufactured Housing Replacement Pilot Program*: A pilot program initiated in 2012 in partnership with THDA and the Tennessee Manufactured Housing Foundation to replace substandard, dilapidated mobile homes built before 1976 and manufactured homes built after 1976 with new HUD-certified Energy Star qualified manufactured homes.
- *The Rebuild and Recovery Program*: In August 2012, a flash flood destroyed or significantly damaged over 100 homes in the Dry Creek community of Washington County. Because the estimated level of damage did not meet certain minimum thresholds, the affected homeowners were not eligible to apply for disaster-relief assistance from the Federal Emergency Management Agency (FEMA). At the request of Washington County Mayor Dan Eldridge, THDA provided a \$300,000 grant from THDA's Housing Trust Fund to assist in the recovery effort. THDA's initial grant represented the 'first money in the deal' and was leveraged nine times over by local officials. THDA used this experience as a model in designing the Rebuild and Recover program, which offers a variety of tools to assist Tennessee communities faced with similar circumstances. Some of the financial tools available included small grants to the impacted communities intended to be the "first money in the deal," providing lending flexibility with our mortgagors, or emergency short-term housing assistance.
- ✓ The Emergency Solutions Grant (ESG) Program: THDA administers the federally-funded Emergency Solutions Grant (ESG) Program, formerly known as the Emergency Shelter Grant, to increase the number and quality of emergency shelters and transitional housing facilities for homeless individuals and families, to operate these facilities and provide essential social services and to help prevent homelessness. ESG funds are awarded on a competitive basis to cities, counties and nonprofit organizations outside the CDBG entitlement communities that receive their own ESG funding directly from the U.S. Department of Housing and Urban Development (HUD).
- ✓ The Foreclosure Prevention Program: This program provides area agencies funds to counsel homeowners who are in danger of foreclosure. All Tennesseans can access the foreclosure counseling services available through the program.

- ✓ Homebuyer Education Initiative: This program provides area agencies with funds to counsel families in their home purchase.
- ✓ The Neighborhood Stabilization Program (NSP): THDA administers the federally funded NSP on behalf of the U.S. Department of Housing and Urban Development (HUD). The purpose of NSP is to provide emergency assistance to state and local governments to acquire and redevelop foreclosed properties that might otherwise become sources of abandonment and blight within their communities.
- ✓ The Weatherization Assistance Program: Administration of Tennessee's Weatherization Assistance Program has been transferred to THDA, which now serves as the Grantee Agency for the current program year and has sub-contracted with a network of local community agencies to provide services in Tennessee's 95 counties, based on availability of funding. The Weatherization Assistance Program is designed to assist low-income households in reducing their fuel costs while contributing to national energy conservation through increased energy efficiency and consumer education. Households that include young children, elderly or disabled members are given priority for service. Weatherization measures provided will reduce heat loss and energy costs by improving the thermal efficiency of dwelling units occupied by low-income households. Examples of common weatherization measures that may be provided are weather stripping, caulking, and adding of insulation to attics, walls and floors

II. Economic Impact Results

Methodology

We used the IMPLAN input-output model to calculate the ripple effects of THDA-related activities on the Tennessee economy. The IMPLAN model calculates total business revenues, personal incomes, and total employment. For each of these categories, the IMPLAN model provides the direct, the indirect, and the induced impacts. The direct expenditures created by THDA programs and grants generate additional economic activity in the form of indirect and induced expenditures. Direct impact is the dollar amount of the initial spending because of the THDA programs and grants. We also report the corresponding direct personal income and employment figures.

Indirect impact is the economic impact that is generated because of the subsequent rounds of business to business transactions in Tennessee's economy. For example, a grantee who receives a grant to repair a critical structural problem for an elderly homeowner buys materials from a supplier who would in turn purchase additional material, labor, etc. from other businesses. This spending will create additional rounds of spending in the local and regional economies.

Induced impact is the economic impact that is generated through employee spending in the economy. A portion of the direct and indirect program spending goes to individuals as wages and salaries. Then, these individuals spend these wages and salaries

in the economy depending on their consumption patterns. Each round of spending creates ripple effects in the economy.

We provide the impact of THDA-related activities on business revenue, personal income, employment and state and local taxes. Business revenue is the total economic activity generated by THDA programs and grants spending in the economy. Personal income is the income that people in the economy receive because of the spending associated with THDA programs and grants. Employment is the number of jobs generated by THDA programs and grants spending in the economy. Estimated state and local taxes are derived from the IMPLAN model.

Construction of new homes and rehabilitation of existing homes through THDA-related activities increase employment both in the construction industry and the industries with forward and backward linkages to the construction. For every dollar spent in the economy through related activities, the business revenue and personal income increase by more than one dollar of direct spending because of the indirect and induced effects.

As presented in Table 1, the economic impact of THDA programs and grants was quite substantial. For each of the economic impact categories, we present the direct, the indirect and the induced impacts, in addition to the total impact and the multiplier (when applicable).

Results

The following table represents the direct, indirect, induced and total impact of THDA-related activities on Tennessee Economy in 2013. The impacts are provided for the employment, labor income and output (business revenue). Total multipliers⁸ are also listed in the table. These are calculated by dividing the total impact by the direct effect. In 2013, for every \$100 in direct industrial output created through THDA-related activities additional \$103 business revenues were generated.

**Table 1: The Economic Impact of THDA-Related Activities on Tennessee Economy, 2013
(Dollar figures in millions)**

	Direct Impact	Indirect Impact	Induced Impact	Total Impact	Multiplier*
Business Revenue	\$411.4	\$163.7	\$259.4	\$834.6	2.03
Personal Income	\$140.3	\$58.6	\$88.1	\$287.0	2.05
Employment	3,084	1,241	2,035	6,360	2.06
State and Local Taxes**	NA	NA	NA	\$32.4	NA

*Multipliers are calculated by dividing total impact by direct impact

**State and Local taxes are estimated from the model.

In 2013, THDA-related activities injected into the economy a total of \$411,401,065 in demand for regionally supplied construction, real estate services, and financial and other services inputs. To provide those sales in the economy, all of the affected firms provided 3,084 employment opportunities making \$140,328,833 in wages and salaries. These are direct impacts of 2013 THDA-related activities. Next, all of those directly stimulated firms required increased inputs of \$163,721,797 from the local economy, which further stimulated 1,241 jobs and \$58,595,148 in labor income. When the workers in the direct

⁸ Multipliers are explained in the methodology section of this report in more detail.

and indirect sectors converted their paychecks into household spending, they induced \$259,428,185 in industrial output from industries that served households, yielding 2,035 more jobs making \$88,067,569 in wages and salaries. Added together, THDA-related activities supported \$835 million in area industrial output, \$287 million in labor income and 6,360 jobs.

The THDA-related activities also generated sizable tax revenues for state and the local governments. The model estimated tax revenues due to THDA-related activities were \$32.4 million.

Impact by the major industries

THDA-related spending influences all industries through the ripple effect. Table 2 shows the economic impact of the THDA-related spending by major industries. These show the total impact for the industries including direct, indirect, and induced impacts.

According to Table 2, the largest impact is in the service sector with \$469 million in business revenues, \$177 million in personal income, and 3,828 jobs. THDA-related activities generated \$192 million in business revenue and approximately 1,200 jobs in the construction sector.

Table 2: Total Impact of the THDA-Related Activities on the Tennessee Economy by Major Sectors, 2013

	Employment (Jobs)	Personal Income (\$Mil.)	Business Revenue (\$Mil.)
Service	3,828	\$177.4	\$468.9
Construction	1,194	\$49.7	\$191.5
Trade	908	\$35.4	\$68.7
Manufacturing	112	\$6.9	\$45.9
Government	139	\$9.1	\$32.9
TIPU	134	\$7.5	\$22.7
Mining	11	\$0.6	\$2.3
Agriculture	35	\$0.3	\$1.7
Total	6,360	\$287.0	\$834.6

III. Methodology

When THDA helps a low-income borrower buy his/her first house or provides some relief to a cost-burdened renter, this affects the life of that person and overall society in several ways.⁹ In addition to the benefits reaped by individuals and society, spending in the process of providing affordable housing generates business revenues, incomes and jobs in the communities.¹⁰

⁹ For more information about health benefits of affordable housing see: Cohen, R. (2011). “The Impacts of Affordable Housing on Health: A Research Summary,” *Center for Housing Policy* and for more information about education benefits of affordable housing see: Brennan, M. (2011). “The Impacts of Affordable Housing on Education: A Research Summary,” *Center for Housing Policy*. See, also Newman, S. (2008). “Does Housing Matter for Poor Families? A Critical Summary of Research and Issues Still to be Resolved,” *Journal of Policy Analysis and Management*, vol. 27, no. 4, pp. 895-925.

¹⁰ To learn more about the economic impact of affordable housing, see, for example, Beyond Units: Economic Benefits of Federal Home Loan Bank (FHLB) of Atlanta’s Affordable Housing Program (2010). The Hendrickson Company in conjunction with The Shimberg Center for Housing Studies, University of Florida, on behalf of FHLB of Atlanta; The

The Low-Income Housing Tax Credit program, for example, illustrates the broader impacts of affordable housing. One additional low-income housing unit built with the incentive created through the tax credit will house a family of low income. This is an important contribution to the well-being of that family that will be paying less for housing. This reduces the cost burden of the renters. The money a developer spends to build that additional rental unit will generate incomes and jobs for the individuals through rounds of spending. One dollar spent in the local and regional economies will support more than that one dollar, creating income for other people in the region. In the process, there will be some leakages: some money will go to savings instead of being spent, some will go to taxes and fees, some of it will go to the vendors located outside the local economy, and so on. However, the portion staying in the local economy will continue to circulate and support additional rounds of spending until there is no more.

The sum of all these rounds of spending is represented by an “economic multiplier.” For example, a multiplier of 1.5 means that \$100 of initial spending will create an additional \$50 in the local economy. The size of the multiplier depends on the type of the initial spending, mostly related to the sector of the economy in which it is spent, and the strength of the local economy. For example, initial spending in the construction sector supports a larger multiplier than initial spending in the finance sector. The more self-sufficient the local economy is, the higher the multiplier will be. If many items are not produced locally and the region (i.e. the state) depends on the other outlying regions, the value of the multiplier will be smaller.

IV. Conclusion

The THDA-related activities in 2013 had substantial economic impact on Tennessee’s economy. To summarize,

- ✓ For every \$100 dollar of business revenue, resulting from the THDA Programs, an additional \$103 of business revenue was created throughout the economy.
- ✓ For every \$100 dollar of personal income, related to the THDA programs, an additional \$105 of personal income is generated throughout the economy.
- ✓ For every 100 jobs, related to THDA programs, an additional 106 jobs are created throughout the economy.

Metro Area Impact of Home Building in Shelby County, TN: Income, Jobs and Taxes Generated. (2010), National Association of Homebuilders; Wood, J. A. (2004), Economic Impact Of Affordable Housing: New Construction, Rehabilitation And Assistance Programs, Retrieved March 2010, from Utah Housing Coalition website: http://www.utahhousing.org/documents/Econ_impact_study05.pdf ; and Assessing the Economic Benefits of Public Housing, Econsult Corporation, Retrieved March 2010, from The Council of Large Public Housing Authorities website: http://www.clpha.org/uploads/final_report_1.pdf

Appendix: Assumptions

The THDA programs vary in nature from increasing the affordable housing stock by creating new rental and ownership units or renovating the existing ones to making individuals first time homeowners to helping individuals and families pay an affordable rent. When entering the spending in different THDA programs to our economic impact model we made assumptions appropriate to the nature of the program. The following section explains those assumptions for each program, which there was program spending during calendar year 2013.

Single Family Mortgage Program

- THDA mortgages can be used to purchase a new or an existing home. Modeling the single family mortgage program in IMPLAN depends on whether THDA borrowers purchased a new or an existing home.
- For the new home purchases, we input the construction cost of building those new homes in the model. The cost of land acquisition is removed from the final price of the house because it is not part of the construction spending and it does not create a multiplier effect like spending on the other items. For IMPLAN, the purchase of land for building a new home is an asset exchange. There will not be a net change in the economy. To determine the value of land in home prices for single-family homes, we used the home sales price data, which THDA annually compiles from the Comptroller's Office. According to this data, for the homes sold in Tennessee, the land value was estimated at about 18 percent of the sales price.
- Like the purchase of land for new home construction, the purchase of existing homes does not create a multiplier effect either¹¹. However, the fees and commissions paid in the home purchase process have to be included in the economic impact. We looked at the mortgages funded through THDA to find out the fees and commission paid by an average THDA borrower as related to the purchase price. Based on this data, we distribute the fees, commissions and expenditures among financial sector, real estate sector and state and local government (some of the fees are paid to the government and also property taxes paid at the closing go to government). This is done for all mortgages whether it is for a new or an existing home purchase.
- Individuals and families who purchased a home with THDA single family mortgage program are new homeowners, but they are not new to the region. They will not bring new spending to the state that was not there before. Therefore, we cannot add their spending as new homeowners to the local economy. However, homeowners' spending patterns are different than renters' spending. To deal with

¹¹ It might lead to the construction of new homes in subsequent rounds if those people who sold their homes to THDA borrowers purchase a new home, but we did not make any assumption to quantify this.

the changing spending pattern in the region, we subtracted the new homeowners' spending when they were renters and added to the sectors they would spend as homeowners. Bureau of Labor Statistics (BLS) surveys individuals to determine their spending habits and those are published regularly as Consumer Expenditure Survey (CES). The aggregate tables provide spending patterns of renter and homeowners (with and without mortgage payments). To determine the change in the spending pattern of THDA borrowers after they became new homeowners, we used these consumer expenditure surveys. We determined the sectors in which homeowners and renters spend their income, excluding the housing related expenditures from both groups. For the income, we used the average income of the THDA borrowers in all homeownership programs.

Keep My Tennessee Home (Tennessee's Hardest Hit Fund) Program and Attorney General Medical Disability Hardship Program

- This program provides forgivable loans to homeowners to help pay their mortgages. We assumed that homeowners spend the money for consumption goods and services otherwise they would use for paying the mortgages. The Keep My Tennessee Home program pays arrears if the borrower has any, and makes the monthly payments on behalf of the homeowner for up to a total of \$40,000. The money paid for arrears cannot be considered as money homeowners otherwise would spend for consumption. However, in the absence of a good measure of the actual amount of funds disbursed for arrears versus funds used to make monthly mortgage payments, we assumed all funds used in the year are net injections to the economy.
- The counseling agencies that work directly with the homeowners receive administrative funds. Those funds are included in the economic impact model separately from the consumption spending of the borrowers.

Low Income Housing Tax Credit (LIHTC) and Multifamily Bond Authority

- In the LIHTC program, developers leverage additional funds to complete the projects. Therefore, to calculate the economic impact of constructing multifamily housing units with LIHTC, we used the total cost of construction rather than the tax credit allocations developers receive.
- There is a lag time between the allocation of the Low Income Housing Tax Credit and the start-up of the housing developments. Therefore, to determine the impact of 2013 activities, we cannot use the 2013 LIHTC allocations.
- In terms of our model, the important stage is when the developer starts the new construction or rehabilitation so that the money is injected into the economy. Using the available data, it is established that developers mostly act on their LIHTC commitments in the second year after they receive their right to obtain the

tax credit. Based on this prior knowledge and after reviewing the data on the annual tax credit allocations, we used LIHTC allocations of 2011 and 2012 for the LIHTC spending in calendar year 2013. We used an 80-20 percent division, which means that, of the total LIHTC spending in calendar year 2013, 80 percent comes from the 2011 THDA tax credit allocations and 20 percent from the 2012 THDA tax credit allocations.

- We have detailed cost data such as the land value, the site work, the architectural and engineering fees, and the financing fee expenses for the rental developments built with the LIHTC allocations. The rest of the spending related to building multifamily units is entered into the appropriate sectors in IMPLAN.
- Multifamily bond authority deals can apply for LIHTC and their impact is calculated the same as LIHTC deals. For the Multifamily Tax Exempt Bond Authority, the developers have one year for the rehabilitation and the acquisition projects to complete the project and place in service, while for the new construction projects, they have two years. Therefore, we used the 2012 allocations for the multifamily tax exempt bond authority developments.

Section 8 Rental Assistance

Both the tenant-based housing choice vouchers and project-based rental assistance help renters pay affordable rent. The rent saving is treated as an increase in disposable income. We assumed that renters spend the money for the consumption of goods and services that they would otherwise use for paying rent. Money is distributed among the sectors based on household spending patterns in the IMPLAN model.

Community Investment Tax Credit (CITC)

The investment amount for each project is used as input for the economic impact model. This is assuming that the loans would not be made in the absence of CITC. The CITC projects could take multiple years to complete. However, in our modeling, we did not address this possibility. The activities for CITC projects include new construction and rehabilitation of rental and ownership units and the acquisition of buildings for rehabilitation. New construction and rehabilitation spending are entered to the appropriate sectors of the economy in the model.

Housing Trust Fund

Housing Trust Fund grants require matching funds from the grantees. Those matching funds can come from different sources. The assumption is made that without THDA involvement, those funds would not be available to complete those projects. Therefore, for any grant that requires matching funds to complete the project, total cost of project is used as the input for IMPLAN instead of the amount of grant received from Housing Trust Fund. The Emergency Repair Program, the Home Modifications and Ramps Program, and Rural Repair Program grants are spent in the same year they are awarded, while the competitive grant recipients have multiple years to spend the awarded grants.

We used the amount of money allocated in the year for the competitive grants as input for economic impact model (there was no competitive grant allocation in 2013). We entered the allocated amount for the Rebuild and Recovery Program as input in the model even if they were not all spent during the year.

The Emergency Solutions Grant (ESG) Program

The HUD funds given to THDA for this program are entered into the appropriate sectors in economic impact model.

The Foreclosure Prevention Program

Money distributed to the counseling agencies is entered to the appropriate sectors in economic impact model. The counseling agencies also receive administrative funds. This amount is also entered as a different category in the economic impact model.

Homebuyer Education Initiative

The money paid to area agencies by THDA on behalf of homebuyers who received homebuyer education and then THDA loan is entered to the appropriate sectors in economic impact model. THDA also spends money for training those educators and provides textbooks used in trainings. This spending is also entered to the model accordingly.

Neighborhood Stabilization Program (NSP)

The assistance distributed to state and local governments to acquire and redevelop foreclosed properties is entered to the appropriate sectors in the economic impact model such as new construction, maintenance and administrative expenses.

The Weatherization Assistance Program

Program provides grants, technical assistance, and information tools to states, local governments, community action agencies, utilities, Indian tribes, and overseas U.S. territories for their energy programs. The total allocated amount was entered to the model as rectification spending in the construction sector.

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