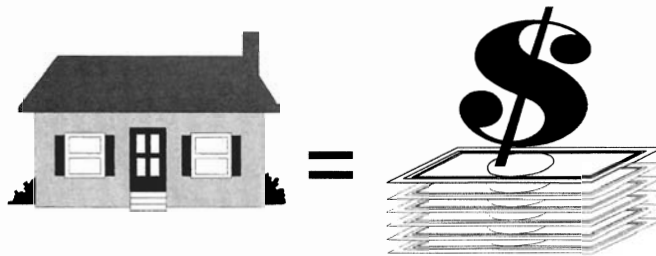




NAHB

**THE LOCAL ECONOMIC
IMPACT OF A TYPICAL
TAX CREDIT
HOUSING PROJECT**

**INCOME, JOBS, AND
TAXES GENERATED**



Prepared by the Housing Policy Department

September 2007

National Association of Home Builders
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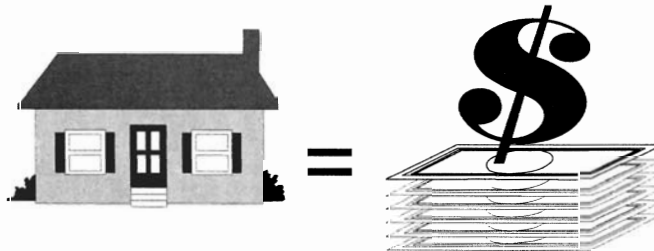


NAHB

NATIONAL ASSOCIATION
OF HOME BUILDERS

THE LOCAL ECONOMIC IMPACT OF A TYPICAL TAX CREDIT HOUSING PROJECT

INCOME, JOBS, AND TAXES GENERATED



Executive Summary

Detailed Tables on Income, Jobs, and Taxes Generated

**Background and a Brief Description of the Model Used to Estimate the
Economic Benefits**

EXECUTIVE SUMMARY

Building multifamily housing generates substantial local economic activity, including new income and jobs for residents, and additional revenue for local governments. This is also true for multifamily projects financed with Low-Income Housing Tax Credits (hereafter, simply tax credits).

Created as part of the Tax Reform Act of 1986, this tax credit program is currently the federal government's largest program for helping the private sector build affordable rental housing. Under the program, federal income tax credits are awarded by state Housing Finance Agencies to a development under the condition that the rents and incomes of its tenants remain restricted. The credits are shared among the owners of a project, typically investors recruited by syndicators through limited partnership agreements. The investors receive the credits for ten years, provided the property continues to comply with the rent and income restrictions. The federal law requires that the rents and incomes remain restricted for 15 years, but all states now employ "extended use" agreements designed to retain the units in the affordable housing stock for at least 30 years.

The National Association of Home Builders has developed a model to estimate the economic benefits of residential construction. The model captures the effect of the construction activity itself, the impact that occurs when income earned from construction activity is spent, and the impact that occurs when the new home is occupied. Since the model was initially developed in 1996, it has been successfully applied to over 450 metropolitan areas, non-metropolitan counties, and states across the country. Several versions of the model have been developed to handle different types of residential construction, including the case of a project financed with tax credits. The version of the model for a tax credit project differs from the model for generic multifamily rental property primarily in the estimates used for the incomes of the occupants in the new units and their local spending tendencies.

This report presents estimates of the economic impacts of building 100 apartments in a typical tax credit housing project. The value of the apartments in the typical project are based on average data from 21 specific tax credit projects for which it was possible to obtain the necessary information. Although these 21 projects don't constitute a sample scientifically designed to be representative of the entire country, they do capture data from a number of states in different regions.

The sample includes only "family" (that is, not intended specifically for the elderly) tax credit projects. The projects range in size from roughly 25 to 350 housing units. Development costs per unit range from just under \$75,000 to just over \$135,000.

The following map shows the six states from which data were obtained.



The NAHB model produces impacts on income and employment in 16 industries and local government, as well as detailed information about taxes and other types of local government revenue. The key results are summarized below. Additional details are contained in subsequent sections.

- ◆ The estimated one-year local impacts of building 100 multifamily units in a typical tax credit project include
 - \$7.3 million in local income,
 - \$783,000 in taxes and other revenue for local governments, and
 - 151 local jobs.

These are **local impacts**, representing income and jobs for local residents, and taxes (and other sources of revenue, including permit fees) for all local jurisdictions within the area. They are also **one-year impacts** that include both the direct and indirect impact of the construction activity itself, and the impact of local residents who earn money from the construction activity spending part of it within the metro area.

- ◆ The additional, annually recurring impacts of building 100 multifamily units in a typical tax credit project include
 - \$2.2 million in local income,
 - \$372,000 in taxes and other revenue for local governments, and
 - 38 local jobs.

These are **ongoing, annual local impacts** that result from the new apartments being occupied, and the occupants paying taxes and otherwise participating in the local economy year after year.

The version of the NAHB model for a tax credit project differs from the generic multifamily model primarily in the way tenant incomes and spending tendencies are estimated. In the tax credit version, the ongoing benefits for a tax credit project tend to be somewhat lower, because the estimate of renters' income is lower (for the projects in this study, the average estimated income of tenants is \$30,743). This is partially offset by the tendency of tax credit residents to spend a larger share of their relatively low incomes on locally produced goods and services.¹

The impacts summarized above were estimated under the assumptions that the new tax credit apartments have an average market value of \$110,253; embody an average raw land value of \$12,002; require the builder and developer to pay an average of \$3,014 in impact, permit, and other fees per unit to local governments; and incur an average annual property tax of \$451 per unit. These numbers are weighted averages of the 21 projects that contributed data to the study. The weights are based on the number of units in each project. Because the tax and impact fee information comes from actual tax credit projects, it incorporates any relief local governments may have granted to those projects in terms of lower fees or taxes.

The NAHB model can be used to estimate the local economic benefits of a specific tax credit project in a particular local area. When this is done, the comprehensive nature of the model means that, in practice, the local area over which the impact is spread will be either a metropolitan area (generally an aggregation of counties determined to belong to the same market area by the U.S. Office of Management and Budget), a non-metropolitan county, or an entire state. NAHB has recently analyzed the impact of tax credit development in several states at the request the Housing Finance Agencies in those states. For more information about applying the NAHB model to a particular project, contact Elliot Eisenberg in NAHB's Housing Policy Department: (202) 266-8398, eeisenberg@nahb.com.

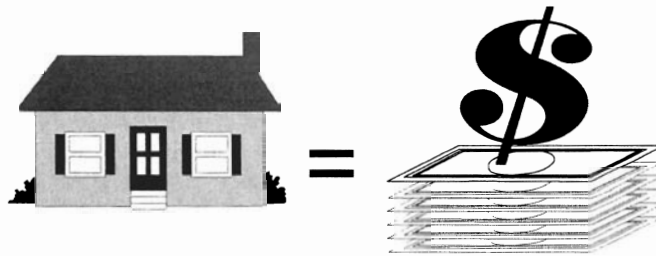
¹ Data on spending tendencies comes from the Consumer Expenditure survey, conducted by the Bureau of Labor Statistics, primarily for the purpose of establishing the weights in the Consumer Price Index. Those data show a strong tendency for households with lower incomes to spend a higher percentage of their incomes on most necessities.



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**DETAILED
TABLES ON
INCOME, JOBS,
AND TAXES
GENERATED**

IMPACT OF BUILDING 100 MULTIFAMILY UNITS IN A TYPICAL TAX CREDIT HOUSING PROJECT

SUMMARY

Total One-Year Impact: Sum of Phase I and Phase II:

Local Income	Local Business Owners' Income	Local Wages and Salaries	Local Taxes ¹	Local Jobs Supported
\$7,301,000	\$1,692,000	\$5,609,000	\$783,000	151

Phase I: Direct and Indirect Impact of Construction Activity:

Local Income	Business Owners' Income	Local Wages and Salaries	Local Taxes ¹	Local Jobs Supported
\$4,845,000	\$924,000	\$3,921,000	\$511,000	102

Phase II: Induced (Ripple) Effect of Spending the Income and Taxes from Phase I:

Local Income	Business Owners' Income	Local Wages and Salaries	Local Taxes ¹	Local Jobs Supported
\$2,456,000	\$768,000	\$1,688,000	\$272,000	49

Phase III: Ongoing, Annual Effect that Occurs When New Homes are Occupied:

Local Income	Local Business Owners' Income	Local Wages and Salaries	Local Taxes ¹	Local Jobs Supported
\$2,225,000	\$950,000	\$1,274,000	\$372,000	38

¹ The term local taxes is used as a shorthand for local government revenue from all sources: taxes, fees, fines, revenue from government-owned enterprises, etc...

**IMPACT OF BUILDING 100 UNITS IN A TYPICAL TAX CREDIT PROJECT
PHASE I--DIRECT AND INDIRECT IMPACT OF CONSTRUCTION ACTIVITY**

A. Local Income and Jobs by Industry

Industry	Local Income	Local Business Owners' Income	Local Wages and Salaries	Wages & Salaries per Full-time Job	Number of Local Jobs Supported
Construction	\$3,471,000	\$424,000	\$3,046,000	\$39,000	79
Manufacturing	\$7,000	\$1,000	\$6,000	\$37,000	0
Transportation	\$14,000	\$2,000	\$13,000	\$25,000	1
Communications	\$44,000	\$16,000	\$28,000	\$57,000	0
Utilities	\$22,000	\$15,000	\$7,000	\$66,000	0
Wholesale and Retail Trade	\$334,000	\$51,000	\$283,000	\$31,000	9
Finance and Insurance	\$65,000	\$7,000	\$58,000	\$60,000	1
Real Estate	\$76,000	\$66,000	\$10,000	\$38,000	0
Personal & Repair Services	\$39,000	\$37,000	\$2,000	\$37,000	0
Services to Dwellings / Buildings	\$25,000	\$8,000	\$17,000	\$26,000	1
Business & Professional Services	\$712,000	\$266,000	\$446,000	\$41,000	11
Eating and Drinking Places	\$6,000	\$5,000	\$1,000	\$16,000	0
Automobile Repair & Service	\$14,000	\$12,000	\$2,000	\$35,000	0
Entertainment Services	\$2,000	\$1,000	\$1,000	\$34,000	0
Health, Educ. & Social Services	\$0	\$0	\$0	\$34,000	0
Local Government	\$2,000	\$2,000	\$0	\$42,000	0
Other	\$11,000	\$10,000	\$1,000	\$29,000	0
Total	\$4,845,000	\$924,000	\$3,921,000	\$38,000	102

Note: Business & professional services include architectural and engineering services. The "other" category consists mostly of landscaping services, and the production of greenhouse and nursery products.

B. Local Government General Revenue by Type

TAXES:		USER FEES & CHARGES:	
Business Property Taxes	\$27,000	Residential Permit / Impact Fees	\$301,000
Residential Property Taxes	\$0	Utilities & Other Govt. Enterprises	\$41,000
General Sales Taxes	\$46,000	Hospital Charges	\$21,000
Specific Excise Taxes	\$4,000	Transportation Charges	\$9,000
Income Taxes	\$10,000	Education Charges	\$9,000
License Taxes	\$1,000	Other Fees and Charges	\$28,000
Other Taxes	\$14,000	TOTAL FEES & CHARGES	\$410,000
TOTAL TAXES	\$101,000	TOTAL GENERAL REVENUE	\$511,000

**IMPACT OF BUILDING 100 UNITS IN A TYPICAL TAX CREDIT PROJECT
PHASE B-INDUCED EFFECT OF SPENDING INCOME AND TAX REVENUE FROM PHASE I**

A. Local Income and Jobs by Industry

Industry	Local Income	Local Business Owners' Income	Local Wages and Salaries	Wages & Salaries per Full-time Job	Number of Local Jobs Supported
Construction	\$35,000	\$6,000	\$29,000	\$39,000	1
Manufacturing	\$9,000	\$1,000	\$7,000	\$37,000	0
Transportation	\$27,000	\$2,000	\$25,000	\$30,000	1
Communications	\$134,000	\$52,000	\$82,000	\$57,000	1
Utilities	\$59,000	\$28,000	\$31,000	\$66,000	0
Wholesale and Retail Trade	\$331,000	\$54,000	\$277,000	\$27,000	10
Finance and Insurance	\$104,000	\$14,000	\$91,000	\$56,000	2
Real Estate	\$368,000	\$321,000	\$47,000	\$38,000	1
Personal & Repair Services	\$146,000	\$77,000	\$69,000	\$29,000	2
Services to Dwellings / Buildings	\$34,000	\$11,000	\$23,000	\$26,000	1
Business & Professional Services	\$214,000	\$87,000	\$127,000	\$38,000	3
Eating and Drinking Places	\$94,000	\$19,000	\$75,000	\$16,000	5
Automobile Repair & Service	\$68,000	\$33,000	\$35,000	\$54,000	1
Entertainment Services	\$42,000	\$15,000	\$27,000	\$31,000	1
Health, Educ. & Social Services	\$238,000	\$44,000	\$194,000	\$38,000	5
Local Government	\$470,000	\$0	\$470,000	\$42,000	11
Other	\$82,000	\$4,000	\$78,000	\$26,000	3
Total	\$2,456,000	\$768,000	\$1,688,000	\$34,000	49

Note: Business & professional services include architectural and engineering services. The "other" category consists mostly of landscaping services, and the production of greenhouse and nursery products.

B. Local Government General Revenue by Type

TAXES:		USER FEES & CHARGES:	
Business Property Taxes	\$96,000	Residential Permit / Impact Fees	\$0
Residential Property Taxes	\$0	Utilities & Other Govt. Enterprises	\$52,000
General Sales Taxes	\$31,000	Hospital Charges	\$11,000
Specific Excise Taxes	\$13,000	Transportation Charges	\$5,000
Income Taxes	\$7,000	Education Charges	\$5,000
License Taxes	\$1,000	Other Fees and Charges	\$35,000
Other Taxes	\$18,000	TOTAL FEES & CHARGES	\$107,000
TOTAL TAXES	\$165,000	TOTAL GENERAL REVENUE	\$272,000

**IMPACT OF BUILDING 100 UNITS IN A TYPICAL TAX CREDIT PROJECT
PHASE III-ONGOING. ANNUAL EFFECT THAT OCCURS BECAUSE UNITS ARE OCCUPIED**

A. Local Income and Jobs by Industry

Industry	Local Income	Local Business Owners' Income	Local Wages and Salaries	Wages & Salaries per Full-time Job	Number of Local Jobs Supported
Construction	\$25,000	\$4,000	\$21,000	\$39,000	1
Manufacturing	\$7,000	\$1,000	\$7,000	\$37,000	0
Transportation	\$37,000	\$2,000	\$35,000	\$31,000	1
Communications	\$99,000	\$38,000	\$61,000	\$57,000	1
Utilities	\$41,000	\$19,000	\$22,000	\$66,000	0
Wholesale and Retail Trade	\$291,000	\$48,000	\$243,000	\$27,000	9
Finance and Insurance	\$72,000	\$9,000	\$63,000	\$57,000	1
Real Estate	\$663,000	\$578,000	\$85,000	\$38,000	2
Personal & Repair Services	\$150,000	\$77,000	\$73,000	\$28,000	3
Services to Dwellings / Buildings	\$29,000	\$10,000	\$19,000	\$26,000	1
Business & Professional Services	\$198,000	\$78,000	\$120,000	\$37,000	3
Eating and Drinking Places	\$83,000	\$16,000	\$67,000	\$16,000	4
Automobile Repair & Service	\$50,000	\$24,000	\$26,000	\$56,000	0
Entertainment Services	\$41,000	\$15,000	\$26,000	\$32,000	1
Health, Educ. & Social Services	\$167,000	\$31,000	\$136,000	\$39,000	4
Local Government	\$217,000	\$0	\$217,000	\$42,000	5
Other	\$56,000	\$2,000	\$53,000	\$26,000	2
Total	\$2,225,000	\$950,000	\$1,274,000	\$33,000	38

Note: Business & professional services include architectural and engineering services. The "other" category consists mostly of landscaping services, and the production of greenhouse and nursery products.

B. Local Government General Revenue by Type

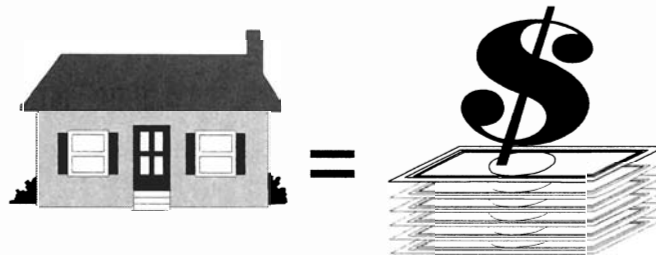
TAXES:		USER FEES & CHARGES:	
Business Property Taxes	\$97,000	Residential Permit / Impact Fees	\$0
Residential Property Taxes	\$40,000	Utilities & Other Govt. Enterprises	\$99,000
General Sales Taxes	\$31,000	Hospital Charges	\$24,000
Specific Excise Taxes	\$13,000	Transportation Charges	\$4,000
Income Taxes	\$6,000	Education Charges	\$4,000
License Taxes	\$1,000	Other Fees and Charges	\$34,000
Other Taxes	\$17,000	TOTAL FEES & CHARGES	\$165,000
TOTAL TAXES	\$206,000	TOTAL GENERAL REVENUE	\$372,000



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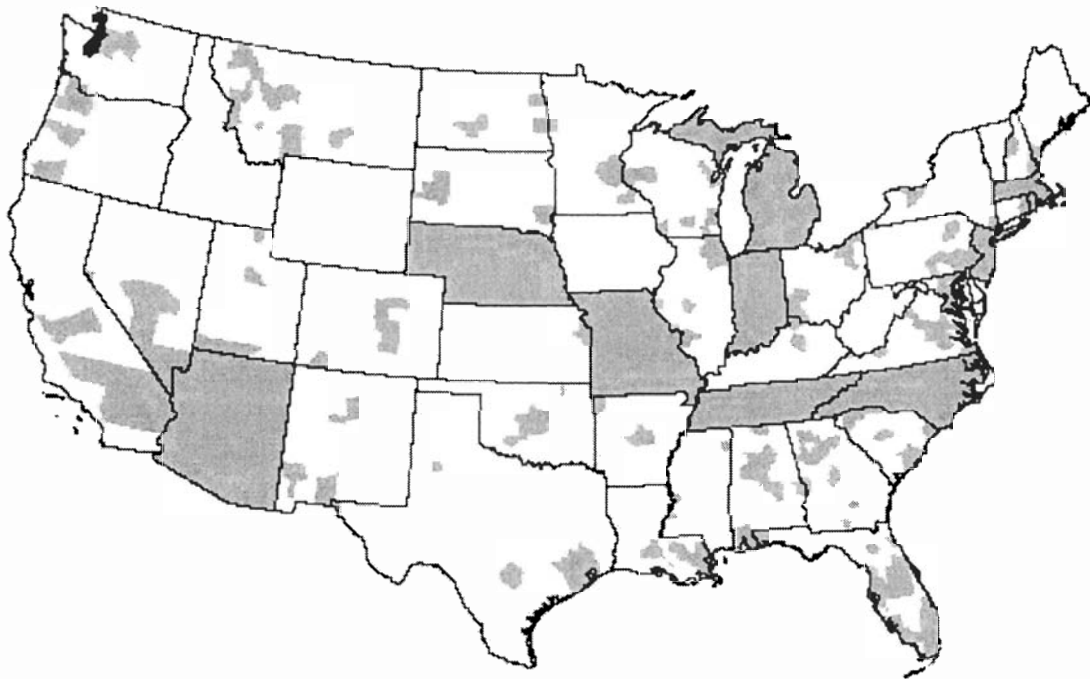


**BACKGROUND
AND A BRIEF
DESCRIPTION OF
THE MODEL USED
TO ESTIMATE THE
ECONOMIC
BENEFITS**

The Housing Policy Department of the National Association of Home Builders (NAHB) maintains an economic model that it uses to estimate the local economic benefits of home building. Originally developed in 1996, the model was at first calibrated to a typical metropolitan area using national averages, but from the beginning was capable of being adapted to a specific local economy by replacing key housing market variables. The initial version of the model could be applied to single family construction, multifamily construction, or a combination of the two.

In March of 1997, NAHB began customizing the model to various areas around the country on a routine basis, primarily at the request of its local affiliated associations. By February of 2007, the Housing Policy Department had produced over 350 of these customized reports analyzing residential construction in various metropolitan areas, non-metropolitan counties, and states across the country (darker shaded areas in the map below).

Areas Covered by Previous NAHB Local Impact Studies



The reports have analyzed the impacts of specific housing projects, as well as total home building in areas as large as entire states. In 2002, NAHB developed new versions of the model to analyze active adult housing projects and multifamily development financed with the Low-Income Housing Tax Credit. In 2005 a version of the model that analyzes residential remodeling was added to the mix.

Results from NAHB's local impact model have been used by outside organizations such as universities, state housing authorities and affordable housing agencies:

- The Shimborg Center for Affordable Housing at the University of Florida used results from the NAHB model to establish that "the real estate taxes paid year after year are the most obvious long-term economic benefit to the community. Probably the second most obvious long-term economic benefit is the purchases made by the family occupying the completed home." www.shimberg.ufl.edu/pdfs/Newslett-June02.pdf
- The Center for Applied Economic Research at Montana State University used "results from an input-output model developed by the National Association of Home Builders to assess the impacts to local areas from new home construction." The results show that "the construction industry contributes substantially to Montana's economy accounting for 5.5 percent of Gross State Product." www.msubillings.edu/caer/The%20Impact%20of%20Home%20Construction%20in%20Montana.pdf
- The Housing Education and Research Center at Michigan State University also adopted the NAHB approach: "The underlying basis for supporting the implementation of this [NAHB] model on Michigan communities is that it provides quantifiable results that link new residential development with commercial and other forms of development therefore illustrating the overall economic effects of residential growth." www.canr.msu.edu/cm/herc/h5over.html
- The Center for Economic Development at the University of Massachusetts found that "Home building generates substantial local economic activity, including income, jobs, and revenue for state and local governments. These far exceed the school costs-to-property-tax ratios. ...these factors were evaluated by means of a quantitative assessment of data from the National Association of Home Builder's Local Impact of Home Building model" www.donahue.umassp.edu/publications/housing/7-economicco.html
- Similarly, the Association of Oregon Community Development Organizations decided to base its analysis of affordable housing on the NAHB model, stating that "This model is widely respected and utilized in analyzing the economic impact of market rate housing development," and that, compared to alternatives, it "is considered the most comprehensive and is considered an improvement on most previous models." www.aocdo.org/docs/EcoDevoStudyFinal.pdf
- The Boone County Kentucky Planning Commission included results from the NAHB model in its 2005 Comprehensive Report. The Planning Commission used values from the impact model to quantify the increase in local income, taxes, revenue, jobs, and overall local economic impacts in the Metro Area as a result of new home construction. <http://www.boonecountyky.org/pc/2005CompPlan.aspxv>

A Brief Description of the Model

The NAHB model is divided into three phases. Phases I and II are one-time effects. Phase I captures the effects that result directly from the construction activity itself and the local industries that contribute to it. Phase II captures the effects that occur as a result of the wages and profits from Phase I being spent in the local economy. Phase III is an ongoing, annual effect that includes property tax payments and the result of the completed unit being occupied.

Phase I: Local Industries Involved in Home Building

The jobs, wages, and local taxes (including permit, utility connection, and impact fees) generated by the actual development, construction, and sale of the home. These jobs include on-site and off-site construction work as well as jobs generated in retail and wholesale sales of components, transportation to the site, and the professional services required to build a home and deliver it to its final customer.

Phase II: Ripple Effect

The wages and profits for local area residents earned during the construction period are spent on other locally produced goods and services. This generates additional income for local residents, which is spent on still more locally produced goods and services, and so on. This continuing recycling of income back into the community is usually called a *multiplier* or *ripple* effect.

Phase III: Ongoing, Annual Effect

The local jobs, income, and taxes generated as a result of the home being occupied. A household moving into a new home generally spends about three-fifths of its income on goods and services sold in the local economy. A fraction of this will become income for local workers and local businesses proprietors. In a typical local area, the household will also pay 1.25 percent of its income to local governments in the form of taxes and user fees, and a fraction of this will become income for local government employees. This is the first step in another set of economic ripples that cause a permanent increase in the level of economic activity, jobs, wages, and local tax receipts.

Modeling a Local Economy

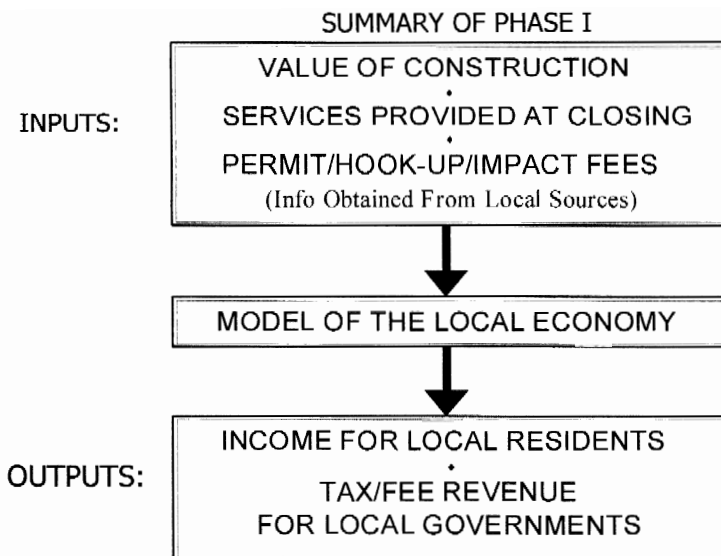
The model defines a local economy as a collection of industries and commodities. These are selected from the detailed benchmark input-output tables produced by the U.S. Bureau of Economic Analysis. The idea is to choose goods and services that would typically be produced, sold, and consumed within a local market area. Laundry services would qualify, for example, while automobile manufacturing would not. Both business-to-business and business-to-consumer transactions are considered. In general the model takes a conservative approach and retains a relatively small number of the available industries and commodities. Of the roughly 600 industries and commodities provided in the input-output files, the model uses only 93 commodities and 95 industries.

The design of the model implies that a local economy should include not only the places people live, but also the places where they work, shop, typically go for entertainment, etc. This corresponds reasonably well to the concepts of Metropolitan Statistical Areas and Metropolitan Divisions, areas defined by the U.S. Office of Management and Budget based on local commuting patterns. Outside of these officially defined metropolitan areas, NAHB has determined that a county will usually satisfy the model's requirements.

For a particular local area, the model adjusts the indirect business tax section of the national input-output accounts to account for the fiscal structure of local governments in the area. The information used to do this comes primarily from the U.S. Census Bureau's Census of Governments. Wages and salaries are extracted from the employee compensation section of the input-output accounts on an industry-by-industry basis. In order to relate wages and salaries to employment, the model incorporates data on local wages per job published by the Bureau of Economic Analysis.

Phase I: Construction

In order to estimate the local impacts generated by home building, it is necessary to know the sales price of the homes being built, how much raw land contributes to the final price, and how much the builder and developer pay to local area governments in the form of permit, utility connection, impact, and other fees. This information is not generally available from national sources and in most cases must be provided by representatives from the area in question who have specialized knowledge of local conditions.

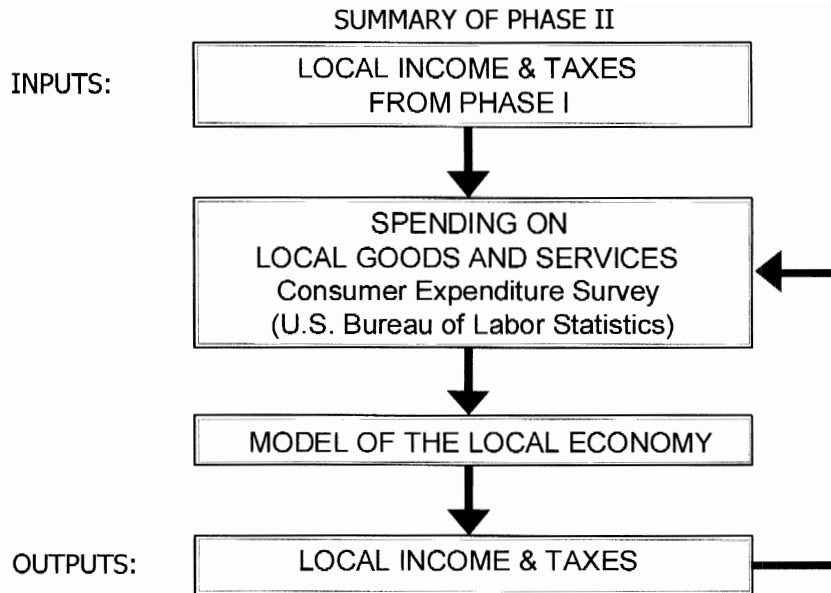


The model subtracts raw land value from the price of new construction and converts the difference into local wages, salaries, business owners' income, and taxes. This is done separately for all 95 local industries. In addition, the taxes and fees collected by local governments during the construction phase generate wages and salaries for local government employees. Finally the number of full time jobs supported by the wages and salaries generated in each private local industry and the local government sector is estimated.

Phase II: The Construction Ripple

Clearly, the local residents who earn income in Phase I will spend a share of it. Some of this will escape the local economy. A portion of the money used to buy a new car, for example, will become wages for autoworkers who are likely to live in another city, and increased profits for stockholders of an automobile manufacturing company who are also likely to live elsewhere. A portion of the spending, however, will remain within, and have an impact on, the local economy. The car is likely to be purchased from a local dealer and generate income for a salesperson who lives in the area, as well for local workers who provide cleaning, maintenance, and other services to the dealership. Consumers also are likely to purchase many services locally, as well as to pay taxes and fees to local governments.

This implies that the income and taxes generated in Phase I become the input for additional economic impacts analyzed in what we call Phase II of the model. Phase II begins by estimating how much of the added income households spend on each of the local commodities. This requires detailed analysis of data from the Consumer Expenditure Survey (CES), which is conducted by the U.S. Bureau of Labor Statistics primarily for the purpose of determining the weights for the Consumer Price Index. The analysis produces household spending estimates for 56 local commodities (the remainder of the 93 local commodities entering the model exclusively through business-to-business transactions).



The model then translates the estimated local spending into local business owners' income, wages and salaries, jobs, and taxes. This is essentially the same procedure applied to the homes sold to consumers in Phase I. In Phase II, however, the procedure is applied simultaneously to 56 locally produced and sold commodities.

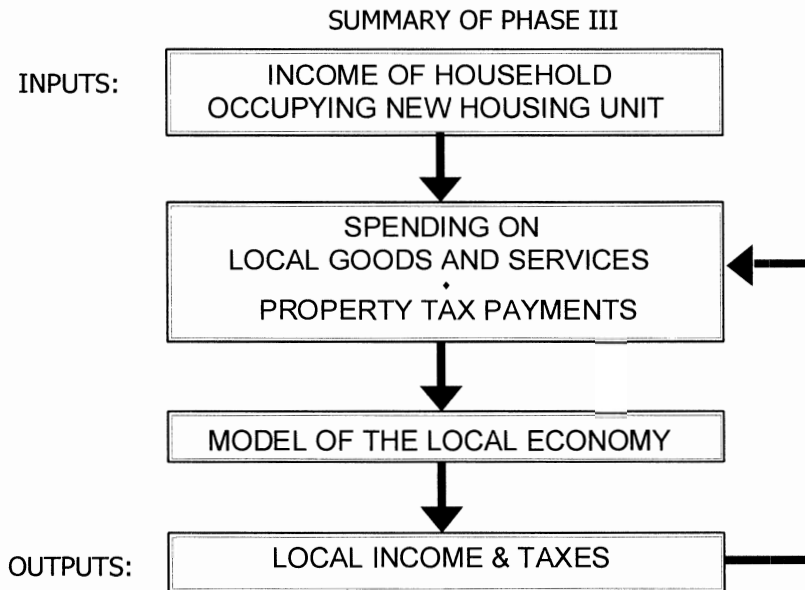
In other words, the model converts the local income earned in Phase I into local spending, which then generates additional local income. But this in turn will lead to additional spending, which will generate more local income, leading to another round of spending, and so on. Calculating the end result of these economic is a straightforward exercise in mathematics.

Phase III: The Ongoing Impacts

Like Phase II, Phase III involves computing the sum of successive ripples of economic activity. In Phase III, however, the first ripple is generated by the income and spending of a new household (along with the additional property taxes local governments collect as a result of the new structure). This does not necessarily imply that all new homes must be occupied by households moving in from outside the local area. It may be that an average new-home household moves into the newly constructed unit from elsewhere in the same local area, while average existing-home household moves in from outside to occupy the unit vacated by the first household. Alternatively, it may be that the new home allows the local area to retain a household that would otherwise move out of the area for lack of suitable housing.

In any of these cases, it is appropriate to treat a new, occupied housing unit as a net gain to the local economy of one household with average characteristics for a household that occupies a new home. This reasoning is often used, even if unconsciously, when it is assumed that a new home will be occupied by a household with average characteristics—for instance, an average number of children who will consume public education.

To estimate the impact of the net additional households, Phase III of the model requires an estimate of the income of the households occupying the new homes. The information used to compute this estimate comes from several sources, but primarily from an NAHB statistical model based on decennial census data. Phase III of the local impact model then estimates the fraction of income these households spend on various local commodities. This is done with CES data and is similar to the procedure described under Phase II. The model also calculates the amount of local taxes the households pay each year. This is done with Census of Governments data except in the case of residential property taxes, which are treated separately, and for which specific information must usually be obtained from a local source. Finally, a total ripple effect is computed, using essentially the same procedure outlined above under Phase II.



The details covered here provide only a brief description of the model NAHB uses to estimate the local economic benefits of home building. For a more complete description, see the technical documentation at the end of the report. For additional information about the model, or questions about applying it to a particular local area, contact one of the following in NAHB’s Housing Policy Department:

- ☎ David Crowe, Senior Staff Vice President (202) 266-8383
- ☎ Paul Emrath, Assistant Staff Vice President (202) 266-8449
- ☎ Elliot Eisenberg, Housing Policy Economist (202) 266-8398