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There are two distinct streams of literature on the economics of assets which relate to natural resources. One is the finance literature. That literature deals with the monetary risk that agents incur when they hold assets with uncertain yields and uncertain future prices. The financial study of assets typically involves the construction of portfolios which optimize an objective of the agent. Financial risk has been studied in at least four areas of relevance for natural resources: nuclear power (Farber), agricultural land (Barry; Irwin et al.), forestry (Redmond and Cubbage) and real estate (Brueggeman et al.).

Uncertainty about natural phenomena and their influence on assets, both natural and artificial, is also a major area of study, and is especially germane for natural resource economics. Fish stocks, ore deposits, and toxic waste dumps are natural resources where the uncertainty of the service (or disservice) flow is a central problem. Indeed, uncertainty has played a central role in resource economics, in such topics as option and quasi-option value. Nonfinancial risk is also a central feature of some assets, such as housing and land. Hedonic techniques have linked nonfinancial risk and asset markets, especially housing markets. These techniques can be used to estimate the marginal prices for a large variety of housing attributes, including risk. In hedonic models, risk is taken as another attribute of the house, and is priced in equilibrium like other attributes at its marginal value. (See Smith, 1985 for a theoretical exposition.) In fact, although the hedonic model is frequently applied to the housing market, it was developed to explain commodities, not assets, with different attributes. This raises a number of interesting questions, including the impact of holding an asset with an uncertain future price.

The literature on hedonic models and asset markets rarely relate to each other, but there is a clear connection when the hedonic attribute is an explicit risk. Consider the housing market. In the hedonic literature, the riskiness of an environmental effect, such as location near a nuclear power plant or a hazardous waste site, becomes an attribute of the house. (For example, see Kolhase.) Other things equal, houses with these environmental risks have lower prices. But these risks are temporal, and there is a good deal of uncertainty about their duration compared with other housing attributes. For example, a house with three bedrooms this year will almost certainly have three bedrooms next year. But exposure to hazardous substances may be perceived as serious this year and not next year. New information may erode the threat of a hazardous waste site. Or heightened environmental consciousness may enhance the perception of a threat. If there is uncertainty about the stability of perceived injury, then there will be uncertainty about the future price of the house. And regardless of the type of asset, part of the financial risk comes from nonfinancial sources. For example, one risk of farming is drought. Holding the stock of a particular company may be risky due to a logistic problem with its production process.

The purpose of this paper is to explore measures of asset risk that arise from the workings of financial markets and nonfinancial characteristics of the asset. The capital asset pricing model (and variants) is a natural vehicle for representing risk because it yields parameters that have appealing intuitive interpretations. In the financial literature, researchers have explored the influence of company characteristics on market risk. Ideally, we would like to analyze the effect of hazardous wastes or other environmental parameters on the risk of holding housing assets.

However, the data demands for such an analysis are great. We have instead analyzed the farmland market, estimating the CAPM model for farmland by state and then trying to explain variations in the state models through nonfinancial variables across states. Our goal is to show that some attributes which would affect the price of an asset would also affect the parameters of the CAPM model of the asset. As we will show below, the CAPM model when estimated yields measures of systematic and nonsystematic risk. But these are measures of risk, not the sources of risk. Farming in different states is subject to substantially different risks. To the extent that the state CAPM parameters vary, we would like to be able to explain this variation. This is at least a step in trying to explain how nonfinancial factors contribute to financial risk.

Our basic approach is as follows. First we estimate the CAPM model by state. As is well known, the parameters of the CAPM can be interpreted as estimates of the systematic risk and the 'excess return' earned by the asset. To the extent that these parameters are statistically significant from zero, we will then try to explain their interstate variation with some simple variables which have been thought to explain returns to farmland. We will also pursue this strategy for the CAPM with uncertain inflation.

1. The Capital Asset Pricing Model

The CAPM has been estimated in various ways for agricultural land, where there is a clear portfolio effect. (Barry; Irwin et al.) As originated by Sharpe, Lintner and Mossin, the capital asset pricing model is based on the premise that in competitive equilibrium, individual asset returns adjust to a level that reflects the risk each asset contributes to a well diversified (market) portfolio. The standard CAPM equation is

$$E(r_i) = r_f + \beta_i(E(r_m) - r_f) \tag{1}$$

where Er_i is the expected rate of return on asset i, Er_m is the expected rate of return on the market portfolio, r_f is the risk-free rate of return, and β_i is the systematic risk associated with asset i. The model as stated is an ex ante model, but it must be estimated from ex post data, assuming return distributions are stationary over time. The estimated model is

$$r_i - r_f = \alpha_i + \beta_i(r_m - r_f) + \epsilon_i, \tag{2}$$

where α_i is the returns or losses in excess of those needed to compensate for the systematic risk, and ϵ_i is random error, the unsystematic risk. In the terminology of the CAPM, the price of risk is the difference between the expected rate of return on the market portfolio and the risk-free rate of return ($r_m - r_f$). The quantity of risk is the beta coefficient, β_i. A β_i of zero would indicate that the asset's return is independent of the market rate of return. If β_i is greater (less) than one, asset i moves more (less) than a corresponding move in the market; such an asset would be more (less) risky than the market on a relative basis.

The empirical beta coefficient is not necessarily positive. For any investor, holding negative as well as positive beta values in the proper proportions, could greatly reduce risk. Such a mix would lower the correlation of assets in the total portfolio, causing overall variability to decrease. Consequently, a negative beta asset would offer a lower expected return than the risk-free rate, because it would be a risk reducing asset. This expected return is warranted due to the beneficial effect of the negative beta on the entire portfolio of investments.

The intercept, α_i, for a CAPM regression is commonly referred to as Jensen's index of performance. The expected value of α_i is zero since the CAPM suggests that returns for all assets are determined solely by their systematic risk. An α_i significantly greater than zero indicates returns greater than necessary to compensate for systematic risk, while a significantly negative value indicates inferior risk-adjusted returns.

2. The Capital Asset Pricing Model With Uncertain Inflation

The traditional CAPM was derived without explicit consideration of uncertain inflation. This implies that two assets having the same covariance with market returns, but providing different levels of inflation risk, are priced to provide identical rates of return. Yet, it has been argued theoretically (Friend et al.) and demonstrated empirically (Irwin et al.) that inflation risk is likely to bear a market price. Roll, Long, Chen and Boness, and Friend et al. have all derived similar capital asset pricing models which incorporate the impact of uncertain inflation on equilibrium return.

This research has two implications for the pricing of farmland in a diversified portfolio. First, the traditional CAPM understates the systematic market risk of an asset under uncertain inflation if the covariance between the rate of inflation and the rate of return on the market is positive. Second, if $\rho_{i\pi} > \rho_{m\pi}\,\rho_{im}$, where $\rho_{i\pi}$ is the correlation coefficient for the ith asset and the rate of inflation, $\rho_{m\pi}$ is the correlation coefficient for the market and the inflation rate, ρ_{im} is the correlation coefficient for the ith asset and the market, and $\rho_{i\pi},\rho_{m\pi},\rho_{im}$ are all greater than zero, the CAPM overstates the required return on the ith risky asset.

Brueggeman et al. formulated an empirical version of the CAPMUI (capital asset pricing model under uncertain inflation) to investigate the inflation-hedging potential of commingled real estate investment trusts. The basic relation is

$$E(r_i) = r_f + \beta_{1i}(E(r_m) - r_f) + \beta_{2i}(E(\pi) - r_f) \quad (3)$$

where $E(r_i)$ is the expected rate of return on asset i, r_f is the risk-free rate of return, $E(r_m)$ is the expected market return, $E(\pi)$ is the expected rate of inflation, β_{1i} is the systematic market risk of asset i, and β_{2i} is asset i's inflation risk. Under the assumption of stationarity of the return distributions, the estimated ex post relationship is

$$\overline{r_{it}} = \alpha_i + \beta_{1i}\overline{r_{mt}} + \beta_{2i}\overline{\pi_t} + \epsilon_t \quad (4)$$

where $\overline{r}_{it}$ is the excess return on asset i at time t, $\overline{r}_{mt}$ is the excess return on the market at time t, $\overline{\pi}_t$ is the excess rate of inflation, and ϵ_t is the random error. Here α_i is a two-factor Jensen index. An α_i which is significant and positive (negative) suggests returns greater (smaller) than needed to compensate investors for systematic market risk and inflation risk. The parameters β_{1i} and β_{2i} represent asset i's response to market risk and inflation risk.

3. Data and Estimation Procedures

The first stage of our estimation exploits the CAPMUI derived by Brueggeman et al.. Risk premiums on farm real estate are estimated by regressing a time series of excess annual rates of return on farmland against excess annual rates of return on a market portfolio and annual rates of unanticipated inflation. Annual rates of return on farm real estate are calculated for the U.S. at the state level for 1950-1977. Following Webb and Rubens, we calculate the rate of return for farmland as:

$$r_l = [(\pi - .125c)(1 - T_p) + \Delta P(1 - T_g)]/P \quad (5)$$

where π is net farm income, T_p is personal income, c is closing cost which is calculated as 6%

of the sale price spread over an 8 year period (the average mortgage life), P is the price of land, ΔP is appreciation in the value of land, and T_g is a capital gains tax. The U.S. Department of Agriculture is the source of all farm real estate data. Annual percentage changes in farm real estate values are calculated from the USDA price per acre series reported in *Farm Real Estate: Historical Series Data 1950-1985*. Following Melichar and Barry, we calculate the annual rates of return to land from farm production (net farm income) with an approach formally used by USDA. Net income from farm production is estimated as total net income of farm operators from farming plus cash wages and perquisites of hired labor, interest on all debt, and net rent to landlords, minus the imputed portion of the rental value of farm dwellings. This net income figure is then reduced by imputed returns to total farm labor, management, and non-real estate assets to yield a residual return to farm land. Data for this calculation are available at the national level for 1950-1977 in selected issues of *Balance Sheet of the Farming Sector (USDA)*. For the state models, estimates of annual net income from production were obtained by prorating the national figures among the states in proportion to their contribution of net income from production (unadjusted) to the national total, ie.

$$ni_i = NI \; x \; (un_i / UN) \qquad (6)$$

where ni_i is the adjusted net income figure for state i, NI is national net income computed as described above, un_i is unadjusted net income for state i as reported in *Farm Income Data: A Historical Perspective*, and UN is unadjusted national net farm income.

Theoretically, the market portfolio contains values of all assets that contribute to wealth. A market proxy will be used to calculate the market rate of return. The index used here is from Ibbotson and Fall (1979). They estimate annual returns for a variety of investments including common stock, fixed income corporate securities, real estate (farm and residential), U.S. government securities, municipal bonds, foreign equities and foreign bonds. Using this data Ibbotson and Fall construct a U.S. investment portfolio as well as the average return on this portfolio. The risk-free rate of return is represented by the return on high-grade municipal bonds. The GNP deflator for all items was used to compute annual rates of inflation. Following Bruggeman, et al the unanticipated rate of inflation is the actual rate of inflation minus the anticipated rate. Anticipated inflation is calculated as the one-period lagged value of the risk-free rate. Summary statistics for the first stage parameters are listed in Table 1.

Table 1: Summary Statistics for Nominal Rates of Return 1950-1977 (%'s)

Asset	Mean Return	Standard Deviation	Coefficient of Variation
Farm Real Estate			
Minimum: Nevada	0.08	19.31	236.89
Maximum: Maine	14.83	11.12	0.08
Market Portfolio	7.36	4.57	0.62
Municipal Bonds	4.06	1.48	0.36
GNP Deflator	3.86	2.37	0.61

The second stage of the estimation makes use of a varying parameters model. The first stage produces a vector of α's and a matrix of β's. The goal is to explain how uncertainty in support from agricultural programs, and alternative demands for agricultural land affect the systematic risk from holding farm land. Let $\gamma = (\alpha,\beta)$ be the true value of the parameters from the CAPM model, and let Γ be their estimators. We assume that the true value of the parameters is a nonstochastic function of the form:

where f is the function to be estimated and w_i is the vector of agricultural support, and alternative

$$\gamma_i = f(w_i), \tag{7}$$

demand for farmland. Since we only observe estimates of γ, and not the true values, the estimates are used in the regression in (7). The estimates are random, have expected values equal to the true γ's, and have variances which vary across states. That is, $\Gamma_i = \gamma_i + \theta_i$, where θ_i is $N(0,\sigma^2_i)$. As demonstrated in Smith et al., the nonconstant variances create heteroscedasticity. The standard correction for the heteroscedasticity induced by these models is made.

The w's are chosen to explain the systematic risk (β) and the excess return (α) for holding farmland. We have chosen the mean and standard deviation of agricultural support payments per acre and percent change in population growth as explanatory variables. Means and standard deviations of these variables might help explain variations in systematic risk. And means of these variables would work to explain nonsystematic risk, to the extent that farmland holders ignored or were not able to anticipate them. How well each variable works is of course an empirical question. However, it would seem more likely that the population growth variable would be more predictable and reliable, suggesting that it would have little explanatory power for risk or excess returns. Agricultural support is measured as the sum of U.S. government direct cash payments and payment-in-kind entitlements, per acre, as reported in the *Farm Real Estate: Historical Series Data 1950-1984*. Percentage change in population growth by state (Statistical Abstract) is used as a proxy for alternative demand for agricultural land.

4. Empirical Results

Table 2 gives the CAPM and CAPMUI parameters by state. We report the parameters from estimation which has not been corrected for autocorrelation. The correction procedures do not change the basic conclusions, however.

There are three basic results from the first stage estimation. The first concerns the market risk coefficients (β_{1i}). These coefficients are not significantly different from zero for any state. This empirical finding is consistent with the results of Barry; Irwin, Forster, and Sherrick; and Webb and Rubens. Holding farmland as an asset yields a return which is not correlated with a market portfolio. Farmland is a good investment for reducing the risk of a portfolio. This does not imply that holding farmland is not risky in an absolute sense. Indeed, if it is one's only asset, then there is a good deal of volatility. The nonsignificance of the β_{1i} holds regardless of whether one estimates the standard CAPM or the CAPMUI model.

The second basic result from the first stage estimation concerns the estimates of α. For both the CAPM and CAPMUI, these coefficients (except for Nevada) are significantly greater than zero, at reasonable levels of significance. The positive α's imply that holding farmland is yielding a rate of return in excess of what the market would require of an asset of similar risk. In effect, there is an unexplained excess return for holding farmland. This result is also consistent with other research at the national level, including that by Barry and by Irwin et al. The excess return varies from a low of 3.66 percent for California to a high o f 16.2 percent for Maine.

The consistent finding that farmland yields an excess return is worth wondering about. How can nonnormal returns persist? Assuming problems of data aside, we can posit three ways. First, there are nonmarket services from holding farmland. For example, if farmers get utility from owning and working on the land, they would pay a higher price for holding farmland than for an asset which did not bear utility. Second, if the market clears poorly, then it is conceivable that long run returns in excess of the normal rate could persist. Finally, if the holding of farmland is not well diversified or if there are 'rational bubbles', then excess returns could persist. In these latter two cases, however, the assumption of an efficient market that underlies the CAPM model is violated.

The third result pertains to the CAPMUI model. For this model, the beta coefficient for unanticipated inflation is significantly greater than zero at the 10 percent level (or better) for 35 of the 48 states. When the CAPMUI model is estimated, there is no effect on the market risk, as is argued in some literature. The estimates of β_{1i} are all not significantly different from zero. The estimates of α_i decrease slightly but are still significantly greater than zero, except for Nevada.

The second stage estimation uses the estimated parameters from the first stage as dependent variables. In principle we want to be able to explain variations in excess returns (estimates of α_i) and market risk (estimates of β_{1i}). Since market risk is not significant, we have only the excess returns to explain. We introduce two kinds of arguments to explain excess returns: alternative demand for farmland, in the form of the percent change in population, and government policy toward agriculture. Increases in the demand for land for other uses may increase the price of farmland. But if these increases are predictable, they will not lead to excess returns. They will be capitalized into the price of farmland, leading to a normal return. Agricultural policy is introduced in the form of agricultural support payments per acre of farmland. These payments increase net income, and hence the returns for holding farmland. However, to the extent that they are also predictable, they will be capitalized into the price of farmland, and not contribute to excess returns.

The specification of the second stage is a simple linear equation:

$$\hat{\alpha}_i = c_o + c_1 \% \Delta pop_i + c_2 asp_i + \theta_i, \qquad i = 1, 48 \tag{8}$$

where %Δpop is the mean percent change in the state's population over the period 1950-1980, and asp is the mean level of agricultural support payments by state for the period 1950-1980. As discussed above, the θi have mean zero and variance equal to the variance of the parameters estimated from the first stage estimation.

The empirical results from the second stage are presented in Tables 3 and 4. These are GLS estimates which correct for the nonconstant variances. In all of the tables, no matter how the model is specified, the government payment variable is significantly greater than zero. However, the population growth variable is not significant, no matter which model is estimated. These results make sense in the following way. Some part of the government payments is random with a positive mean, and speculators have not predicted this positive contribution from agricultural policy. However, the population growth, and the attendant increase in the demand for nonagricultural land use has been properly anticipated, and cannot help explain excess returns to agriculture.

5. Conclusions

In this paper, we have argued that nonfinancial factors contribute to financial risk. We have resorted to an application with farmland, using the CAPM model to try to discern some determinants of financial risk in agriculture. This model yielded the interesting result that agricultural support payments are an important determinant of excess returns to agriculture. This result implies that the market has not successfully predicted agricultural payments and capitalized them into farmland prices.

One difficulty with the modelling and estimation approach that we have taken in this paper is with the assumption of diversified holdings. The CAPM model works well with assets which are in diversified holdings. This diversification implies that the asset holders do not have to bear the risk of fluctuations of returns to holding farmland. It is probably not a good assumption for farmland, nor is it a good assumption for the residential real estate market. Both farm and residential real estate tend to dominate the portfolios of their owners. Therefore, they face more risk than is implied by the CAPM model. Further, the absence of market risk means less to them if they hold a single asset with substantial volatility. This is an issue worth exploring for it has some strong implications for the welfare effects of environmental risks for residential real estate.

TABLE 2: Parameter Estimates

	CAPM				CAPMUI					
	Alpha	Std Err	$Beta_{1i}$	Std Err	Alpha	Std Err	$Beta_{1i}$	Std Err	$Beta_{2i}$	Std Err
Maine	16.20*	(2.61)	-0.44	(0.47)	15.57*	(2.42)	-0.17	(0.45)	2.87**	(1.24)
New Hampshire	12.57*	(1.82)	-0.50	(0.33)	12.30*	(1.80)	-0.39	(0.34)	1.24	(0.92)
Vermont	11.56*	(1.84)	-0.28	(0.33)	11.56*	(1.89)	-0.28	(0.35)	0.01	(0.97)
Massachusetts	8.49*	(1.08)	-0.10	(0.20)	8.49*	(1.11)	-0.10	(0.21)	0.02	(0.57)
Rhode Island	11.44*	(4.02)	0.54	(0.73)	11.23*	(4.11)	0.63	(0.77)	0.95	(2.11)
Connecticut	8.78*	(1.41)	0.05	(0.25)	8.69*	(1.44)	0.09	(0.27)	0.43	(0.74)
New York	10.03*	(1.24)	-0.18	(0.22)	9.76*	(1.17)	-0.07	(0.22)	1.27**	(0.60)
New Jersey	9.24*	(1.79)	-0.11	(0.33)	8.92*	(1.75)	0.02	(0.33)	1.44	(0.90)
Pennsylvania	10.00*	(1.37)	-0.31	(0.25)	9.50*	(1.08)	-0.10	(0.20)	2.28*	(0.55)
Delaware	11.88*	(1.47)	-0.09	(0.27)	11.56*	(1.40)	0.04	(0.26)	1.44*	(0.72)
Maryland	8.24*	(1.26)	0.06	(0.23)	8.14*	(1.28)	0.10	(0.24)	0.46	(0.66)
Michigan	9.11*	(1.46)	-0.38	(0.26)	8.80*	(1.38)	-0.25	(0.26)	1.44*	(0.71)
Wisconsin	10.41*	(1.39)	-0.44	(0.25)	10.06*	(1.28)	-0.29	(0.24)	1.60*	(0.66)
Minnesota	10.04*	(2.15)	-0.31	(0.40)	9.16*	(1.52)	0.06	(0.28)	4.03*	(0.78)
Ohio	7.74*	(1.86)	-0.32	(0.34)	7.12*	(1.54)	-0.06	(0.29)	2.83*	(0.79)
Indiana	7.52*	(2.19)	-0.08	(0.40)	6.81*	(1.85)	0.22	(0.34)	3.22*	(0.95)
Illinois	7.19*	(2.20)	-0.26	(0.40)	6.51*	(1.89)	0.03	(0.35)	3.09*	(0.97)
Iowa	8.08*	(2.21)	-0.27	(0.40)	7.35*	(1.84)	0.04	(0.34)	3.34*	(0.94)
Missouri	8.59*	(1.50)	-0.44	(0.27)	8.31*	(1.46)	-0.32	(0.27)	1.28***	(0.75)
North Dakota	9.50*	(2.27)	-0.39	(0.41)	8.69*	(1.79)	-0.04	(0.33)	3.72*	(0.92)
South Dakota	7.01*	(1.73)	-0.21	(0.31)	6.43*	(1.42)	0.04	(0.26)	2.67*	(0.73)
Nebraska	6.25*	(1.71)	-0.06	(0.31)	5.79*	(1.54)	0.14	(0.29)	2.11*	(0.79)
Kansas	5.74*	(1.54)	-0.26	(0.28)	5.24*	(1.30)	-0.05	(0.24)	2.28*	(0.67)
Virginia	8.56*	(1.32)	-0.25	(0.24)	8.19*	(1.18)	-0.10	(0.22)	1.68*	(0.60)
West Virginia	6.62*	(1.66)	-0.18	(0.30)	6.18*	(1.51)	0.01	(0.28)	2.02*	(0.77)
No.Carolina	11.18*	(1.41)	-0.25	(0.26)	10.91*	(1.36)	-0.14	(0.25)	1.22***	(0.70)
Kentucky	8.00*	(1.35)	0.03	(0.24)	7.70*	(1.28)	0.15	(0.24)	1.36*	(0.66)
Tennessee	8.55*	(1.13)	-0.27	(0.21)	8.30*	(1.08)	-0.16	(0.20)	1.13*	(0.55)
So.Carolina	10.41*	(1.31)	-0.32	(0.24)	10.03*	(1.16)	-0.16	(0.22)	1.73*	(0.59)
Georgia	13.15*	(1.44)	-0.54	(0.26)	12.83*	(1.35)	-0.40	(0.25)	1.48*	(0.69)
Florida	9.69*	(1.89)	-0.20	(0.34)	9.15*	(1.68)	0.03	(0.31)	2.44*	(0.86)
Alabama	10.84*	(1.21)	-0.23	(0.22)	10.63*	(1.18)	-0.14	(0.22)	0.96	(0.61)

Mississippi	10.72*	(1.53)	-0.47	(0.28)	10.27*	(1.35)	-0.28	(0.25)	2.05*	(0.69)
Arkansas	9.45*	(1.66)	-0.32	(0.30)	9.22*	(1.65)	-0.22	(0.31)	1.06	(0.85)
Louisiana	8.16*	(1.06)	-0.03	(0.19)	8.06*	(1.08)	0.02	(0.20)	0.47	(0.55)
Oklahoma	5.33*	(1.29)	0.02	(0.23)	4.95*	(1.13)	0.18	(0.21)	1.72*	(0.58)
Texas	5.47*	(1.35)	-0.32	(0.25)	5.26*	(1.33)	-0.23	(0.25)	0.97	(0.68)
Montana	6.85*	(1.62)	-0.19	(0.29)	6.26*	(1.27)	0.07	(0.24)	2.71*	(0.65)
Idaho	6.04*	(1.43)	-0.18	(0.26)	5.47*	(1.03)	0.06	(0.19)	2.61*	(0.53)
Wyoming	5.85*	(1.73)	-0.16	(0.31)	5.46*	(1.63)	0.00	(0.30)	1.76*	(0.84)
Colorado	6.83*	(1.49)	-0.43	(0.27)	6.50*	(1.41)	-0.29	(0.26)	1.53*	(0.72)
New Mexico	4.97*	(1.72)	-0.20	(0.31)	4.65*	(1.67)	-0.07	(0.31)	1.44***	(0.86)
Arizona	6.47*	(1.76)	-0.22	(0.32)	6.19*	(1.74)	-0.10	(0.32)	1.29	(0.89)
Utah	4.80*	(1.46)	-0.11	(0.26)	4.52*	(1.41)	0.01	(0.26)	1.28***	(0.72)
Nevada	2.90	(1.76)	0.18	(0.32)	2.75	(1.79)	0.24	(0.33)	0.72	(0.92)
Washington	6.75*	(1.61)	-0.15	(0.29)	6.26*	(1.39)	0.06	(0.26)	2.23*	(0.72)
Oregon	4.51*	(1.13)	-0.05	(0.21)	4.22*	(1.04)	0.07	(0.19)	1.31*	(0.53)
California	3.66*	(1.52)	0.08	(0.28)	3.27*	(1.40)	0.25	(0.26)	1.77*	(0.72)

Note: Standard errors are in paratheses; single asterisk denotes significance at the .01 level, double asterisk denotes significance at the .05 level, and triple asterisk denotes significance at the .10 level. The range in value of R^2 for the state level CAPM is .0004 to .146; the range in value of R^2 for CAPMUI is .011 to .539. Each model contains 27 observations.

TABLE 3: CAPM Intercept Term Regression Coefficient			
	Combined Model	Population Change Only	Government Paymts Only
% Population Change			
Mean: estimate	-0.032	-0.038	
standard error	(0.028)	(0.031)	
Government Payments			
Mean: estimate	1.732*		1.767*
standard error	(0.492)		(0.492)
Constant Term	4.052*	5.731*	3.686*
standard error	(0.610)	(0.425)	(0.521)
R^2:	0.24	0.03	0.22
Number of Observations:	48	48	48

TABLE 4: CAPMUI Intercept Term Regression Coefficient			
	Combined Model	Population Change Only	Government Paymts Only
% Population Change			
Mean: estimate	-0.038	-0.040	
standard error	(0.028)	(0.031)	
Government Payments			
Mean: estimate	1.558*		1.580*
standard error	(0.462)		(0.465)
Constant Term	4.361*	6.005*	3.918*
standard error	(0.632)	(0.446)	(0.545)
R^2:	0.23	0.04	0.20
Number of Observations:	48	48	48

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