

Determinants of Federal and State Community Development Spending: 1981–2004

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Introduction

Federal and state community development spending is an important component of the U.S. public welfare system, directly impacting the lives of numerous Americans, including nearly nine million low-income individuals living in housing subsidized by the U.S. Department of Housing and Urban Development (HUD).¹ Total federal housing and community development spending exceeded \$45 billion in 2004 – nearly \$155 for each person living in the U.S.²

The goal of this article is to describe and analyze community development spending at the state level for the period 1981 to 2004. Two components of each state's housing and community development spending are analyzed: transfers from the federal government that are subsequently spent by states and localities, and expenditures from moneys generated by states and localities. In addition to describing broad trends in public community development spending over time, we also analyze the determinants of both the federal transfers and the state- and local-generated components of total state spending. For example, we consider whether community development spending responds to state-level trends in unemployment and poverty, and whether federal transfers and state- and local-generated expenditures are influenced by the same factors. This exercise helps us understand how we should think about public community development spending; that is, whether it should be regarded as a part of the social safety net that responds to short-term economic fluctuations, like periods of high state unemployment, or as a part of the social safety net that focuses more on alleviating long-term and persistent conditions, like high rates of poverty.

Data

The data on state spending on community development come from the U.S. Census Bureau's *Annual Survey of State and Local Government Finances and Census of Governments* (1981–2004). These data cover all 50 states and are available from 1981 to 2004.³ The data include federal transfers for housing and community development to each state and its localities, as well as total state and local spending on housing and community development. For the purposes of this article, and in accordance with the data that we analyze, housing and community development is defined as “construction, operation, and support of housing and redevelopment projects and other activities to promote or aid public and

private housing and community development.”⁴ Note that we do not study nongovernmental expenditures on community development. For convenience, we sometimes use the term “total state spending” as shorthand for total state and local government spending on housing and community development.

Most of the federal transfers to states and localities are transferred from funds allocated to HUD in the federal budget and from selected housing and community development programs under the U.S. Departments of Commerce and Treasury. Big-ticket funds and programs in the HUD budget are the Housing Certificate Fund and the Community Development Block Grant (CDBG) Program. The Department of Commerce administers

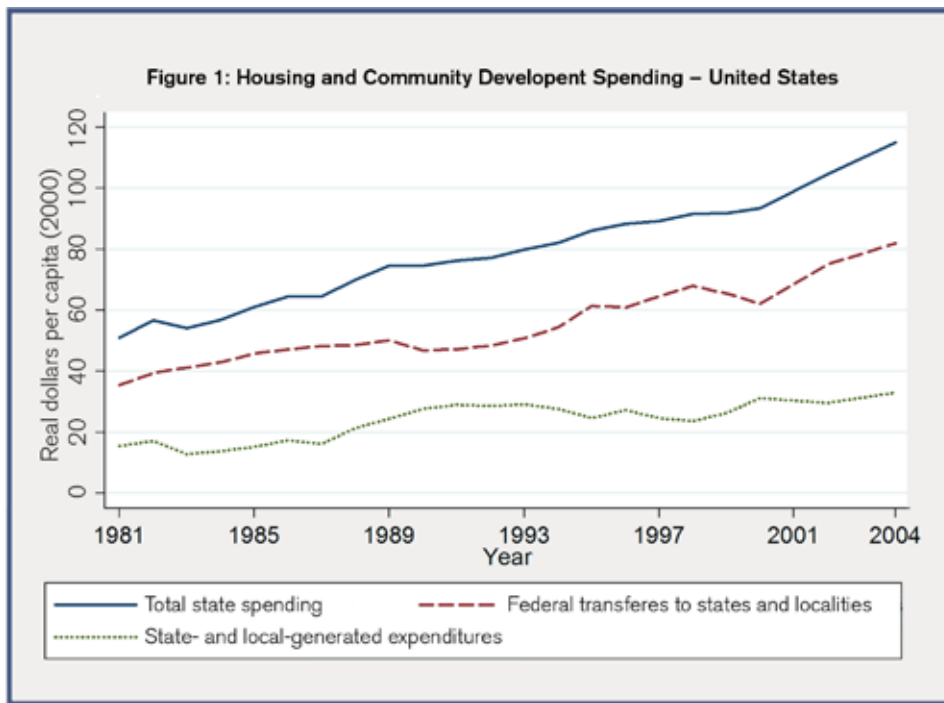
the Economic Development Administration and the Minority Business Development Agency, and the Department of Treasury administers the Community Development Financial Institutions Fund (CDFI).⁵

As a check on the coverage of the state and local government survey data, we compared official direct housing and community development spending by HUD and the Departments of Commerce and Treasury to total housing and community development spending calculated from the state and local government survey data. While we do not expect summing up federal transfers across states to match up one-to-one with total government spending on housing and community development, we do expect substantial overlap.⁶ The federal portion of the state and local

government survey figures for 2004 represent between 79 percent and 93 percent of total federal spending on housing and community development by HUD, the Department of Commerce, and the Department of Treasury in 2004.⁷

Note that the state and local government survey data specifically exclude the following: HUD administered direct Federal Housing Administration (FHA) loans to individuals, builders, and landlords; building inspection and enforcement of housing codes or standards; and temporary shelters or housing for the homeless and for the military. Additionally, the state and local government survey does not include large tax-incentive programs, such as Low-Income Housing Tax Credits (LIHTC) and New Markets Tax Credits (NMTC).⁸

The state and local government expenditure data are supplemented by information on population, population



capita 2000 dollars. There was a gradual upward trend in real expenditure per capita on housing and community development for the contiguous United States as a whole, from \$51 in 1981 to \$115 in 2004, which corresponds to an average annual

more than doubled, from \$16 in 1981 to \$33 in 2004.

State Variation in Housing and Community Development Spending

There is a great deal of interstate variation in housing and community development spending. Table 1 displays the contiguous states in order of their total state spending on housing and community development in 2004, with a breakdown of federal transfers and state- and local-generated expenditures for each state. Spending ranges from a high of \$227 per person in Massachusetts to a low of \$27 per person in Wyoming, and averages \$115 per person for the contiguous United States.

In Figures 2 through 5, we examine interstate variation in housing and community development for 2004 for each of the 48 contiguous states in more detail.¹⁰ The 2004 total state per capita housing and community development spending figure is written in each state. States that have hatch lines have spending above the average of \$115 and states without hatch lines have spending below the average.

Spending ranges from a high of \$227 per person in Massachusetts to a low of \$27 per person in Wyoming, and averages \$115 per person for the contiguous United States.

density, unemployment, poverty, and income for each state over the 1981 to 2004 period from the U.S. Census Bureau, the Bureau of Labor Statistics–Local Area Unemployment Statistics, the U.S. Census Historical Poverty Tables, and the Bureau of Economic Analysis–Regional Economic Accounts.

Trends in Housing and Community Development Spending

Figure 1 represents overall trends in community development spending for the 1981 to 2004 period in real per

real growth rate of roughly 4 percent.⁹ This increase is over and above spending adjustments for inflation.

Federal transfers consistently comprise about 70 percent of overall spending, and have been the driving force behind the gradual increase in overall spending – rising from \$36 in 1981 to \$82 in 2004. State- and local-generated expenditures account for the remaining 30 percent of overall spending. Analogous to the rise in federal transfers, state- and local-generated expenditures have

Table 1: 2004 Spending on Housing and Community Development by State

Rank	State	Total Spending (\$)	Federal Transfers to States and Localities (\$)	State- and Local-Generated Expenditures (\$)
1	MA	227.25	183.45	43.80
2	NY	194.35	162.17	32.18
3	CA	175.71	86.17	89.54
4	VT	164.49	109.25	55.24
5	IL	154.54	117.68	36.86
6	MD	154.39	121.90	32.49
7	NH	150.88	84.14	66.74
8	WA	148.54	76.96	71.58
9	CT	144.85	88.73	56.13
10	OH	142.91	113.50	29.41
11	RI	142.88	102.09	40.78
12	ME	138.65	138.23	0.43
13	MN	133.60	84.70	48.90
14	OR	126.20	69.94	56.26
15	PA	125.13	84.48	40.65
16	DE	119.06	101.83	17.23
17	NJ	106.82	97.28	9.54
18	IN	103.01	65.09	37.92
19	CO	100.69	61.89	38.80
20	VA	100.23	49.13	51.09
21	LA	98.05	81.12	16.93
22	MT	96.20	77.31	18.89
23	UT	92.19	44.92	47.27
24	NV	89.35	62.84	26.51
25	AL	87.11	79.93	7.18
26	MO	86.92	82.52	4.41
27	TN	84.37	66.70	17.66
28	NC	84.29	70.84	13.45
29	NE	77.61	39.25	38.36
30	GA	77.43	63.83	13.61
31	SD	76.47	74.10	2.37
32	SC	75.96	68.61	7.36
33	WI	74.10	41.55	32.55
34	FL	72.40	49.45	22.95
35	MS	72.28	85.12	(12.83)
36	MI	69.42	62.22	7.20
37	TX	68.73	52.75	15.98
38	KY	67.97	58.26	9.71
39	AZ	65.97	45.18	20.79
40	WV	65.83	80.62	(14.80)
41	ND	61.55	54.63	6.92
42	AR	54.23	55.31	(1.09)
43	NM	53.44	50.76	2.68
44	IA	43.60	48.18	(4.57)
45	OK	42.19	35.78	6.42
46	KS	33.65	52.66	(19.01)
47	ID	27.76	14.90	12.86
48	WY	26.87	15.99	10.89
Average	U.S.	\$ 114.99	\$ 81.97	\$ 33.01

NOTES: All dollar values are in real per capita 2000 dollars.

SOURCE: Authors' calculations based on data from the U.S. Census Bureau, *Annual Survey of State and Local Government Finances* and *Census of Governments* (1981-2004).

States along the West Coast, New England, New York, Pennsylvania, Delaware, Maryland, Minnesota, Illinois, and Ohio all have above average levels of total state housing and community development spending.¹¹ In an effort to better understand what influences spending, we superimpose state-specific characteristics, such as annual personal per capita income, population per square mile, poverty rates, and unemployment rates, on the maps. The shading reflects increasing annual personal income per capita, population per square mile, poverty rates, and unemployment rates for Figures 2 through 5, respectively. Each of these characteristics, alone or in combination with others, can be used to explain what types of states are likely to have above average housing and community development spending.

From Figure 2, it is evident that housing and community development spending is higher in states with higher incomes. States with personal per capita incomes in roughly the top quartile (above \$32,000 per year), such as

Table 2: Summary Statistics – State Level Data: 1981-2004

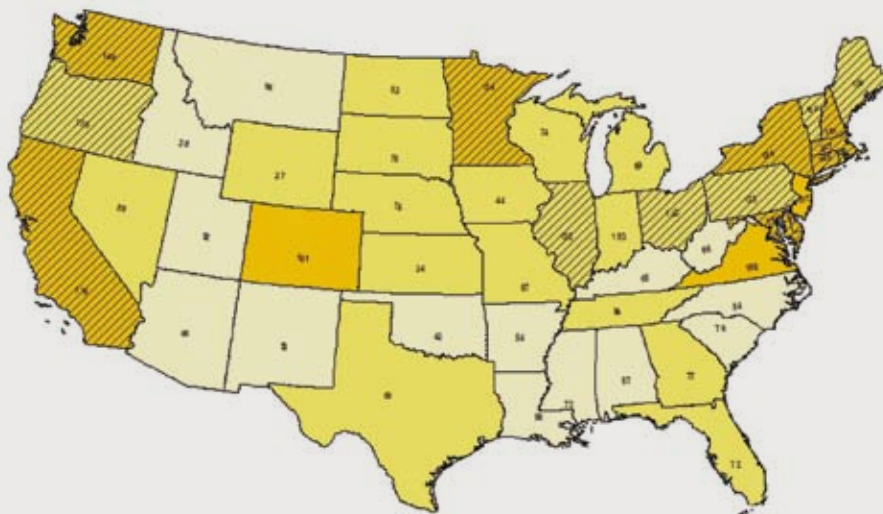
Variables	Obs.	Mean	Std. Dev	Min	Max
Federal Transfers for H & CD to States and Localities	1,056	\$49.84	\$26.26	\$5.47	\$183.45
State- and Local-Generated Expenditures for H & CD	1,056	\$16.13	\$21.12	-\$63.73	\$128.81
Population (in thousands)	1,056	5,302.49	5,605.57	454	35,800
Population per Square Mile	1,056	173.1	239.65	4.68	1,170.68
Lag Unemployment Rate	1,056	6.03	2.13	2.30	17.40
Lag Poverty Rate	1,056	13.32	4.11	2.90	27.20
Annual Personal Income	1,056	\$23,011	\$4,734	\$13,133	\$41,541

NOTES: State and local government survey data are not available for 2001 and 2003. Data include 48 contiguous states. All dollar values are in real per capita 2000 dollars.
SOURCE: Authors' calculations based on data from the U.S. Census Bureau, *Annual Survey of State and Local Government Finances* and *Census of Governments* (1981-2004), U.S. Census Historical Poverty Tables, Bureau of Labor Statistics - Local Area Unemployment Statistics, Bureau of Economic Analysis - Regional Accounts.

Washington, California, Minnesota, New Hampshire, Massachusetts, Connecticut, New York, Delaware, and Maryland, spend above average amounts on housing and community

development. Note that Illinois has an annual personal per capita income just below the cut-off of \$32,000, as well as above average housing and community development spending.

Figure 2: 2004 Annual Personal Income and Total State Spending on Housing and Community Development



*Figured in the states are total 2004 state housing and community development (H&CD) spending per capita in 2000 dollars. Cross-hatched states are states with above average (>\$115 per capita) total state H&CD spending.

□ 0 to 27,000
 ■ 27,000 to 32,000
 ■ 32,000 to 47,000

Figure 3 shows that densely populated states also spend above average amounts on housing and community development. The relationship between spending and population per square mile helps to explain the relatively high spending in Illinois, Ohio, Pennsylvania, Rhode Island, New York, Delaware, Maryland, Massachusetts, Connecticut, and California. Each of these states is in the top quartile for population density, with more than 189 people per square mile. On the other hand, Oregon, Maine, and Vermont do not have particularly high incomes nor are they densely populated, but they do have above average housing and community development spending. In this framework, Florida, Colorado, Virginia, and New Jersey are also anomalies. Florida is densely populated, Colorado and Virginia have high annual personal per capita incomes, and New Jersey is both densely populated and has high annual personal per capita income, yet

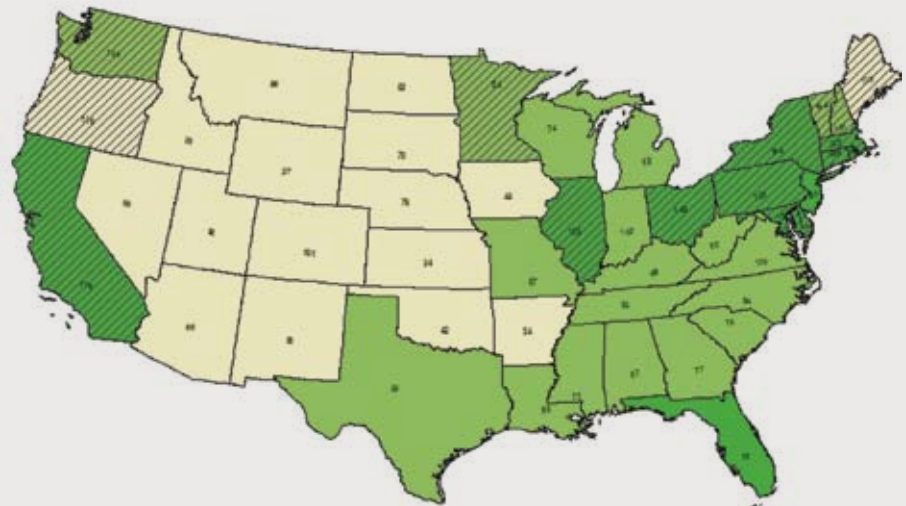
they all have below average housing and community development spending.

Figures 4 and 5 illustrate the relationship between community development spending and poverty and unemployment rates across states. The story here is less clear. States with high poverty rates, such as New York, and low poverty rates, like Vermont and New Hampshire, spend above average amounts on housing and community development. Similarly, states with both high unemployment rates, such as California and Oregon, and with low unemployment rates, such as Vermont and New Hampshire, spend above average amounts on housing and community development. We attempt to resolve these puzzles by looking jointly at several potential determinants of community development spending in a regression framework.

Regression Analysis

Recall that total state spending on housing and community development comprises two components: transfers from the federal government to state and local governments, and state- and local-generated expenditures. We analyze the determinants of these two components separately. We present two regressions with federal transfers as the dependent variable, and two regressions with state-generated expenditures as the dependent variable. Independent variables include the following: population, population per square mile, one-year lagged unemployment rate, one-year lagged poverty rate, and annual personal income per capita. In addition, we examine the relationship between federal transfers to states and localities for housing and community development and state- and local-generated expenditures, and between state- and local-generated expenditures for housing and community development and federal transfers. Table 2 summarizes the dependent and independent variables.

Figure 3: 2004 Population per Square Mile and Total State Spending on Housing and Community Development



**Figured in the states are total 2004 state housing and community development (H&CD) spending per capita in 2000 dollars. Cross-hatched states are states with above average (>\$115 per capita) total state H&CD spending.*

0 to 53
53 to 189
189 to 1,171

The regression analysis presented in Table 3 (p. 12) is intended as a statistical exercise to examine multiple factors that are correlated with housing and community development spending, rather than as an attempt to model the actual process by which housing and community development is determined. Regression [1] examines the impact of state- and local-generated expenditures on federal transfers, and regression [3] examines the impact of federal transfers on state- and local-generated expenditures to explore the possibility of an automatic relationship between federal transfers and state- and local-generated expenditures. This would be the case if, for example, there were a federal matching program for state spending on housing and community development, as is the case with Medicaid. In regressions [2] and [4], we add state-specific controls, including population, one-year lagged unemployment rates, one-year lagged poverty rates, population per square mile, and annual personal per capita

income. For each regression, we use data for the 48 contiguous states covering the period 1981 to 2004.¹² A full set of one-year fixed effects are included in all of the regressions.

Federal Transfers to State and Local Governments

Determinants of federal transfers for community development are analyzed in regressions [1] and [2] of Table 3. We examine the effect that state- and local-generated expenditures alone have on federal transfers in regression [1] and find that, all else equal, states and localities that generate a dollar more for housing and community development than the average state, receive an additional \$0.19 of federal funding per capita.

When controlling for state-specific characteristics in regression [2], we find no evidence of an automatic relationship between federal transfers and state- and local-generated expenditures. In fact, states and localities that generate

a dollar more for housing and community development than the average state receive \$0.08 less federal funding per capita. All else equal, population does not appear to be a significant determinant of federal transfers. Population density, on the other hand, is important. A state, such as New York, which has one standard deviation more people per square mile than an average state like Michigan, will receive an additional \$9.59 per person from the federal government for housing and community development, according to the estimates presented in regression [2].¹³

State poverty and unemployment rates also influence federal transfers for housing and community development significantly. Regression [2] predicts that a state, such as Kentucky, which has a one standard deviation higher poverty rate than an average poverty state like Michigan, will receive an additional \$3.83 per person from the federal government for housing and community development. Conversely, regression [2]

predicts that Louisiana, which has a one standard deviation higher unemployment rate than an average unemployment state like Arizona, will receive \$2.22 less per person from the federal government for housing and community development. Federal transfers for community development appear to respond countercyclically to less persistent economic challenges, like unemployment, which tend to fluctuate, but are increasing in persistent measures of economic stress, like the poverty rate.

Another factor that plays a significant role in the level of federal transfers is annual personal per capita income. Regression [2] predicts that a state, such as Maryland, where annual personal per capita income is a one standard deviation higher than an average income state like Kansas, will receive \$10.85 more per person from the federal government for housing and community development.

We also observe that while poverty

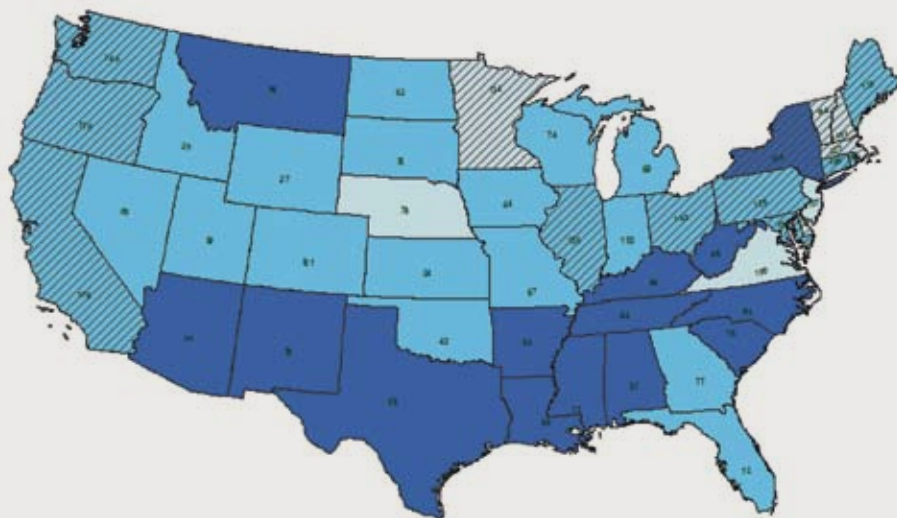
rates do positively influence federal transfers, income per capita and population per square mile have a larger impact on the allocation of federal dollars. To be exact, states with poverty rates one standard deviation above the mean receive 8 percent more in federal transfers per person than a state with an average poverty rate. On the other hand, states with population densities one standard deviation above the mean receive 19 percent more in federal transfers than an average state, while states with average annual personal per capita income one standard deviation above the mean receive 22 percent more in federal transfers than a state with average income.¹⁴ So in 2004, a state, such as Arkansas, despite its high poverty rate of 15.1 percent, had below average total state spending on housing and community development (\$54.34 per person), because it has a low average per capita income (\$23,662) and is sparsely populated with only 53 people per square mile.

State-generated Spending on Community Development

Determinants of state- and local-generated community development expenditures are analyzed in regressions [3] and [4] of Table 3. Similar to the analysis of federal transfers, there is a significant negative relationship between federal transfers and state- and local-generated expenditures when other control variables are included in the regression. States that receive one dollar more of federal per capita funding than the average state generate \$0.07 less per capita for housing and community development.

Income is positively associated with state and local spending as it is with federal transfers for housing and community development. Regression [4] predicts that a state like Maryland, where annual personal per capita income is one standard deviation higher than an average state like Kansas, will

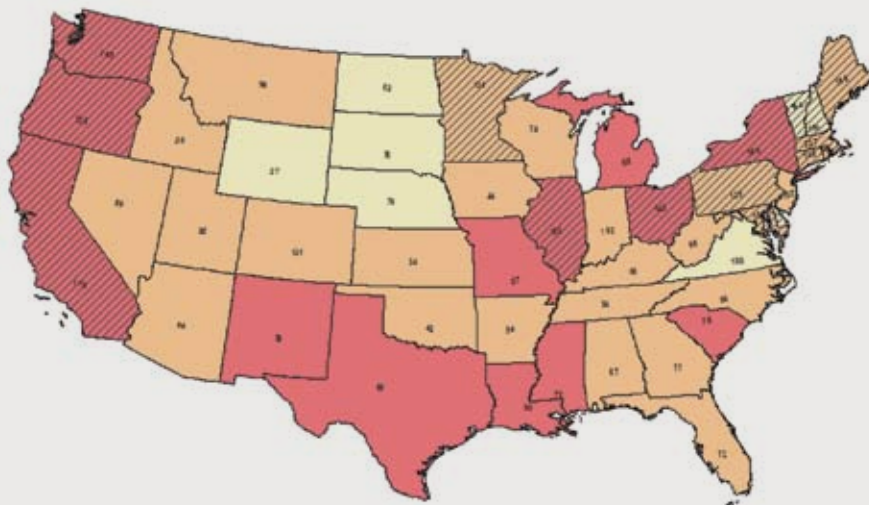
Figure 4: 2004 Poverty Rates and Total State Spending on Housing and Community Development



*Figured in the states are total 2004 state housing and community development (H&CD) spending per capita in 2000 dollars. Cross-hatched states are states with above average (>\$115 per capita) total state H&CD spending.

□ 0 to 9.5
 ■ 9.5 to 14
 ■ 14 to 19

Figure 5: 2004 Unemployment Rates and Total State Spending on Housing and Community Development



*Figured in the states are total 2004 state housing and community development (H&CD) spending per capita in 2000 dollars. Cross-hatched states are states with above average (>\$115 per capita) total state H&CD spending.

0 to 1.4
1.4 to 5.6
5.6 to 7.5

generate \$13.94 more per person for housing and community development. This suggests that states with lower annual personal per capita incomes may find it challenging to generate resources for housing and community development programs.

In contrast to its insignificant effect on federal transfers, population is a significant determinant of state-generated expenditures. Regression [4] implies that a state like Ohio, where the population is one standard deviation higher than an average population state like Missouri, will generate \$3.73 more per person for housing and community development. Conversely, population per square mile, lagged unemployment, and lagged poverty do not appear to be significant determinants of state-generated expenditure for housing and community development.

Recall that when we previously used Figures 2 through 5 to examine potential determinants of community development spending, Oregon, Maine, and Vermont

were a bit of a puzzle. Why is their spending so high? The regression analysis helps to answer this question. In 2004, Oregon, Maine, and Vermont had moderately high per capita incomes of \$28,014, \$27,542, and \$29,132, respectively, which is just below the high income state cut-off of \$32,000. Since annual personal income is a significant determinant of both federal transfers and state- and local-generated expenditures, relatively high incomes help to explain why these states have above average housing and community development spending. In addition, Vermont has the second lowest unemployment rate of the 48 contiguous states in 2004, and since states with lower unemployment rates tend to receive more federal transfers, this is another potential explanation for its high spending on community development programs. In addition, the regression analysis reinforces the more casual explanations we drew from Figures 2 and 3 regarding the correlation between housing and community development spending, and income and population density.

Conclusion

Housing and community development programs, whose funding accounts for a small portion of the federal budget, directly benefit at least nine million low-income Americans living in publicly subsidized housing. Real state spending per capita for these programs has increased nearly 4 percent each year, rising from \$52.23 in 1981 to \$116.19 in 2004. Seventy percent of these funds come from federal transfers to states and localities. The remaining 30 percent come from state- and local-generated expenditures. Geographic patterns of spending suggest that states with above average spending on housing and community development tend to be more densely populated and/or have higher annual personal per capita incomes. The regression analysis confirms these observations. In addition, federal transfers tend to be higher to states with higher poverty rates and lower to states with higher unemployment rates, all else equal.

As this exercise was intended to examine the factors that are correlated with housing and community development spending rather than model the process by which those expenditures are determined, we can only draw some very tentative conclusions as to why the relationships we have highlighted exist. First, states with higher population densities tend to receive more federal transfer funds per person than states with lower population densities, all else equal. This relationship seems appropriate considering that most housing and community development programs are targeted toward urban areas, and states with large urban areas are more densely populated than states without large urban areas.

The regression analysis also showed that states with higher annual personal per capita income generate more community development spending and receive more federal transfer funds than lower-income states. While it makes sense that higher-income states are able

to afford more community development spending, at first glance it seems puzzling that these states are also receiving more in federal transfers than lower-income states. Recall, however, that community development programs are generally targeted to low- and moderate-income individuals and neighborhoods. Low and moderate income are defined in terms of relative, not absolute, levels of income. Low income is defined as below 50 percent of MSA median income and moderate-income families have incomes 50 percent to 80 percent of the area median. States with higher incomes are likely to have larger numbers of families who have low- and moderate-income levels. This helps to explain why higher-income states receive larger transfers of federal funds for community development.

Finally, we saw that states with higher poverty rates tend to receive more in federal transfers than states with lower poverty rates, and states with higher unemployment rates tend to receive less than states with lower unemployment rates. This finding suggests that housing and community development spending responds to persistent economic challenges, like poverty, rather than to shorter-term economic fluctuations, like unemployment.

Table 3: Federal Transfers and State and Local Generated Expenditures for Housing and Community Development - State Level Data: 1981-2004

Independent Variables	Dependent Variables			
	Federal Transfers for H&CD to States and Localities		State- and Local-Generated Expenditures for H&CD	
	[1]	[2]	[3]	[4]
State and Local Generated Expenditures for H & CD	0.192*** (0.036)	-0.082** (0.035)		
Federal Transfers for H & CD to States and Localities			0.140*** (0.026)	-0.065** (0.028)
Population (per million)		0.052 (0.133)		0.703*** (0.116)
Population per Square Mile		0.040*** (0.004)		-0.002 (0.003)
Lag Unemployment Rate		-1.040** (0.485)		0.354 (0.433)
Lag Poverty Rate		0.931*** (0.241)		0.094 (0.217)
Annual Personal Per Capita Income (per thousand)		2.291*** (0.348)		2.945*** (0.303)
Intercept	30.140*** (3.504)	-20.404*** (8.676)	5.884*** (3.089)	-47.465*** (7.610)
Year Dummies	Yes	Yes	Yes	Yes
Number of obs	1056	1056	1056	1056
adjusted R ²	0.156	0.416	0.049	0.283

NOTES: State and local government survey data are not available for 2001 and 2003. Data include 48 contiguous states. All dollar values are in real per capita 2000 dollars. ***, **, * indicate significance of a 10%, 5% and 1%, respectively.

SOURCE: Authors' calculations based on data from the U.S. Census Bureau, *Annual Survey of State and Local Government Finances* and *Census of Governments* (1981-2004), U.S. Census Historical Poverty Tables, Bureau of Labor Statistics - Local Area Unemployment Statistics, Bureau of Economic Analysis - Regional Accounts.

NOTES

- 1 Public housing data is available at www.hud.gov/renting/phprog.cfm. Voucher data is available at www.centeronbudget.org/5-15-03hous.htm. We arrived at our approximation of nine million individuals benefiting from housing subsidized by HUD using the following formula: 2.6 people per household on average x (1.3 million households living in public housing + 2.1 million households receiving vouchers) = 8.84 million people.
- 2 This value is in 2004 nominal dollars. The rest of the analysis uses values in real 2000 dollars.
- 3 Complete data are not available for 2001 and 2003. These years are not included in the analysis.
- 4 U.S. Census Bureau *Federal, State, and Local Governments: Government Finance and Employment Classification Manual*. Available online at www.census.gov/govs/www/classfunc50.html.
- 5 In 2004, the Housing Certificate Fund outlays were \$20.5 billion and CDBG outlays were \$4.9 billion relative to the total HUD budget of \$41 billion (all figures given in real 2000 dollars). The Housing Certificate Fund encompasses rent subsidy programs like Housing Choice Vouchers (also known as the Section 8 program). CDBGs are transferred directly to states, local governments, metropolitan cities, urban counties, and other entitled jurisdictions to help develop viable urban communities in distressed areas. Other programs and funds include Public Housing Capital Fund (used for construction and operation of public housing), HOPE grants (used by Public Housing Authorities to revitalize severely distressed public housing), HOME Investment Partnerships program (formula grants to states and localities to provide direct rental assistance or oversee affordable housing for rent or homeownership), and other programs dealing with "urban renewal and slum clearance, redevelopment and rehabilitation of substandard or deteriorated facilities and areas, rural redevelopment, and revitalization of commercial areas." The Economic Development Agency works to attract private capital investments and higher-skill, higher-wage jobs to distressed communities. The Minority Business Development Agency works to empower minority business enterprises. The CDFI fund promotes economic revitalization and community development through investment in and assistance to community development financial institutions.
- 6 They should not match exactly because of administrative expenses, which are not transferred to the state. In addition, different timing of expenditures by the federal government compared to states and localities will cause the figures to differ.
- 7 Under a variety of assumptions, we summed up all the housing and community development funding allocated to government programs (HUD, Commerce, and Treasury) that would get passed on to states. Totals ranged from \$25.9 billion to \$31 billion in 2004. We then compared these figures to the total federal transfers summed up over all the states from the state and local government survey, \$24.3 billion in 2004. Therefore, the coverage of the state and local government survey data ranges from 79 percent to 93 percent.
- 8 The LIHTC program, created by HUD, provides states with funding to issue tax credits to investors for the acquisition, rehabilitation, or new construction of rental housing targeted to lower-income households. The NMTC program, funded by the Department of the Treasury's CDFI fund, is designed to encourage economic development in low-income communities by providing tax breaks to businesses that develop in distressed areas.
- 9 Alaska and Hawaii were excluded from the analysis. Total per capita state expenditures on housing and community development in Alaska are more than two standard deviations above the mean throughout much of the 1981-2004 period. Similarly, Hawaii's ratio of total state spending to federal transfers was more than two standard deviations above the mean in the early to mid-1980s.
- 10 The most recently available data are from 2004. Similar patterns of interstate variation in housing and community development spending are found in other years as well.
- 11 New England, as defined by the U.S. Census Bureau, comprises Maine, Vermont, New Hampshire, Connecticut, Massachusetts, and Rhode Island.
- 12 As mentioned earlier, complete data are not available for 2001 and 2003, and are therefore not included in the analysis.
- 13 To calculate how much more or less a state with one standard deviation more people per square mile than an average state would receive in federal transfers, we multiplied the standard deviation of population per square mile presented in Table 2 by the coefficient for population per square mile in regression [2] of Table 3. In general for similar calculations below, if x_i is an independent variable and y the dependent variable, the increase/decrease in y for a state with one standard deviation higher x_i than an average state is given by increase/decrease $[y] = \text{Standard Deviation } [x_i] * \beta[x_i]$.
- 14 These percentages are calculated by using the means and standard deviations of the dependent and independent variables from 1981-2004 and the coefficients found in regression [2]. For example, from Table 2 you see that population per square mile has a standard deviation of 239.65. When that is multiplied by 0.040, its regression [2] coefficient, we get 9.59. Dividing that by 49.84, the mean of federal transfers per capita, we get 19 percent.