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**Impact THDA:
The Economic Impact of THDA Activities
on the Tennessee Economy
2017**

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EXECUTIVE SUMMARY

Affordable housing's benefits expand beyond those individuals and families who can live in safe, sound, affordable homes thanks to the programs administered by Tennessee Housing Development Agency (THDA). In addition to benefitting individuals and families, because of the economic multipliers, or the "ripple" effect, THDA's 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, and create additional jobs, income, and spending in the state and local economies and add to state and local revenues.

In this study, we developed a comprehensive framework to estimate the economic impact of 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. Affordable housing programs used in the analysis include a range of housing related support across the state, including: the Great Choice Loan Program, Housing Choice Vouchers (Section 8); the Low-Income Housing Tax Credit (LIHTC) Program which provides federal tax credits to developers, the Community Investment Tax Credit that provides state tax credits to banks who support affordable housing, weatherization and repair programs, and homelessness prevention.

Economic Impact of THDA-Related Activities in 2017

The 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. This can be summarized in the following way.

Business Revenue

The total contribution of THDA-related activities to Tennessee's economy was estimated at \$1.1 billion in 2017.

- Of this total, \$628 million was directly injected into the economy by THDA-related activities. Every \$100 of THDA-related activities generated an additional \$74 in business revenues.

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

Personal Income

THDA-related activities generated \$349 million in wages and salaries in 2017.

- Every \$100 of personal income produced an additional \$78 of wages and salaries in the local economy.

Employment / Job Creation

THDA-related activities created 7,477 jobs in 2017.

- Every 100 jobs created by THDA-related activities, primarily in the construction sector, generated 85 additional jobs throughout the local economy.

State and Local Taxes

The THDA-related activities accounted for \$35 million in state and local taxes in 2017.

I. Overview of the THDA Programs and Activities for the Calendar Year 2017

One of the primary ways THDA assists Tennesseans is by offering fixed-rate mortgage loans for low- and moderate-income homebuyers². In addition to helping homebuyers, THDA administers several other housing programs to help Tennessee families who are low- and moderate-income. An overview of the programs included in the economic impact analysis is provided in the [THDA Investments & Impacts: 2017](#). Detailed information about each program is available at www.thda.org.

II. Economic Impact Results

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. 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.

² THDA homeownership programs generally serve first-time homebuyers (those who have not owned their principal residence within the last three years), but serve all eligible homebuyers who are buying in federally targeted areas and who are veterans.

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.

In this analysis, the social impacts that derive a financial gain for the family and the community are not considered in the economic impact calculation. For example, the health care costs avoided by a beneficiary of the Home Modifications and Ramps program and the resulting value of nursing home avoidance, increased independence and longevity are not found in these calculations. Even though reduced energy consumption has both individual and regional impacts, both environmentally and financially, the energy cost savings produced by weatherization are not considered in this analysis. Similarly, the prevention of a household moving into homelessness through the Emergency Solutions Grant has an economic impact that may not be easily quantifiable and is not captured here. Keeping this in mind, with these impacts not included, the estimates presented here are just of direct investments, without looking at the public good by-product of these THDA efforts.

Results

The following table represents the direct, indirect, induced and total impact of THDA-related activities on the Tennessee economy in 2017. The impacts are provided

for the employment, labor income and output (business revenue). 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).

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).

Total multipliers³ are also listed in the table. These are calculated by dividing the total impact by the direct effect. In 2017, for every \$100 in direct industrial output created through THDA-related activities an additional \$74 in business revenues were generated.

Table 1: The Economic Impact of THDA-Related Activities on Tennessee Economy, 2017 (Dollar figures in millions)

| | Direct | Indirect | Induced | Total | Multiplier* |
|-------------------------|--------|----------|---------|---------|-------------|
| Business Revenue | \$628 | \$240 | \$223 | \$1,090 | 1.74 |
| Personal Income | \$197 | \$81 | \$71 | \$349 | 1.78 |
| Employment | 4,032 | 1,889 | 1,555 | 7,477 | 1.85 |
| State and Local Taxes** | NA | NA | NA | \$35 | NA |

**Multipliers are calculated by dividing total impact by direct impact*

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

In 2017, THDA-related activities injected into the economy a total of \$627,666,923 in demand for regionally supplied construction, real estate services, and financial and other services inputs (reflected in the table as ‘Direct’ impact from business revenues). To provide that business revenue into the state’s economy, all of the affected firms provided 4,032 employment opportunities with a collective \$196,573,981 in wages and salaries. These were direct impacts of 2017 THDA-related activities.

³ Multipliers are explained in the methodology section of this report in more detail.

Next, all of the firms with direct impacts required increased inputs of \$239,990,037 from the local economy, which further stimulated 1,889 jobs and \$81,437,793 in labor income.

When the workers in the direct and indirect sectors converted their paychecks into household spending, they induced \$222,652,303 in industrial output from industries that served these households, yielding 1,555 more jobs making \$71,048,989 in wages and salaries. Added together, THDA-related activities supported \$1.1 billion in area industrial output, \$349 million in labor income and 7,477 jobs.

The THDA-related activities also generated sizable tax revenues for state and local governments. The model estimated tax revenues due to THDA-related activities were \$35 million.

2017 Economic Impact by County, Congressional District and MSA

Every year, economic impact results are driven by the volume and scope of the THDA's housing-related activities that change over time. The changes in the volume and scope of the administered activities during the year change the resulting additional economic activity and jobs created.

Beginning in 2015, we calculated the economic impact of THDA-related activities at the county, Congressional District⁴ and Metropolitan Statistical Area (MSA) level, in addition to the statewide analysis. All THDA activities were separated by county, Congressional District and MSA, and these activities were used as inputs for the county and regional models that were created in IMPLAN. The results are the estimated impact of THDA activities in those jurisdictions. The economic impact results by county, Congressional District and MSA are shown in the Appendix II.

In 2017, THDA-related economic impacts were highest in Davidson County across all categories. In Davidson County, THDA programs directly injected more than \$115 million into the economy. For every \$100 dollar of THDA-related business revenue, an additional \$59 of business revenue was created in the county. In the following table,

⁴ Congressional district boundaries for 2017 are based on the 113th session of the U.S. Congress. Economic impact calculations include an entire county's data for all counties represented in the district, not just the portion of the county in the district. Some counties may be included in more than one congressional district, which means the state total cannot be determined by summing the district totals.

the five counties with the highest economic impact (in terms of output, employment, and income) are listed. Other than Knox switching place with Sumner in total output impact, the rank order of five counties remains the same across impact types.

Table 2: Five Counties with the Highest Total Economic Impact in All Categories

| County | Total Employment Impact | Rank | Total Income Impact | Rank | Total Business Revenue Impact | Rank |
|---------------|--------------------------------|-------------|----------------------------|-------------|--------------------------------------|-------------|
| Davidson | 1,148 | 1 | \$69,004,944 | 1 | \$183,992,184 | 1 |
| Shelby | 1,096 | 2 | \$57,406,107 | 2 | \$158,143,838 | 2 |
| Sumner | 778 | 3 | \$37,447,677 | 3 | \$105,761,796 | 4 |
| Knox | 776 | 4 | \$36,988,738 | 4 | \$116,616,593 | 3 |
| Rutherford | 556 | 5 | \$25,448,511 | 5 | \$82,224,663 | 5 |

The employment multiplier was highest in Sevier County, with every one employee with direct expenditures, another 2.02 jobs were created. This is of particular note, given the 2016 wildfires in the county, which gave rise to additional housing related expenditures from THDA and other rebuilding activities that were funded through alternative means. The business revenue multiplier was highest in Knox County. For every \$100 of THDA-related economic activities, an additional \$73 of economic activity was generated.

In the Nashville MSA, THDA-related activities created nearly 3,500 jobs and generated nearly \$189 million in wages and salaries. Every \$100 of THDA-related activities generated an additional \$77 in business revenues in the MSA county economies.

III. Methodology

When THDA helps a low- or moderate-income borrower buy a home or provides some relief to a cost-burdened renter, this affects the life of that person and overall society in several ways.⁵ 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.⁶

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 low-income household. This is an important contribution to the well-being of that family who will be paying less for housing. This reduces the cost burden to renters and frees up funds for other necessities or discretionary items. The money a developer spends to build that additional rental unit will generate incomes and jobs for Tennesseans 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 leakage. That is, some money will go to savings instead of being spent, some will go to taxes and fees, some 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.” In economic impact models, multipliers measure the secondary effects of initial spending on local economies. Initial new spending in a local economy creates

⁵ 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.

⁶ 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 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.cpha.org/uploads/final_report_1.pdf

many rounds of re-spending within the region's economy and multipliers capture those rounds of spending.

During the construction of a new house or rehabilitation of an existing one, for example, the local economy benefits directly from the money spent on the production factors such as materials and labor. The builder/developer purchases cement, lumber, windows, doors and other construction related material from local suppliers. Indirect impact occurs when the suppliers spend money on additional materials and hire new workers to complete the orders from the builders/developers. Finally, the employees in construction companies and in the industries related to the construction sector spend a portion of their wages at the local grocery store or shopping mall, which demonstrates induced effects. Taken together, the indirect and induced impacts of housing construction on the local economy are often called "ripple" or "multiplier" effects.

Multipliers are estimated by dividing the total impact (the sum of direct, indirect and induced impacts) by the initial direct spending in the economy. The income multiplier, for example, represents a change in total income (employee compensation and proprietary income) for every dollar change in income in any given sector. The employment multiplier represents the total change in employment resulting from the change in employment in any given sector. An income multiplier of 1.90, for example means that for every \$1 of personal income generates an additional \$0.90 of wages and salaries in the local economy.

The size of multipliers depends on the propensity of businesses and households to purchase goods and services from within the region versus from outside sources. Imports⁷ are leakages from the local economy as income is sent outside rather than recirculating within the region's economy. The region will have a larger multiplier if it has large and diversified economies producing a variety of goods and services because households and business can find most of the goods and services they need locally. The size of the region also impacts the size of the multiplier. In a large geographic region, transportation costs are high enough to prevent imports so businesses and consumers will

⁷ Import, as used here, does not necessarily mean purchasing goods and services from another country. For the purpose of economic impact modelling, any purchase from outside the "region" defined in the IMPLAN Model is considered as import.

spend more locally. A region that serves as a central hub for the surrounding regions will also have higher multipliers than more isolated counties.

The size of the multiplier also depends on the nature of the economic sectors under consideration. Those are the factors such as whether the available industries in the region use labor intensive or capital intensive techniques in the production of industry output and each sector's propensity to buy goods and services from within the region. Rehabilitation/remodeling activities, for example, are more labor intensive than new construction and relies more on locally available labor force than capital, which is mostly imported from neighboring regions. Therefore rehabilitation activities will have larger induced impacts.

Another factor that will impact the size of the multiplier is whether the sector specific multipliers are reported or an average multiplier is reported. When a single multiplier is reported for a region for all the spending in different sectors, it represents an average value across many sectors. It is possible that a small county in which a large portion of initial spending is made on an industry with a high multiplier can have a larger aggregate spending multiplier than another larger county in which the additional initial spending is disbursed across different sectors with varying multiplier values. In this case, the small county with a relatively low industrial base might have a larger multiplier than the large county. For example, in 2017, in two of the three counties with the highest labor multiplier (Knox and Williamson), based on the direct spending amount, the Low-Income Housing Tax Credit (LIHTC) was the major program THDA used to assist county residents. LIHTC contributes to the economy through the construction sector, which has a very high employment multiplier. When the total economic impact of THDA activities in the county is calculated, the employment multiplier is higher than other counties with a relatively larger and more diversified industry base in which THDA administered several different programs with varying multiplier values.

IV. Conclusion

THDA programs provide significant investments in each of the 95 counties of Tennessee. THDA's affordable housing programs to help low- and moderate-income individuals and families are in different forms ranging from the single family mortgage loan program to Low Income Housing Tax Credits to create new or renovate existing multifamily housing units and also rental subsidies. Additionally, THDA helps Tennesseans live in safe, sound affordable housing conditions by reducing the housing-related expenses such as energy. In this economic impact analysis, we included all available programs during the year.

THDA's programs are not only helping to fill the housing needs and gaps in communities across the state; the construction, real estate and programmatic investments provide true investments that multiply their benefit throughout the local, regional and state economies. The total contribution of THDA-related activities to Tennessee's economy was estimated at \$1.1 billion in 2017. For every \$100 spent by THDA and the grantees, an additional \$74 in business revenues was generated in Tennessee economy. State and local governments also benefit financially from THDA-related activities. Sales taxes on building materials, income taxes on construction workers and several fees collected before and during construction all increase the tax revenue. The THDA-related activities accounted for \$35 million in state and local taxes in 2017

APPENDIX I

ASSUMPTIONS

THDA programs vary in nature from increasing the affordable housing stock by creating new rental and ownership units, to renovating the existing units, to helping individuals become first time homeowners, and to helping households pay an affordable rent. When entering the spending from each THDA program into our economic impact model, we made expenditure and sector assumptions appropriate to the nature of the program. The following section explains those assumptions for each 2017 program.⁸

Single Family Mortgage Loan Program

THDA mortgages can be used to purchase a new or an existing home. Modeling the single family mortgage loan program in IMPLAN depends on whether THDA borrowers purchased a new or an existing home.

The construction and sale of new homes make a direct contribution to the regional economy, based on the cost of the construction. Therefore, we input the construction cost of building those new homes into the model. The cost of land acquisition is removed from the final price of the house because land costs are not part of the construction spending, and it does not create a multiplier effect like construction spending. 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 average 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 these data, for the homes sold in Tennessee, the land value, on average, was estimated at about 18 percent⁹ of the sales price.

Like the purchase of land for new home construction, the purchase of an existing home does not create a multiplier effect either because the transaction does not represent a new production.¹⁰ However, the fees and commissions paid in the home purchase process are included in the impact analysis. 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 these data, we distribute the fees, commissions

⁸ For more information about description of THDA Programs administered during 2017, please see 2017 THDA Investments and Impacts, pages 4-8 at <https://s3.amazonaws.com/thda.org/Documents/Research-Planning/Impacts-Investments-2017.pdf>

⁹ This was a statewide average and did not vary by county.

¹⁰ 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.

and expenditures among financial sector, real estate sector and state and local government (some of the fees and all of the property taxes paid at the closing are paid 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 through the THDA Single Family Mortgage Loan Program are almost exclusively new homeowners, but they may not be new to the region. They will not bring new spending to the region that was not there before. Therefore, to conservatively estimate the impact of the program, we cannot add their spending as new homeowners to the local economy. However, homeowners' spending patterns are different than renters' spending. To address the changing spending pattern, 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 Program (Tennessee's Hardest Hit Fund and Attorney General Medical Disability Hardship Program)

This program provides forgivable loans to homeowners to help pay their mortgages. We assumed that homeowners spend money for consumption goods and services that they would otherwise use for paying their 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 were new injections to the economy.¹¹

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

In the LIHTC program, developers leverage additional funds to complete the projects. We assume that in the absence of the tax credit allocation, the property would not be built. 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 2017 activities, we cannot use the 2017 LIHTC allocations.

In terms of our model, the important stage is when the developer starts the new construction or rehabilitation, as the money is then 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 tax credit commitment. Based on this prior knowledge and after reviewing the data on the annual tax credit allocations, we used LIHTC allocations of 2015 and 2016 for the LIHTC spending in calendar year 2017. We used an 80-20 percent division, which means that, of the total LIHTC spending in calendar year 2017, 80 percent comes from the 2015 THDA tax credit allocations and 20 percent from the 2016 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 distributed into the appropriate sectors in IMPLAN.

Multifamily bond authority deals can apply for LIHTC and their impact is calculated the same as LIHTC deals. We assume, similar to the LIHTC developments, that without the multifamily bonds these properties would not be built. For the Multifamily Tax Exempt Bond Authority, the developers have one year for the

¹¹ Even if the fact that THDA pays the arrears for these borrowers does not impact the current consumption, it will impact the household's consumption level in the future considering that the debt needs to be paid at some point. Therefore, including it with the monthly mortgage payments is not too much of an overestimation.

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 2016 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 savings 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.

The economic impact of the rental assistance programs presented here is a conservative figure, including only an estimate of the household spending impacts related to the rental assistance benefits. To determine the impact the rental subsidy has on household spending, the annual difference between the income available after paying gross rent without a rental subsidy and the income available after paying gross rent with a rental subsidy was estimated for THDA's rental assistance populations. The gross rent that would be paid by THDA rental assistance participants if they did not receive a rental subsidy was estimated by using the Bureau of Labor Statistics U.S. 2015 Consumer Expenditure Survey for shelter and select utilities for the lowest 20th percentile. This percent was applied to the average gross income of rental assistance participants in 2017.

The gross rent with rental subsidy was calculated by using the average statewide total tenant payment after subsidy for the two programs. The estimated difference was then multiplied by the number of participants in the programs during 2017. This method of calculating rent saving through the rental assistance program is similar to the 2011 City of Norfolk HCV Economic Impact study.¹²

Community Investment Tax Credit (CITC)

¹² City of Norfolk Economic Impacts of the NRHA Housing Choice Voucher Program. (2011), Retrieved on March 2015 from Norfolk Redevelopment and Housing Authority website: <http://www.nrha.us/sites/default/files/Study-2-HCV.pdf>

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 distributed into the appropriate sectors of the economy in the model.

Housing Trust Fund

THDA's 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, the total cost of the 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 Habitat Tennessee grants are spent in the same year they are awarded, while the Competitive Grant and Rebuild and Recovery Program recipients have multiple years to spend the awarded grants. To address the multi-year grants, we used the amount of money allocated in the year for the competitive grants as input for economic impact model.

The Emergency Solutions Grant (ESG) Program

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

The Foreclosure Prevention Program

Money allocated to the counseling agencies is distributed to the appropriate sectors in economic impact model. The counseling agencies also receive administrative funds. This amount is also included 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 a THDA loan is distributed into the appropriate sectors in the economic impact model. THDA also spends money for training those educators and provides textbooks used in trainings. This spending is also distributed into the model accordingly.

The Weatherization Assistance Program (WAP)

The WAP provides grants for repairs, renovations and retrofits based on a home's energy consumption, technical assistance, and information tools to states for their energy programs. The total allocated amount was included in the model as rectification spending in the construction sector. The subsequent energy savings that produce additional funds for a household's spending on other necessities is not included in the calculation. The LIHEAP Weatherization Program provides weatherization and energy-related minor home repairs.

The Low Income Home Energy Assistance Program (LIHEAP)

The LIHEAP provides assistance to the families by paying their energy bill. The calculations are based on the assumption that the energy assistance helps them heat and cool their homes while freeing their energy budget to spend on other necessities like food, rent, education, health and so on. Therefore, we distributed the assistance amount provided into the sectors related to those consumption goods and services.

APPENDIX II
ECONOMIC IMPACT RESULTS
2017

| Business Revenue | | | | | | | |
|-------------------------|---------------|-----------------|----------------|---------------------|--------------------------|-------------------|-------------|
| | Direct | Indirect | Induced | Total Impact | Rank¹³ | Multiplier | Rank |
| Anderson | \$5,179,511 | \$1,258,395 | \$737,156 | \$7,175,062 | 20 | 1.39 | 30 |
| Bedford | \$978,694 | \$238,763 | \$145,248 | \$1,362,705 | 33 | 1.39 | 28 |
| Benton | \$186,090 | \$42,577 | \$25,933 | \$254,600 | 69 | 1.37 | 35 |
| Bledsoe | \$111,035 | \$18,600 | \$8,222 | \$137,857 | 82 | 1.24 | 80 |
| Blount | \$5,294,334 | \$1,063,411 | \$980,446 | \$7,338,192 | 19 | 1.39 | 29 |
| Bradley | \$9,222,844 | \$2,021,245 | \$1,963,448 | \$13,207,537 | 11 | 1.43 | 15 |
| Campbell | \$458,219 | \$92,227 | \$72,518 | \$622,964 | 53 | 1.36 | 36 |
| Cannon | \$105,053 | \$21,664 | \$7,296 | \$134,013 | 83 | 1.28 | 67 |
| Carroll | \$179,464 | \$33,829 | \$26,895 | \$240,188 | 73 | 1.34 | 42 |
| Carter | \$1,919,308 | \$248,826 | \$137,620 | \$2,305,753 | 23 | 1.20 | 90 |
| Cheatham | \$531,310 | \$84,619 | \$32,186 | \$648,115 | 52 | 1.22 | 87 |
| Chester | \$185,401 | \$33,885 | \$25,489 | \$244,775 | 70 | 1.32 | 52 |
| Claiborne | \$1,201,297 | \$211,608 | \$157,520 | \$1,570,425 | 29 | 1.31 | 57 |
| Clay | \$1,568,265 | \$378,520 | \$93,288 | \$2,040,073 | 24 | 1.30 | 58 |
| Cocke | \$1,488,315 | \$339,133 | \$150,355 | \$1,977,803 | 25 | 1.33 | 48 |
| Coffee | \$17,420,835 | \$5,340,029 | \$2,800,485 | \$25,561,349 | 7 | 1.47 | 10 |
| Crockett | \$151,628 | \$31,446 | \$17,188 | \$200,262 | 77 | 1.32 | 51 |
| Cumberland | \$499,982 | \$130,902 | \$82,049 | \$712,933 | 50 | 1.43 | 18 |
| Davidson | \$115,586,310 | \$38,803,408 | \$29,602,466 | \$183,992,184 | 1 | 1.59 | 4 |
| Decatur | \$74,889 | \$13,097 | \$11,735 | \$99,721 | 86 | 1.33 | 46 |
| DeKalb | \$200,044 | \$40,012 | \$28,368 | \$268,423 | 68 | 1.34 | 39 |
| Dickson | \$366,403 | \$91,772 | \$63,124 | \$521,300 | 57 | 1.42 | 20 |
| Dyer | \$1,089,806 | \$226,454 | \$209,195 | \$1,525,455 | 30 | 1.40 | 24 |

¹³ Ranking for each geographic area (county, congressional district and MSA) are among the same geographic area.

Business Revenue

| | Direct | Indirect | Induced | Total Impact | Rank¹³ | Multiplier | Rank |
|-----------|---------------|-----------------|----------------|---------------------|--------------------------|-------------------|-------------|
| Fayette | \$5,926,462 | \$1,997,085 | \$527,866 | \$8,451,413 | 14 | 1.43 | 17 |
| Fentress | \$783,261 | \$224,971 | \$113,991 | \$1,122,223 | 39 | 1.43 | 13 |
| Franklin | \$347,567 | \$68,193 | \$48,578 | \$464,338 | 59 | 1.34 | 43 |
| Gibson | \$500,643 | \$123,249 | \$80,374 | \$704,267 | 51 | 1.41 | 23 |
| Giles | \$432,368 | \$92,091 | \$72,225 | \$596,684 | 54 | 1.38 | 33 |
| Grainger | \$645,053 | \$135,941 | \$41,118 | \$822,112 | 46 | 1.27 | 70 |
| Greene | \$1,100,373 | \$217,986 | \$151,371 | \$1,469,730 | 31 | 1.34 | 44 |
| Grundy | \$108,925 | \$25,769 | \$9,483 | \$144,176 | 81 | 1.32 | 49 |
| Hamblen | \$961,087 | \$221,590 | \$143,134 | \$1,325,811 | 34 | 1.38 | 34 |
| Hamilton | \$18,707,155 | \$6,125,504 | \$5,270,723 | \$30,103,382 | 6 | 1.61 | 3 |
| Hancock | \$1,562,232 | \$289,257 | \$45,133 | \$1,896,622 | 26 | 1.21 | 89 |
| Hardeman | \$185,866 | \$33,742 | \$21,578 | \$241,187 | 71 | 1.30 | 60 |
| Hardin | \$193,829 | \$46,416 | \$30,382 | \$270,627 | 66 | 1.40 | 26 |
| Hawkins | \$390,251 | \$79,406 | \$46,627 | \$516,284 | 58 | 1.32 | 50 |
| Haywood | \$677,576 | \$133,205 | \$75,656 | \$886,436 | 44 | 1.31 | 56 |
| Henderson | \$664,310 | \$138,171 | \$84,155 | \$886,636 | 43 | 1.33 | 45 |
| Henry | \$368,813 | \$100,932 | \$67,620 | \$537,365 | 55 | 1.46 | 11 |
| Hickman | \$167,496 | \$28,916 | \$14,490 | \$210,902 | 76 | 1.26 | 76 |
| Houston | \$68,921 | \$9,194 | \$4,055 | \$82,169 | 92 | 1.19 | 91 |
| Humphreys | \$579,854 | \$111,170 | \$60,191 | \$751,215 | 48 | 1.30 | 62 |
| Jackson | \$88,202 | \$16,240 | \$8,207 | \$112,650 | 85 | 1.28 | 66 |
| Jefferson | \$600,712 | \$104,158 | \$60,461 | \$765,332 | 47 | 1.27 | 71 |
| Johnson | \$791,679 | \$154,680 | \$63,401 | \$1,009,761 | 42 | 1.28 | 68 |
| Knox | \$67,385,485 | \$26,397,114 | \$22,833,994 | \$116,616,593 | 3 | 1.73 | 1 |
| Lake | \$77,599 | \$10,909 | \$5,958 | \$94,465 | 89 | 1.22 | 88 |

Business Revenue

| | Direct | Indirect | Induced | Total Impact | Rank¹³ | Multiplier | Rank |
|------------|---------------|-----------------|----------------|---------------------|--------------------------|-------------------|-------------|
| Lauderdale | \$826,792 | \$155,313 | \$72,409 | \$1,054,514 | 41 | 1.28 | 69 |
| Lawrence | \$256,645 | \$52,319 | \$35,393 | \$344,357 | 61 | 1.34 | 40 |
| Lewis | \$163,707 | \$35,246 | \$16,606 | \$215,558 | 75 | 1.32 | 53 |
| Lincoln | \$836,757 | \$201,185 | \$98,915 | \$1,136,856 | 38 | 1.36 | 37 |
| Loudon | \$707,858 | \$97,298 | \$68,802 | \$873,958 | 45 | 1.23 | 83 |
| Macon | \$434,610 | \$67,428 | \$31,121 | \$533,159 | 56 | 1.23 | 85 |
| Madison | \$5,456,612 | \$1,523,273 | \$1,147,522 | \$8,127,407 | 16 | 1.49 | 6 |
| Marion | \$180,730 | \$36,639 | \$22,879 | \$240,249 | 72 | 1.33 | 47 |
| Marshall | \$650,876 | \$51,193 | \$31,142 | \$733,212 | 49 | 1.13 | 94 |
| Maury | \$8,314,845 | \$1,584,480 | \$1,256,204 | \$11,155,529 | 12 | 1.34 | 41 |
| McMinn | \$874,218 | \$222,680 | \$144,229 | \$1,241,127 | 36 | 1.42 | 21 |
| McNairy | \$223,170 | \$28,935 | \$30,778 | \$282,883 | 64 | 1.27 | 75 |
| Meigs | \$58,403 | \$9,919 | \$3,583 | \$71,905 | 94 | 1.23 | 84 |
| Monroe | \$1,195,727 | \$270,650 | \$139,274 | \$1,605,651 | 28 | 1.34 | 38 |
| Montgomery | \$5,515,283 | \$1,413,444 | \$918,599 | \$7,847,326 | 18 | 1.42 | 19 |
| Moore | \$34,343 | \$2,116 | \$3,650 | \$40,109 | 95 | 1.17 | 93 |
| Morgan | \$124,130 | \$23,152 | \$10,864 | \$158,146 | 80 | 1.27 | 72 |
| Obion | \$890,862 | \$220,735 | \$160,962 | \$1,272,559 | 35 | 1.43 | 16 |
| Overton | \$208,595 | \$37,481 | \$22,398 | \$268,475 | 67 | 1.29 | 64 |
| Perry | \$59,034 | \$5,806 | \$7,188 | \$72,028 | 93 | 1.22 | 86 |
| Pickett | \$75,610 | \$13,442 | \$5,739 | \$94,791 | 88 | 1.25 | 78 |
| Polk | \$78,025 | \$12,979 | \$5,433 | \$96,436 | 87 | 1.24 | 82 |
| Putnam | \$1,210,800 | \$285,279 | \$212,406 | \$1,708,486 | 27 | 1.41 | 22 |
| Rhea | \$1,088,603 | \$205,421 | \$91,769 | \$1,385,794 | 32 | 1.27 | 73 |
| Roane | \$6,380,409 | \$1,186,820 | \$823,104 | \$8,390,333 | 15 | 1.32 | 55 |

Business Revenue

| | Direct | Indirect | Induced | Total Impact | Rank¹³ | Multiplier | Rank |
|--------------|---------------|-----------------|----------------|---------------------|--------------------------|-------------------|-------------|
| Robertson | \$2,055,051 | \$375,225 | \$183,843 | \$2,614,119 | 22 | 1.27 | 74 |
| Rutherford | \$55,646,319 | \$12,500,105 | \$14,078,239 | \$82,224,663 | 5 | 1.48 | 8 |
| Scott | \$284,889 | \$50,344 | \$33,941 | \$369,173 | 60 | 1.30 | 61 |
| Sequatchie | \$10,026,267 | \$3,119,210 | \$723,259 | \$13,868,735 | 10 | 1.38 | 32 |
| Sevier | \$2,431,170 | \$692,927 | \$393,225 | \$3,517,321 | 21 | 1.45 | 12 |
| Shelby | \$95,142,855 | \$33,159,716 | \$29,841,266 | \$158,143,838 | 2 | 1.66 | 2 |
| Smith | \$139,216 | \$29,164 | \$14,796 | \$183,176 | 79 | 1.32 | 54 |
| Stewart | \$69,885 | \$14,029 | \$5,674 | \$89,587 | 91 | 1.28 | 65 |
| Sullivan | \$5,741,225 | \$1,384,714 | \$896,862 | \$8,022,801 | 17 | 1.40 | 25 |
| Sumner | \$73,833,493 | \$14,288,718 | \$17,639,585 | \$105,761,796 | 4 | 1.43 | 14 |
| Tipton | \$872,488 | \$127,209 | \$98,411 | \$1,098,108 | 40 | 1.26 | 77 |
| Trousdale | \$98,322 | \$15,606 | \$12,971 | \$126,899 | 84 | 1.29 | 63 |
| Unicoi | \$177,208 | \$27,201 | \$16,341 | \$220,749 | 74 | 1.25 | 79 |
| Union | \$290,033 | \$25,896 | \$9,160 | \$325,089 | 62 | 1.12 | 95 |
| Van Buren | \$77,849 | \$11,426 | \$3,288 | \$92,563 | 90 | 1.19 | 92 |
| Warren | \$834,055 | \$198,454 | \$129,176 | \$1,161,685 | 37 | 1.39 | 27 |
| Washington | \$6,890,191 | \$1,830,268 | \$1,403,614 | \$10,124,073 | 13 | 1.47 | 9 |
| Wayne | \$156,968 | \$22,377 | \$14,845 | \$194,190 | 78 | 1.24 | 81 |
| Weakley | \$196,146 | \$44,036 | \$31,393 | \$271,575 | 65 | 1.38 | 31 |
| White | \$243,985 | \$46,273 | \$26,470 | \$316,729 | 63 | 1.30 | 59 |
| Williamson | \$16,198,335 | \$4,406,790 | \$4,861,638 | \$25,466,763 | 8 | 1.57 | 5 |
| Wilson | \$15,542,591 | \$4,404,397 | \$3,056,794 | \$23,003,782 | 9 | 1.48 | 7 |
| State | \$627,666,923 | \$239,990,037 | \$222,652,303 | \$1,090,309,263 | | 1.74 | |

Business Revenue

| | Direct | Indirect | Induced | Total Impact | Rank¹³ | Multiplier | Rank |
|--------------------------|---------------|-----------------|----------------|---------------------|--------------------------|-------------------|-------------|
| Congressional District 1 | \$26,044,589 | \$7,143,136 | \$5,217,101 | \$38,404,826 | 9 | 1.47 | 8 |
| Congressional District 2 | \$76,240,935 | \$28,396,648 | \$25,494,200 | \$130,131,783 | 5 | 1.71 | 1 |
| Congressional District 3 | \$48,380,252 | \$14,413,396 | \$12,303,484 | \$75,097,131 | 7 | 1.55 | 5 |
| Congressional District 4 | \$87,019,724 | \$20,925,137 | \$17,497,268 | \$125,442,129 | 6 | 1.44 | 9 |
| Congressional District 5 | \$116,178,502 | \$39,590,729 | \$30,956,589 | \$186,725,820 | 2 | 1.61 | 4 |
| Congressional District 6 | \$107,796,232 | \$30,001,672 | \$21,424,663 | \$159,222,568 | 3 | 1.48 | 7 |
| Congressional District 7 | \$35,633,841 | \$10,151,565 | \$8,204,708 | \$53,990,114 | 8 | 1.52 | 6 |
| Congressional District 8 | \$116,548,809 | \$42,299,396 | \$36,849,044 | \$195,697,249 | 1 | 1.68 | 2 |
| Congressional District 9 | \$95,142,855 | \$33,159,716 | \$29,841,266 | \$158,143,838 | 4 | 1.66 | 3 |
| Chattanooga, MSA | \$28,945,613 | \$10,121,692 | \$8,245,162 | \$47,312,467 | 4 | 1.63 | 4 |
| Clarksville, MSA | \$5,515,283 | \$1,413,444 | \$918,599 | \$7,847,326 | 9 | 1.42 | 8 |
| Cleveland, MSA | \$9,300,720 | \$2,034,333 | \$2,009,448 | \$13,344,501 | 6 | 1.43 | 6 |
| Jackson, MSA | \$5,866,141 | \$1,628,661 | \$1,248,536 | \$8,743,338 | 7 | 1.49 | 5 |
| Johnson City, MSA | \$9,406,709 | \$2,232,284 | \$1,755,179 | \$13,394,172 | 5 | 1.42 | 7 |
| Kingsport-Bristol, MSA | \$6,176,221 | \$1,438,554 | \$1,010,941 | \$8,625,716 | 8 | 1.40 | 9 |
| Knoxville, MSA | \$93,776,703 | \$34,998,873 | \$30,339,993 | \$159,115,569 | 3 | 1.70 | 2 |
| Memphis, MSA | \$103,979,335 | \$37,841,354 | \$33,731,774 | \$175,552,463 | 2 | 1.69 | 3 |
| Morristown, MSA | \$1,623,165 | \$358,794 | \$250,503 | \$2,232,462 | 10 | 1.38 | 10 |
| Nashville, MSA | \$303,131,776 | \$113,689,195 | \$120,925,061 | \$537,746,032 | 1 | 1.77 | 1 |

Personal Income

| | Direct | Indirect | Induced | Total Impact | Rank | Multiplier | Rank |
|------------|---------------|-----------------|----------------|---------------------|-------------|-------------------|-------------|
| Anderson | \$1,586,194 | \$414,233 | \$204,338 | \$2,204,766 | 16 | 1.39 | 40 |
| Bedford | \$233,777 | \$58,881 | \$34,838 | \$327,496 | 31 | 1.40 | 34 |
| Benton | \$53,835 | \$8,415 | \$6,163 | \$68,413 | 65 | 1.27 | 75 |
| Bledsoe | \$24,379 | \$3,342 | \$1,459 | \$29,180 | 83 | 1.20 | 91 |
| Blount | \$1,519,210 | \$359,871 | \$285,882 | \$2,164,964 | 17 | 1.43 | 27 |
| Bradley | \$2,829,900 | \$633,569 | \$609,445 | \$4,072,914 | 10 | 1.44 | 24 |
| Campbell | \$123,602 | \$22,771 | \$17,292 | \$163,665 | 48 | 1.32 | 63 |
| Cannon | \$17,046 | \$4,501 | \$1,594 | \$23,142 | 87 | 1.36 | 53 |
| Carroll | \$46,101 | \$7,446 | \$6,543 | \$60,090 | 71 | 1.30 | 69 |
| Carter | \$249,884 | \$59,744 | \$32,398 | \$342,027 | 28 | 1.37 | 47 |
| Cheatham | \$65,693 | \$18,321 | \$8,230 | \$92,243 | 58 | 1.40 | 32 |
| Chester | \$59,465 | \$7,319 | \$6,408 | \$73,192 | 63 | 1.23 | 84 |
| Claiborne | \$288,483 | \$46,205 | \$39,940 | \$374,629 | 25 | 1.30 | 70 |
| Clay | \$135,166 | \$77,732 | \$18,923 | \$231,820 | 39 | 1.72 | 5 |
| Cocke | \$264,733 | \$70,447 | \$34,338 | \$369,518 | 26 | 1.40 | 36 |
| Coffee | \$4,061,272 | \$1,600,767 | \$768,043 | \$6,430,082 | 8 | 1.58 | 12 |
| Crockett | \$39,914 | \$7,556 | \$5,142 | \$52,611 | 74 | 1.32 | 66 |
| Cumberland | \$120,238 | \$31,415 | \$19,964 | \$171,617 | 46 | 1.43 | 26 |
| Davidson | \$42,849,500 | \$15,129,611 | \$11,025,832 | \$69,004,944 | 1 | 1.61 | 10 |
| Decatur | \$28,402 | \$3,070 | \$3,026 | \$34,498 | 82 | 1.21 | 89 |
| DeKalb | \$50,387 | \$10,124 | \$6,887 | \$67,397 | 67 | 1.34 | 56 |
| Dickson | \$88,936 | \$21,172 | \$16,592 | \$126,701 | 55 | 1.42 | 28 |
| Dyer | \$338,339 | \$64,143 | \$58,486 | \$460,968 | 24 | 1.36 | 50 |
| Fayette | \$827,010 | \$532,384 | \$126,306 | \$1,485,700 | 20 | 1.80 | 3 |
| Fentress | \$164,786 | \$52,280 | \$28,300 | \$245,366 | 38 | 1.49 | 18 |
| Franklin | \$83,441 | \$14,869 | \$11,966 | \$110,275 | 56 | 1.32 | 64 |
| Gibson | \$137,694 | \$30,664 | \$21,059 | \$189,417 | 43 | 1.38 | 44 |
| Giles | \$121,035 | \$21,736 | \$17,769 | \$160,540 | 50 | 1.33 | 61 |

Personal Income

| | Direct | Indirect | Induced | Total Impact | Rank | Multiplier | Rank |
|------------|---------------|-----------------|----------------|---------------------|-------------|-------------------|-------------|
| Grainger | \$111,192 | \$31,704 | \$8,818 | \$151,714 | 51 | 1.36 | 49 |
| Greene | \$247,901 | \$59,640 | \$40,176 | \$347,717 | 27 | 1.40 | 33 |
| Grundy | \$21,205 | \$5,085 | \$2,059 | \$28,349 | 84 | 1.34 | 58 |
| Hamblen | \$229,805 | \$55,592 | \$39,079 | \$324,475 | 32 | 1.41 | 30 |
| Hamilton | \$6,233,555 | \$2,247,319 | \$1,687,153 | \$10,168,027 | 6 | 1.63 | 9 |
| Hancock | \$77,055 | \$63,846 | \$7,397 | \$148,298 | 52 | 1.92 | 1 |
| Hardeman | \$53,941 | \$6,762 | \$5,310 | \$66,013 | 68 | 1.22 | 86 |
| Hardin | \$58,763 | \$9,988 | \$7,918 | \$76,670 | 62 | 1.30 | 68 |
| Hawkins | \$102,329 | \$18,132 | \$10,470 | \$130,931 | 54 | 1.28 | 72 |
| Haywood | \$146,914 | \$35,464 | \$17,417 | \$199,795 | 42 | 1.36 | 51 |
| Henderson | \$141,790 | \$37,307 | \$20,739 | \$199,837 | 41 | 1.41 | 31 |
| Henry | \$117,002 | \$26,409 | \$18,947 | \$162,358 | 49 | 1.39 | 42 |
| Hickman | \$33,598 | \$5,110 | \$2,834 | \$41,542 | 77 | 1.24 | 83 |
| Houston | \$9,865 | \$1,555 | \$839 | \$12,259 | 95 | 1.24 | 79 |
| Humphreys | \$125,900 | \$28,950 | \$12,370 | \$167,220 | 47 | 1.33 | 60 |
| Jackson | \$21,825 | \$3,139 | \$2,098 | \$27,062 | 85 | 1.24 | 81 |
| Jefferson | \$98,455 | \$22,370 | \$14,021 | \$134,846 | 53 | 1.37 | 46 |
| Johnson | \$130,143 | \$36,895 | \$13,296 | \$180,335 | 44 | 1.39 | 43 |
| Knox | \$20,563,858 | \$9,251,776 | \$7,173,104 | \$36,988,738 | 4 | 1.80 | 2 |
| Lake | \$21,704 | \$1,562 | \$1,132 | \$24,398 | 86 | 1.12 | 94 |
| Lauderdale | \$148,494 | \$39,522 | \$15,452 | \$203,467 | 40 | 1.37 | 45 |
| Lawrence | \$58,620 | \$12,232 | \$8,611 | \$79,462 | 61 | 1.36 | 54 |
| Lewis | \$35,546 | \$6,670 | \$3,564 | \$45,780 | 76 | 1.29 | 71 |
| Lincoln | \$196,469 | \$53,037 | \$24,174 | \$273,680 | 36 | 1.39 | 38 |
| Loudon | \$128,483 | \$26,475 | \$16,828 | \$171,787 | 45 | 1.34 | 57 |
| Macon | \$46,910 | \$16,837 | \$7,104 | \$70,851 | 64 | 1.51 | 14 |
| Madison | \$1,691,610 | \$475,420 | \$346,047 | \$2,513,077 | 13 | 1.49 | 20 |
| Marion | \$40,560 | \$8,505 | \$5,149 | \$54,214 | 73 | 1.34 | 59 |
| Marshall | \$67,712 | \$14,941 | \$7,094 | \$89,748 | 59 | 1.33 | 62 |

Personal Income

| | Direct | Indirect | Induced | Total Impact | Rank | Multiplier | Rank |
|------------|---------------|-----------------|----------------|---------------------|-------------|-------------------|-------------|
| Maury | \$1,673,179 | \$479,990 | \$366,331 | \$2,519,499 | 12 | 1.51 | 15 |
| McMinn | \$199,358 | \$54,248 | \$35,452 | \$289,058 | 33 | 1.45 | 23 |
| McNairy | \$65,456 | \$6,972 | \$7,256 | \$79,685 | 60 | 1.22 | 88 |
| Meigs | \$10,853 | \$1,892 | \$680 | \$13,425 | 94 | 1.24 | 82 |
| Monroe | \$222,662 | \$77,814 | \$30,901 | \$331,377 | 30 | 1.49 | 19 |
| Montgomery | \$1,261,971 | \$374,380 | \$244,149 | \$1,880,499 | 19 | 1.49 | 17 |
| Moore | \$16,751 | \$767 | \$860 | \$18,378 | 92 | 1.10 | 95 |
| Morgan | \$27,893 | \$4,779 | \$2,784 | \$35,457 | 81 | 1.27 | 74 |
| Obion | \$232,965 | \$66,510 | \$41,388 | \$340,863 | 29 | 1.46 | 22 |
| Overton | \$41,940 | \$8,300 | \$4,959 | \$55,199 | 72 | 1.32 | 67 |
| Perry | \$17,674 | \$1,412 | \$1,661 | \$20,747 | 88 | 1.17 | 93 |
| Pickett | \$14,276 | \$3,234 | \$1,322 | \$18,832 | 91 | 1.32 | 65 |
| Polk | \$15,347 | \$2,587 | \$1,136 | \$19,069 | 90 | 1.24 | 80 |
| Putnam | \$379,099 | \$84,421 | \$64,229 | \$527,749 | 22 | 1.39 | 39 |
| Rhea | \$199,401 | \$51,335 | \$22,031 | \$272,767 | 37 | 1.37 | 48 |
| Roane | \$1,706,470 | \$461,231 | \$213,899 | \$2,381,600 | 14 | 1.40 | 37 |
| Robertson | \$336,975 | \$98,466 | \$47,612 | \$483,053 | 23 | 1.43 | 25 |
| Rutherford | \$17,267,376 | \$3,991,344 | \$4,189,791 | \$25,448,511 | 5 | 1.47 | 21 |
| Scott | \$89,388 | \$10,398 | \$8,080 | \$107,867 | 57 | 1.21 | 90 |
| Sequatchie | \$1,292,114 | \$774,070 | \$153,996 | \$2,220,180 | 15 | 1.72 | 4 |
| Sevier | \$470,320 | \$199,376 | \$104,156 | \$773,853 | 21 | 1.65 | 6 |
| Shelby | \$35,162,387 | \$12,381,205 | \$9,862,515 | \$57,406,107 | 2 | 1.63 | 8 |
| Smith | \$28,252 | \$7,455 | \$3,532 | \$39,240 | 78 | 1.39 | 41 |
| Stewart | \$15,799 | \$2,796 | \$1,242 | \$19,837 | 89 | 1.26 | 78 |
| Sullivan | \$1,282,380 | \$410,204 | \$250,871 | \$1,943,456 | 18 | 1.52 | 13 |
| Sumner | \$27,782,380 | \$4,858,132 | \$4,807,166 | \$37,447,677 | 3 | 1.35 | 55 |
| Tipton | \$231,399 | \$31,124 | \$20,637 | \$283,160 | 34 | 1.22 | 87 |
| Trousdale | \$28,949 | \$4,373 | \$3,635 | \$36,958 | 79 | 1.28 | 73 |
| Unicoi | \$52,115 | \$6,127 | \$3,584 | \$61,827 | 70 | 1.19 | 92 |

| Personal Income | | | | | | | |
|--------------------------|---------------|--------------|--------------|---------------|------|------------|------|
| | Direct | Indirect | Induced | Total Impact | Rank | Multiplier | Rank |
| Union | \$28,873 | \$5,585 | \$1,930 | \$36,389 | 80 | 1.26 | 76 |
| Van Buren | \$11,683 | \$2,355 | \$636 | \$14,675 | 93 | 1.26 | 77 |
| Warren | \$198,784 | \$50,393 | \$33,856 | \$283,033 | 35 | 1.42 | 29 |
| Washington | \$1,640,211 | \$566,025 | \$402,044 | \$2,608,279 | 11 | 1.59 | 11 |
| Wayne | \$39,902 | \$5,281 | \$3,757 | \$48,940 | 75 | 1.23 | 85 |
| Weakley | \$48,527 | \$11,227 | \$8,114 | \$67,868 | 66 | 1.40 | 35 |
| White | \$47,792 | \$10,780 | \$6,401 | \$64,972 | 69 | 1.36 | 52 |
| Williamson | \$5,776,295 | \$1,787,819 | \$1,874,788 | \$9,438,902 | 7 | 1.63 | 7 |
| Wilson | \$4,158,280 | \$1,279,612 | \$823,222 | \$6,261,115 | 9 | 1.51 | 16 |
| State | \$196,573,981 | \$81,437,793 | \$71,048,989 | \$349,060,762 | | 1.78 | |
| Congressional District 1 | \$5,606,760 | \$2,020,818 | \$1,428,902 | \$9,056,479 | 9 | 1.62 | 5 |
| Congressional District 2 | \$22,468,441 | \$9,622,425 | \$7,785,297 | \$39,876,163 | 5 | 1.77 | 1 |
| Congressional District 3 | \$15,498,635 | \$4,961,961 | \$3,699,041 | \$24,159,637 | 7 | 1.56 | 7 |
| Congressional District 4 | \$22,405,613 | \$6,235,755 | \$4,960,268 | \$33,601,637 | 6 | 1.50 | 9 |
| Congressional District 5 | \$41,805,580 | \$15,186,929 | \$11,410,802 | \$68,403,311 | 1 | 1.64 | 3 |
| Congressional District 6 | \$28,095,487 | \$9,082,269 | \$5,778,063 | \$42,955,819 | 4 | 1.53 | 8 |
| Congressional District 7 | \$9,797,068 | \$3,335,804 | \$2,630,736 | \$15,763,608 | 8 | 1.61 | 6 |
| Congressional District 8 | \$39,547,756 | \$14,737,257 | \$11,684,224 | \$65,969,236 | 2 | 1.67 | 2 |
| Congressional District 9 | \$35,162,387 | \$12,381,205 | \$9,862,515 | \$57,406,107 | 3 | 1.63 | 4 |
| Chattanooga, MSA | \$9,090,069 | \$3,670,221 | \$2,606,747 | \$15,367,038 | 4 | 1.69 | 3 |
| Clarksville, MSA | \$1,261,971 | \$374,380 | \$244,149 | \$1,880,499 | 9 | 1.49 | 8 |
| Cleveland, MSA | \$2,801,169 | \$632,164 | \$618,959 | \$4,052,293 | 5 | 1.45 | 9 |
| Jackson, MSA | \$1,752,166 | \$494,967 | \$375,000 | \$2,622,132 | 7 | 1.50 | 7 |
| Johnson City, MSA | \$2,012,812 | \$647,189 | \$485,018 | \$3,145,019 | 6 | 1.56 | 5 |
| Kingsport-Bristol, MSA | \$1,380,812 | \$418,057 | \$275,600 | \$2,074,469 | 8 | 1.50 | 6 |
| Knoxville, MSA | \$28,814,022 | \$11,958,475 | \$9,250,829 | \$50,023,326 | 3 | 1.74 | 2 |

Personal Income

| | Direct | Indirect | Induced | Total Impact | Rank | Multiplier | Rank |
|-----------------|---------------|-----------------|----------------|---------------------|-------------|-------------------|-------------|
| Memphis, MSA | \$36,864,497 | \$13,747,480 | \$10,958,831 | \$61,570,807 | 2 | 1.67 | 4 |
| Morristown, MSA | \$337,045 | \$84,483 | \$64,986 | \$486,514 | 10 | 1.44 | 10 |
| Nashville, MSA | \$105,024,001 | \$41,426,940 | \$42,392,508 | \$188,843,449 | 1 | 1.80 | 1 |

Employment

| | Direct | Indirect | Induced | Total Impact | Rank | Multiplier | Rank |
|------------|---------------|-----------------|----------------|---------------------|-------------|-------------------|-------------|
| Anderson | 43 | 11 | 6 | 59 | 15 | 1.38 | 62 |
| Bedford | 5 | 2 | 1 | 9 | 37 | 1.64 | 17 |
| Benton | 2 | 0 | 0 | 3 | 58 | 1.25 | 81 |
| Bledsoe | 1 | 0 | 0 | 1 | 82 | 1.25 | 81 |
| Blount | 27 | 10 | 7 | 44 | 20 | 1.67 | 14 |
| Bradley | 62 | 20 | 14 | 96 | 10 | 1.55 | 28 |
| Campbell | 3 | 1 | 1 | 4 | 53 | 1.35 | 69 |
| Cannon | 0 | 0 | 0 | 1 | 89 | 1.75 | 8 |
| Carroll | 1 | 0 | 0 | 2 | 70 | 1.36 | 66 |
| Carter | 7 | 3 | 1 | 11 | 28 | 1.53 | 33 |
| Cheatham | 2 | 1 | 0 | 3 | 59 | 1.59 | 26 |
| Chester | 2 | 0 | 0 | 3 | 59 | 1.29 | 78 |
| Claiborne | 8 | 2 | 1 | 11 | 28 | 1.36 | 65 |
| Clay | 7 | 4 | 1 | 12 | 25 | 1.66 | 16 |
| Cocke | 13 | 3 | 1 | 17 | 22 | 1.33 | 75 |
| Coffee | 90 | 52 | 21 | 164 | 7 | 1.81 | 4 |
| Crockett | 1 | 0 | 0 | 1 | 78 | 1.50 | 37 |
| Cumberland | 4 | 1 | 1 | 6 | 43 | 1.42 | 54 |
| Davidson | 656 | 300 | 193 | 1,148 | 1 | 1.75 | 7 |
| Decatur | 1 | 0 | 0 | 1 | 82 | 1.25 | 81 |
| DeKalb | 1 | 0 | 0 | 2 | 74 | 1.33 | 70 |
| Dickson | 3 | 1 | 1 | 4 | 56 | 1.48 | 42 |
| Dyer | 7 | 2 | 2 | 11 | 27 | 1.55 | 30 |
| Fayette | 46 | 19 | 4 | 69 | 13 | 1.50 | 35 |
| Fentress | 7 | 2 | 1 | 10 | 34 | 1.45 | 45 |
| Franklin | 2 | 1 | 0 | 3 | 57 | 1.33 | 70 |
| Gibson | 4 | 1 | 1 | 6 | 46 | 1.41 | 55 |

Employment

| | Direct | Indirect | Induced | Total Impact | Rank | Multiplier | Rank |
|------------|---------------|-----------------|----------------|---------------------|-------------|-------------------|-------------|
| Giles | 3 | 1 | 1 | 5 | 47 | 1.38 | 58 |
| Grainger | 3 | 2 | 0 | 5 | 47 | 1.62 | 18 |
| Greene | 7 | 2 | 1 | 11 | 30 | 1.45 | 47 |
| Grundy | 1 | 0 | 0 | 1 | 78 | 1.50 | 37 |
| Hamblen | 7 | 2 | 1 | 10 | 31 | 1.43 | 49 |
| Hamilton | 130 | 48 | 38 | 216 | 6 | 1.66 | 15 |
| Hancock | 8 | 4 | 0 | 12 | 25 | 1.59 | 25 |
| Hardeman | 2 | 0 | 0 | 2 | 72 | 1.20 | 88 |
| Hardin | 2 | 0 | 0 | 3 | 61 | 1.30 | 76 |
| Hawkins | 3 | 1 | 0 | 4 | 54 | 1.36 | 66 |
| Haywood | 4 | 1 | 1 | 6 | 45 | 1.50 | 36 |
| Henderson | 4 | 1 | 1 | 6 | 44 | 1.53 | 34 |
| Henry | 3 | 1 | 1 | 4 | 51 | 1.43 | 50 |
| Hickman | 1 | 0 | 0 | 2 | 74 | 1.33 | 70 |
| Houston | 1 | 0 | 0 | 1 | 86 | 1.13 | 95 |
| Humphreys | 3 | 1 | 0 | 4 | 51 | 1.54 | 32 |
| Jackson | 1 | 0 | 0 | 1 | 88 | 1.33 | 70 |
| Jefferson | 3 | 1 | 0 | 5 | 50 | 1.45 | 46 |
| Johnson | 4 | 2 | 0 | 6 | 42 | 1.44 | 48 |
| Knox | 387 | 224 | 166 | 776 | 4 | 2.01 | 2 |
| Lake | 1 | 0 | 0 | 1 | 82 | 1.25 | 81 |
| Lauderdale | 5 | 1 | 1 | 6 | 41 | 1.42 | 53 |
| Lawrence | 2 | 1 | 0 | 3 | 61 | 1.37 | 63 |
| Lewis | 1 | 0 | 0 | 2 | 72 | 1.38 | 57 |
| Lincoln | 5 | 2 | 1 | 8 | 40 | 1.55 | 29 |
| Loudon | 3 | 1 | 1 | 5 | 47 | 1.38 | 58 |
| Macon | 2 | 1 | 0 | 3 | 63 | 1.47 | 43 |

Employment

| | Direct | Indirect | Induced | Total Impact | Rank | Multiplier | Rank |
|------------|---------------|-----------------|----------------|---------------------|-------------|-------------------|-------------|
| Madison | 36 | 13 | 9 | 58 | 17 | 1.61 | 21 |
| Marion | 1 | 0 | 0 | 2 | 70 | 1.36 | 66 |
| Marshall | 1 | 1 | 0 | 2 | 65 | 1.57 | 27 |
| Maury | 38 | 15 | 10 | 63 | 14 | 1.68 | 11 |
| McMinn | 5 | 2 | 1 | 9 | 38 | 1.59 | 24 |
| McNairy | 2 | 0 | 0 | 3 | 63 | 1.19 | 91 |
| Meigs | 0 | 0 | 0 | 1 | 92 | 1.50 | 37 |
| Monroe | 6 | 3 | 1 | 10 | 33 | 1.62 | 20 |
| Montgomery | 31 | 10 | 7 | 48 | 18 | 1.55 | 31 |
| Moore | 0 | 0 | 0 | 1 | 95 | 1.25 | 81 |
| Morgan | 1 | 0 | 0 | 1 | 86 | 1.29 | 78 |
| Obion | 6 | 2 | 1 | 9 | 35 | 1.62 | 19 |
| Overton | 2 | 0 | 0 | 2 | 68 | 1.33 | 74 |
| Perry | 1 | 0 | 0 | 1 | 89 | 1.17 | 93 |
| Pickett | 1 | 0 | 0 | 1 | 78 | 1.20 | 88 |
| Polk | 1 | 0 | 0 | 1 | 89 | 1.17 | 93 |
| Putnam | 9 | 3 | 2 | 14 | 23 | 1.47 | 44 |
| Rhea | 5 | 2 | 1 | 8 | 39 | 1.61 | 22 |
| Roane | 43 | 11 | 6 | 59 | 16 | 1.38 | 60 |
| Robertson | 8 | 3 | 1 | 13 | 24 | 1.59 | 23 |
| Rutherford | 333 | 120 | 103 | 556 | 5 | 1.67 | 12 |
| Scott | 3 | 0 | 0 | 4 | 54 | 1.19 | 92 |
| Sequatchie | 48 | 32 | 5 | 85 | 11 | 1.79 | 5 |
| Sevier | 10 | 7 | 3 | 20 | 21 | 2.02 | 1 |
| Shelby | 630 | 255 | 210 | 1,096 | 2 | 1.74 | 9 |
| Smith | 1 | 0 | 0 | 1 | 81 | 1.38 | 61 |
| Stewart | 1 | 0 | 0 | 1 | 92 | 1.20 | 88 |

Employment

| | Direct | Indirect | Induced | Total Impact | Rank | Multiplier | Rank |
|--------------------------|--------|----------|---------|--------------|------|------------|------|
| Sullivan | 29 | 13 | 7 | 48 | 18 | 1.69 | 10 |
| Sumner | 523 | 132 | 122 | 778 | 3 | 1.49 | 41 |
| Tipton | 7 | 1 | 1 | 9 | 35 | 1.27 | 80 |
| Trousdale | 1 | 0 | 0 | 1 | 82 | 1.43 | 51 |
| Unicoi | 2 | 0 | 0 | 2 | 65 | 1.22 | 87 |
| Union | 1 | 0 | 0 | 1 | 77 | 1.30 | 76 |
| Van Buren | 0 | 0 | 0 | 1 | 92 | 1.50 | 37 |
| Warren | 7 | 2 | 1 | 10 | 32 | 1.36 | 64 |
| Washington | 43 | 18 | 11 | 71 | 12 | 1.67 | 13 |
| Wayne | 1 | 0 | 0 | 2 | 76 | 1.25 | 81 |
| Weakley | 1 | 0 | 0 | 2 | 68 | 1.43 | 51 |
| White | 2 | 0 | 0 | 2 | 67 | 1.40 | 56 |
| Williamson | 80 | 37 | 31 | 148 | 9 | 1.85 | 3 |
| Wilson | 86 | 44 | 24 | 154 | 8 | 1.78 | 6 |
| State | 4,032 | 1,889 | 1,555 | 7,477 | | 1.85 | |
| Congressional District 1 | 142 | 67 | 40 | 250 | 9 | 1.75 | 4 |
| Congressional District 2 | 439 | 242 | 184 | 865 | 5 | 1.97 | 1 |
| Congressional District 3 | 358 | 119 | 87 | 564 | 7 | 1.58 | 9 |
| Congressional District 4 | 507 | 202 | 130 | 839 | 6 | 1.66 | 8 |
| Congressional District 5 | 659 | 310 | 203 | 1,173 | 2 | 1.78 | 2 |
| Congressional District 6 | 657 | 288 | 160 | 1,105 | 3 | 1.68 | 7 |
| Congressional District 7 | 193 | 82 | 58 | 332 | 8 | 1.72 | 6 |
| Congressional District 8 | 768 | 329 | 266 | 1,362 | 1 | 1.77 | 3 |
| Congressional District 9 | 630 | 255 | 210 | 1,096 | 4 | 1.74 | 5 |

Employment

| | Direct | Indirect | Induced | Total Impact | Rank | Multiplier | Rank |
|------------------------|---------------|-----------------|----------------|---------------------|-------------|-------------------|-------------|
| Chattanooga, MSA | 171 | 82 | 59 | 312 | 4 | 1.83 | 3 |
| Clarksville, MSA | 31 | 10 | 7 | 48 | 9 | 1.55 | 9 |
| Cleveland, MSA | 63 | 20 | 15 | 98 | 5 | 1.55 | 8 |
| Jackson, MSA | 39 | 14 | 10 | 63 | 7 | 1.61 | 7 |
| Johnson City, MSA | 55 | 22 | 14 | 91 | 6 | 1.65 | 6 |
| Kingsport-Bristol, MSA | 31 | 13 | 8 | 52 | 8 | 1.68 | 5 |
| Knoxville, MSA | 594 | 289 | 218 | 1,101 | 3 | 1.85 | 2 |
| Memphis, MSA | 693 | 292 | 239 | 1,224 | 2 | 1.77 | 4 |
| Morristown, MSA | 10 | 3 | 2 | 15 | 10 | 1.48 | 10 |
| Nashville, MSA | 1,807 | 881 | 804 | 3,492 | 1 | 1.93 | 1 |

References

- Collins, J.M., Belsky, E. S. and Tripathi, M. (1999), Estimating Economic Impacts of Community Lending. *Joint Center for Housing Studies, Harvard University*. Retrieved from Joint Center for Housing Studies website: http://www.jchs.harvard.edu/publications/finance/collins_w99-7.pdf
- Econsult Corporation. (January, 2007). *Assessing the Economic Benefits of Public Housing*. Retrieved from the Council of Large Public Housing Authorities website: http://www.clpha.org/uploads/final_report_1.pdf
- Enterprise Foundation. (1999), “Developing Multifamily Housing with New Construction: A Complete Overview of the Skills and Finances Needed To Run a Successful Program, available at: <http://www.practitionerresources.org/cache/documents/36615.pdf>
- The Hendrickson Company (In conjunction with the Shimberg Center for Housing Studies, the University of Florida). (2010). *Beyond Units: Economic benefits of Federal Home Loan Bank (FHLB) of Atlanta’s Affordable Housing Program*. Retrieved from FHLB of Atlanta website: <http://www.fhlbatl.com/multiplier/beyondunits.pdf>
- Galster, G. C., Roberto, G. Q., and Alveo, C. (2000). Identifying Neighborhood Thresholds: An Empirical Investigation. *Housing Policy Debate*, V.11, pp.701-32
- Brennan, M. (2011). The Impacts of Affordable Housing on Education: A Research Summary. Retrieved from Center for Housing Policy website: http://www.nhc.org/media/files/Insights_HousingAndEducationBrief.pdf
- Cohen, R. (2011). The Impacts of Affordable Housing on Health: A Research Summary, *Center for Housing Policy*. Retrieved from Center for Housing Policy website: http://www.nhc.org/media/files/Insights_HousingAndHealthBrief.pdf
- 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
- National Association of Home Builders. (January 2010). *The Metro Area Economic Impact of Home Building in Shelby County, TN: Income, Jobs, and Taxes Generated*, Washington, DC.
- National Association of Realtors. (January 2006). *Social Benefits of Homeownership and Stable Housing*. Washington, DC.
- Norfolk Redevelopment and Housing Authority (In conjunction with William and Mary Mason School of Business). (2011). *City of Norfolk Economic Impacts of the NRHA Housing Choice Voucher Program*. Retrieved from: <http://www.nrha.us/sites/default/files/Study-2-HCV.pdf>

Wood, J. A. (2004), Economic Impact of Affordable Housing: New Construction, Rehabilitation and Assistance Programs. *Utah Housing Coalition*. Retrieved March 2010, from Utah Housing Coalition website:
http://www.utahhousing.org/documents/Econ_impact_study05.pdf