Providing a Basis for Optimum Investment in the Community to Create a Favorable Business Climate

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Authorization to Submit Thesis

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Abstract

Using Area Sector Analysis Process (ASAP) data collected from the Community and Business Survey, we generate a utility that captures trade-offs between community and business needs. We use the General Algebraic Modeling System (GAMS) to calculate the marginal impact of different business climate factors on the utility of 19 regions in Utah, Nevada, Arizona, and New Mexico. We find that quality education and health care, favorable tax compensation, quality of workforce, access to supplies and customers, and low crime rates have relatively larger marginal impacts on social planners' development goals. High-quality natural ecosystems, outdoor recreation, social and cultural opportunities, and affordable housing have relatively small impacts on development objectives. This paper provides a benchmark for policy makers and planners, suggesting that they focus on policies that encourage investment in assets with relatively larger marginal impacts.

Keywords: marginal impact, business climate, assets, investment

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Dedication

To my family

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1. Introduction

Economic developers and local policy makers strive to attract, retain, and expand businesses in their region (Bartik, 2017). The popularity of various economic development theories and strategies may wax and wane, but the underlying objectives remained consistent: Create "good" jobs and facilitate community well-being (Parilla & Liu, 2018). To date, economic development strategies have focused on attracting target industries or businesses. Comparatively little research guides communities on specific policies or investments that would help them meet their economic development goals.

To identify appropriate incentives, numerous studies have examined the relative significance of various factors that influence businesses' location selection (Conroy, Deller, & Tsvetkova, 2016; Prillaman & Meier, 2014; Shaffer et.al., 2004), suggesting that low taxes, cheap labor, and minimal regulations entice businesses (Eisinger, 1988; Lynch, 2004; Prillaman & Meier, 2014; Shaffer et al., 2004). Although these are important factors, others—like education and housing systems, health and public safety services, crime rates, recreational opportunities, and environmental factors—have rarely been studied.

Creating a favorable business environment is an important aspect of regional development, but attracting sectors that are capable of providing targeted benefits to a community is another, often-overlooked aspect of regional economic development. Many targeted development programs fail to consider the impact of businesses on a community. Most studies have assumed that a community's goal is to increase the number of industries, irrespective of their impact. But it is equally important to know whether businesses can meet a community's other goals, such as increasing local purchases, improving employee retirement and health insurance benefits, or minimizing pollution. Social planners and

researchers must consider both businesses' demands and their impacts on a community when devising development strategies.

We examine the marginal impact of different business climate factors on the utility of social planners and policy makers. The utility we generate here exploits the concepts of desirability and compatibility to understand the requirements and targets of both industries and communities. Ranking the marginal impact of assets (business climate factors) provides guidelines for regional policy makers' selection of appropriate development strategies. We suggest that policy makers should prioritize assets with higher marginal impacts on utility to achieve sustainable regional economic development with efficient utilization of government incentives.

When evaluating the impact of targeted incentives on a region, many researchers have underestimated non-economic aspects. Bundrick and Snyder (2018) and Byrne (2018) focus on the number of jobs created and community establishments as community goals. But a community's aim is not only to create jobs and increase total revenues but also to improve environmental and social quality for its constituents. Including environmental and social aspects in addition to economic aspects increases the complexities in estimating industry impacts, but omitting these factors may lead to incorrect estimations of impact. Conroy et al. (2016) examine firm location, relocation, and expansion decisions by comparing business climates using factors like size of agglomeration, metrics of manufacturing, labor characteristics, energy cost, taxes, government services, and indicators of state business and political environment. Our model incorporates additional factors like infrastructure, access to supplies and customers, and factors affecting quality of life and includes environmental and social as well as economic goals.

2. Review of Literature

Targeted regional development policies are widespread among regional governments, but many policy makers are skeptical about their efficacy (Bartik, 2017; Calcagno & Hefner, 2018). Despite their detractors, policy makers continue to focus efforts on attracting and cultivating businesses. Many regional governments have attempted to attract new businesses, encourage entrepreneurship, support or expand existing firms, or prevent firms from relocating via targeted economic development policies that include lower business tax rates and higher business incentives (Bartik, 2017), which may include property tax abatement (reducing property taxes below normal rates) and job creation tax credits (providing tax benefits for jobs created). Some researchers claim that targeted economic development incentives create jobs and stimulate economic growth (Goss & Phillips, 1994; Greenstone & Moretti, 2003). Others argue that such interventions have no clear positive benefits for the broad economy (Byrne, 2018; Hicks & Shughart II, 2007; Rosen & Gayer, 2013).

Greenstone and Moretti (2003) affirm that targeted incentives attract large industrial plants, resulting in increases in local economic activity without crowding out existing activity. However, Fox and Murray (2004) find little or no significant long-run impact on economic growth following the recruitment of large industries. Similarly, Bruce et al. (2009) find that regional tax and non-tax incentives do not have any significant statistical relationship with growth in employment, income, or gross state product. Moreover, Saiz (2001) reports that incentives used for locational strategies have a negative relationship with employment in the finance, insurance, and real estate sectors.

Bundrick and Snyder (2018) analyze the relationship between deal-closing funds and county-level private employment and private establishments from Arkansas's Quick Action

Closing Fund (QACF), which enables the state government to provide cash subsidies to attract new firms or retain existing firms. Compared to other targeted incentives, the QACF faces few implementation restrictions. Bundrick and Snyder conclude that providing QACF subsidies to businesses in a given county does not create any significant cumulative private employment or establishment benefits to that county. In cross-county estimations, subsidies are positively correlated with private employment and establishments only in the county in which they are issued; there are no employment spillover effects for businesses in bordering counties. However, they find evidence of a statistically significant—but economically small—negative cumulative establishment spillover effect related to the QACF subsidies provided to businesses in a given county's neighbors. In addition, when fiscal costs are considered, QACF subsidies have no relationship with county-level private employment and have a large negative relationship with county-level private establishments.

Hoyt et. al. (2008) analyze the impact of Kentucky's incentives—including tax incentives, training incentives, and financing incentives—on county employment. They find that that the incentives have an impact in counties that border neighboring states but not in interior counties. Training incentives have larger positive impacts on county employment than do tax incentives, but financial incentives have no statistically significant relationship with employment in any county. They also affirm that neighboring counties did not experience spillover effects related to incentives.

To promote economic growth, Minnesota created tax-free zones in all but nine counties in the Twin Cities Metropolitan Area through the Job Opportunity Building Zones (JOBZ) program. Hansen and Kalambokidis (2010) provide eevidence that this has done little to promote economic growth, at least at the county level. However, Guo and Cheng

(2018) find that low tax burdens and government spending on transportation, public safety, and economic and physical environment can spur entrepreneurship and business retention.

Site selection for a firm's start-up, relocation, or expansion is a complex decision initiated by a range of social, economic, regulatory, environmental, and political conditions (McLeman & Smit, 2006). From a policy perspective, competition among states over favorable business environments began with the Mississippi Balance Agriculture with Industry (BAWI) Act of 1933. Mississippi successfully attracted northern manufacturers by promoting neo-classical economic development approaches defined by low taxes, cheap labor, and minimal regulation (Deller & Goetz, 2009; Eisinger, 1988; Shaffer et al., 2004). This act became a model for how policy makers think about attractive regional business climates (Conroy et al., 2016).

Several researchers have investigated factors affecting the selection of sites for firms' recruitment, relocation, and expansion (Bartik, 1991; Brouwer et. al., 2004; Conroy et al., 2016; McCann et. al., 2002; Pellenbarg & Wever, 2008). The main forces driving industry relocation are expansion, the need for more suitable environment/premises, and cost savings. Firms want to take advantage of favorable cost conditions—such as differences in wages, scale economics, energy sources, and local incentives—in targeted locations. Lee et. al. (2004) suggest that a firm should consider factors like presence of facility infrastructure (e.g., ports), institutional infrastructure (e.g., custom clearance systems), and technological infrastructure (e.g., loading/unloading systems for transportation costs) to reduce production costs. Lee et al. conclude that infrastructure and market factors are significant factors for firms' relocation decisions.

Before making any decisions about targeted regional economic programs, it is essential to understand both the nature of industries and their requirements and the preferences of targeted regions. Providing an appropriate environment for desirable sectors is only half way to achieving sustainable regional economic development (Cox et al., 2009). Without prior knowledge of a community's goals and targets and how well industries can meet them, implementing targeted programs and policies is futile. We estimate the marginal impact of different assets on a region's utility, which will help regional social planners select targeted development incentives and strategies and evaluate the efficiency of regional investment in assets.

3. Theoretical Model

Businesses are changing the way in which they make location and relocation decisions, with serious implications for communities as they try to position themselves in a changing competitive landscape. To attract businesses, communities invest in incentives and resources. To address how a social planner might incorporate both business needs and community goals into an objective function, we generate a theoretical model in which utility is maximized by considering both the needs of firms (and the extent to which a region can provide such resources) and the needs, goals, and preferences of communities (and the extent to which firms can meet them). We develop the social planner's utility by introducing the concepts of compatibility and desirability in our model.

Based on resource requirements and the extent to which a community can provide them, we can quantify a community's compatibility with respect to different sectors, describing the fit between a community's assets and an industry's needs. For example, one sector might be best served by sites near railroads and highways, while another might demand a skilled workforce. Communities that lack these assets will face challenges in targeting these specific industries. In general, we consider compatibility as the function of finite sets criteria that improve an industry's productivity. Compatibility is the function of how the levels of community assets (e.g., space, physical infrastructures, economic infrastructures, recreational opportunities) correspond to industry-specific needs, denoted as

$$\mathbf{C_{rj}} = \mathbf{f}\left(\mathbf{y_r}, \mathbf{z_j}\right), \qquad (1)$$

where $\mathbf{y_r}$ is the level of assets available in region *r* and $\mathbf{z_j}$ is the finite sets of production functions of sector *j*. Table 3.1 describes the 41 assets we use in the model.

Table 3.1 Description and scale of community assets included in Compatibility.

	Community Assets	Value	Good/Bad
A1	Interstate highway	1 if exist; 0 otherwise	good
A2	Package freight services	1 if exist; 0 otherwise	good
A3	Railhead or rail spur	1 if exist; 0 otherwise	good
A4	Rail freight	1 if exist; 0 otherwise	good
A5	Passenger air services	1 if exist; 0 otherwise	good
A6	Port or harbor facilities	1 if exist; 0 otherwise	good
A7	International trade port	1 if exist; 0 otherwise	good[1]
A8	Natural gas pipeline	1 if exist; 0 otherwise	good
9	Access to supplies	Distance to a major metropolitan area/distance to metropolitan area from the most isolated town in US	bad[2]
A10	Access to customers	Distance to a major metropolitan area/distance to metropolitan area from the most isolated town in US	bad
A11	3-phase electric power	1 if exist; 0 otherwise	good
A12	Fiber optic lines	1 if exist; 0 otherwise	good
A13	High-volume water supply	1 if exist; 0 otherwise	good
A14	Wastewater disposal	1 if exist; 0 otherwise	good
A15	Solid waste disposal	1 if exist; 0 otherwise	good
A16	Cell phone service	1 if exist; 0 otherwise	good
A17	Local public transportation	1 if exist; 0 otherwise	good
A18	Future expansion at site	1 if available land and space is expected to increase in 1-2 yrs; 0 otherwise	good
A19	High speed internet access	1 if exist; 0 otherwise	good
A20	Managerial workforce	% of workforce with college degree or higher compared to highest % of workforce with college degree or higher among US communities	good
A21	Skilled workforce	% of workforce with HS degree or equivalent compared to highest % of workforce with HS degree or equivalent among US communities	good

[1] Good assets improve the compatibility of a community with increase in its level.

[2] Bad assets decrease the compatibility of a community with its increased level. So, it is calculated as 1- $\mathbf{y_a}$ where, $\mathbf{y_a}$ is the level of bad assets.

A22	Unskilled workforce	% of workforce with less than HS degree compared to highest % of workforce with less than HS degree among US communities	good
A23	Favorable local labor costs	% to local value with the highest labor cost in US	bad
A24	Favorable workers compensation tax rate	Workers compensation tax rate/highest	bad
A25	Favorable local business tax rates	Business tax rate/highest	bad
A26	State and local government incentives	1 if exist; 0 otherwise	good
A27	Availability of union labor	% union labor	?
A28	Availability of specialized job training programs	1 if exist; 0 otherwise	good
A29	Availability of short– and long-term financing	1 if exist; 0 otherwise	good
A30	Existence of a business/trade association	1 if exist; 0 otherwise	good
A31	Low crime rate	Local crime rate/highest crime rate in US	bad
A32	Availability of affordable housing	Median home price/highest	bad
A33	Clean air and water	Avg response as a proportion of 10	good
A34	High quality natural ecosystem	Avg response as a proportion of 10	good
A35	Outdoor recreational opportunities	Avg response as a proportion of 10	good
A36	Social and cultural opportunities	Avg response as a proportion of 10	good
A37	Retail shopping opportunities	Avg response as a proportion of 10	good
A38	Quality of educational system (K-12)	Avg response as a proportion of 10	good
A39	College or university	1 if exist; 0 otherwise	good
A40	Availability of quality health care	Avg response as a proportion of 10	good
A41	Availability of public safety services	Avg response as a proportion of 10	good

But compatibility with a community does not ensure that a sector will have a positive impact on that community. Attracting industries that benefit a community and match its objectives may be the best strategy for sustainable regional economic development, but it can be difficult to measure how well industries will be able to meet community targets. We develop the additional concept of desirability to measure the extent to which a sector can match a community's preferences and goals. Desirability is a measure of the strength of the match between a community's priority-ordering goals and the ranked contribution of business benefits. The general form of desirability function is given by

$$\mathbf{D_{rj}} = \mathbf{f}\left(\mathbf{G_r}, \mathbf{B_j}\right), \qquad (2)$$

where $\mathbf{G_r}$ is the community goals and preferences of region *r* and $\mathbf{B_j}$ is the impact of sector *j* on community goals and preferences. The community's objective is not just to improve the number of jobs and wages in a community but also to improve quality of life. We therefore divide community goals into social, economic, and environmental categories. Economic goals include number of jobs and average local wage rate contributed by a business. Social goals include the benefits that people obtain from an industry (e.g., health insurance, retirement, training). Environmental goals include whether an industry contributes to pollution by releasing toxic chemicals.

Both functions (compatibility and desirability) help social planners understand the needs of sectors and communities, eventually improving the selection of optimal regional development strategies. Attracting industries that allow the community to meet targeted economic development goals is fundamental to community development. Our theoretical model constructs utility as a development objective that addresses the needs of both communities and businesses. The model supposes that a community's utility is improved by

investing in assets that are required to run desirable industries. Thus, the utility function captures the trade-offs and complex nature of the community targets and business needs, using the previously discussed framework of compatibility and desirability. The general form of utility is given by

$$\mathbf{U_r} = \mathbf{f}(\mathbf{C_{rj}}, \mathbf{D_{rj}}),$$

where $\mathbf{U_r}$ is the social planner's utility for region *r*, $\mathbf{C_{rj}}$ is the compatibility of sector *j* with region *r*, and $\mathbf{D_{rj}}$ is the desirability of sector *j* for region *r*. It is tempting to assume that community goals are exogenous for social planners, as goals and preferences are set by the community's population. By implementing effective development strategies, social planners can improve community resources (e.g., improving the availability of skilled workforce by focusing on education policies). However, social planners have a responsibility to invest their budgets prudently and efficiently, and investment to attract industries without understanding the community's preferences can be inefficient. Thus, social planners must consider the community's preferences, in addition to business needs, when selecting regional development strategies. We therefore generate an empirical function of utility as

$$\mathbf{U_r} = \sum_{\mathbf{j=1}}^{\mathbf{n}} \mathbf{C_{rj}}(\mathbf{y_1}, \mathbf{y_2}, \cdots, \mathbf{y_m})^{\mathbf{D_{rj}}}, \qquad (3)$$

where $\mathbf{y_m}$ is the level of asset *m* and all other variables are as previously defined.

To optimize a community's assets (allowing them to invest efficiently to create a favorable business environment), a social planner's utility must be maximized in terms of available asset levels in a community. In our model, community goals and preferences are fixed and available resources can be varied, within presented limits. The choice variables for utility are asset levels. Maximizing the utility given by equation (3) with respect to the community's assets level gives

$$\max \mathbf{U}_{\mathbf{y_a}}^{\mathbf{r}} = \sum_{\mathbf{j=1}}^{\mathbf{n}} \mathbf{C_{rj}}(\mathbf{y_1}, \mathbf{y_2}, \dots, \mathbf{y_m})^{\mathbf{D_{rj}}}. \qquad (4)$$

We calculate the partial derivative of utility with respect to the level of each community asset to estimate the asset's marginal return to the utility. The returns to additional unit of assets are assumed to increase at a decreasing rate. Taking the partial derivative of equation (4) gives

$$\frac{\partial \mathbf{U_{rj}}}{\partial \mathbf{y_a}} = \sum_{\mathbf{j=1}}^{\mathbf{n}} \mathbf{D_{rj}}\, \mathbf{C}_{\mathbf{rj}}^{(\mathbf{D_{rj}-1})} \frac{\partial \mathbf{C_{rj}}(\mathbf{y_1}, \mathbf{y_2}, \cdots, \mathbf{y_m})}{\partial \mathbf{y_a}} \geq \mathbf{0}, \qquad (5)$$

Equation (5) estimates the change in policy makers' utility from a 1-unit change in each community asset, *ceteris paribus.* This first-order condition provides the marginal impact of each asset on the utility of a region. Within this framework, government should expend resources to achieve the highest social welfare (i.e., spending on assets with the highest marginal returns with respect to the first derivative of utility) for each region. Some regions are already well-off, and greater resources would have little impact in increasing the social planner's utility (i.e., the first derivatives are low). Scarce resources or assets should therefore be targeted to locations that would experience the largest marginal increase in social welfare. Consequently, this model suggests that government interventions should target assets with higher marginal impact to create an attractive business climate in the long run.

As we maximize utility, we observe diminishing marginal returns from assets (business climate factors) on the social planner's utility. Solving for the second-order condition gives us a negative value, implying that utility is maximized (concave):

$$\frac{\partial^2 \mathbf{U_r}}{\partial \mathbf{y_a}} = \sum_{\mathbf{j=1}}^{\mathbf{n}} \mathbf{D_{rj}}(\mathbf{D_{rj}} - \mathbf{1})\, \mathbf{C}_{\mathbf{rj}}^{(\mathbf{D_{rj}-2})} \frac{\partial \mathbf{C_{rj}}(.)}{\partial \mathbf{y_a}} + \sum_{\mathbf{j=1}}^{\mathbf{n}} \mathbf{D_{rj}}\, \mathbf{C}_{\mathbf{rj}}^{(\mathbf{D_{rj}-1})} \frac{\partial^2 \mathbf{C_{rj}}(.)}{\partial \mathbf{y_a^2}} \leq \mathbf{0}$$

To optimize the choice variables, a social planner must maximize utility. If utility did not experience diminishing marginal returns, a social planner could achieve an infinite level of assets (and therefore infinite returns). Thus, estimated marginal impact obtained from equation (5) acts as a benchmark in development investment for creating an appropriate business environment.

4. Empirical Model

With a clear objective of estimating the marginal impact of each asset on the social planner's utility for a region, we generate our model based on compatibility and desirability, quantified in a compatibility index (CI) and a desirability index (DI), respectively. A business selects a location based on its production costs and the assets and resources available in a community. From the perspective of regional economic developers and social planners, attracting industries that are *just* compatible with a region will most likely fail achieve sustainable regional economic development. Communities must prioritize improving regional asset levels to attract industries that are also capable of meeting the community's targeted goals. We use compatibility and desirability indices to generate the social planner's utility and formulate empirical functions for CI and DI to represent our theoretical model. The sectors and businesses used to calculate DI and CI are derived from 4-digit North American Industry Classification System (NAICS) codes. We impose specific assumptions on the parameters of both indices.

Compatibility Index

We use a compatibility index (CI) to estimate how well a community's assets match sector needs, which will allow those sectors to function efficiently in that community. Equation (1) presents the general functional form. However, assuming space as most required resource, we have provided more weight to space availability relative to other assets to measure the CI. Based on the theoretical model (equation 1) and Harris et al. (2012), we derive the empirical formula for CI as

$$\mathbf{CI_{rj}} = \boldsymbol{\alpha_{rj}} \sum_{\mathbf{a=1}}^{\mathbf{m}} (\mathbf{2y_{ar}})^{\boldsymbol{\delta_{aj}}},$$

where $\boldsymbol{\alpha_{rj}}$ is a space coefficient that indicates whether community *r* meets sector *j*'s space requirements, $\mathbf{y_{ar}} \in (0,1)$ is the level of asset *a* in community *r*, and parameter $\boldsymbol{\delta_{aj}} \in (0.25,1)$ is the relative weight that sector *j* places on asset *a*.

The value of $\boldsymbol{\alpha_{rj}}$ is calculated as the proportion of space available for sector *j* in region *r* relative to sector *j*'s space requirements. If a region *r* can provide sufficient or more than sufficient space to run sector *j*, the value of $\boldsymbol{\alpha_{rj}}$ is 1, and 0 otherwise less than 1. If a region *r* does not have any space for a sector *j*, the value of $\boldsymbol{\alpha_{rj}}$ is 0 (in which case $\mathbf{CI_{rj}} = 0$, as well). Values for $\mathbf{y_{ar}}$, a measure of relative asset availability in region *r* compared to the highest asset level present among all the regions range from 0 to 1. In a region with the highest percentage of skilled workforce across all regions, $\mathbf{y_a} = 1$; in a region with the lowest number of skilled workforce, $\mathbf{y_a} = 0$.

We set the minimum value of $\boldsymbol{\delta_{aj}}$, the relative weight that sector *j* places on asset *a*, to 0.25. If $\boldsymbol{\delta_{aj}} = 0$, then the value of the Compatibility Index as $\{\mathbf{y_a}\}^{\boldsymbol{\delta_{aj}}}$ will become 1 irrespective of any value of $\mathbf{y_a}$. If community asset *a* is not required to run sector *j*, then $\boldsymbol{\delta_{aj}} = 0.25$; for a necessary asset, $\boldsymbol{\delta_{aj}} = 1$. For instance, a textile industry making a relocation decision most likely places more weight on cheap labor than on a skilled workforce. In such a case, $\boldsymbol{\delta_{aj}}$ will be higher for the cheap labor asset than for the skilled workforce asset.

The calculated value of $\mathbf{CI_{rj}}$ is normalized between 0 and 1. If a region is the best place to run an industry based on resources available, then $\mathbf{CI_{rj}} = 1$; in a region that does not provide any resources to run an industry, $\mathbf{CI_{rj}} = 0$.

Desirability Index

Acknowledging that sectors' contributions to community preferences and goals are fundamental to selecting community development strategies, we include a desirability index in our model to estimate how well business impacts fit community preferences. Based on the theoretical model (equation 2) and Harris et al. (2012), the empirical function of the desirability index is given by

$$\mathbf{DI_{rj}} = \prod_{\mathbf{i=1}}^{\mathbf{n}} \mathbf{x_{ij}^{\beta_i}} = \prod_{\mathbf{i=1}}^{\mathbf{n}} \left(\prod_{\mathbf{k=1}}^{\mathbf{n_k}} \mathbf{x_{ijk}^{\beta_{ik}}} \right)^{\mathbf{\beta_i}},$$

where $\mathbf{DI_{rj}}$ is a desirability index that measures how well sector *j* fulfills community *r*'s goals ($i = 1, \ldots, n$) and $\boldsymbol{\beta}_\mathbf{i}$ is the weight the community places on goal *i*. We divide each of a community's three goals (i.e., social, environmental, and economic) into five indicators (subgoals), denoted by $k = 1, \ldots, n_k$ (Appendix A); $\boldsymbol{\beta}_\mathbf{ik}$ is the weight that a community places on indicator *k* of goal *i*.

Finally, $\mathbf{x_{ijk}} = \boldsymbol{\gamma}_\mathbf{ik} \widetilde{\mathbf{MC}}_\mathbf{ijk}$, is weighted marginal contribution of each indicator to community goals, where $\boldsymbol{\gamma}_\mathbf{ik}$ measures a community's target for each indicator of a goal, which allows us to identify differences in the weight a community places on certain goals and what they want to achieve in terms of indicators (e.g., percentage change in wage rate, percentage change in additional jobs created per firm). Thus, $\boldsymbol{\gamma}_\mathbf{ik}$ measures how close a community is to achieving the maximum level of an indicator of a goal. The value of $\boldsymbol{\gamma}_\mathbf{ik}$ ranges from 0 to 1. Similarly, $\widetilde{\mathbf{MC}}_\mathbf{ijk}$, which ranges from 0 to 1, measures sector *j*'s relative contribution to the community's objectives, specifically, the proportion of sector *j*'s marginal contribution to indicator *k* of community goal *i*. If a sector *j* contribution to indicator *k* of goal *i* is equal to highest level of contribution among all sectors to indicator *k* of goal *i*, then

$\widetilde{\mathbf{MC}}_{\mathbf{ijk}} = 1$. $\widetilde{\mathbf{MC}}_{\mathbf{ijk}}$ helps us determine whether a sector help a community attain its goals and objectives (e.g., increases in wage rate, local hires per firm, additional jobs created per firm, decrease in pollution level). These objectives are also the indicators of each goal. For example, if a community recruits a manufacturing firm, the firm's $\widetilde{\mathbf{MC}}_{\mathbf{ijk}}$ tells us about how well this firm will be able to help the community to meet its objectives (e.g., does this firm hire locally, does this firm help to increase wage rate, does this firm produce low GHGs and chemicals?). Therefore, $\mathbf{x}_{\mathbf{ijk}}$ specifies the relative endowments of indicator levels of community goals and the relative contribution of each sector to achieving a community's indicator targets (Appendix B). The values of the included parameters constrain the value of DI to between 0 and 1. A $\mathbf{DI}_{\mathbf{rj}}$ score of 1 implies that sector *j* meets *all* the targeted level of indicators of *every* community goal, while a $\mathbf{DI}_{\mathbf{rj}}$ score of 0 indicates that sector *j* is unable to meet *any* targeted indicator level of *any* goal in region *r*.

Utility Function

Based on the empirical functions of CI and DI, the utility of a social planner for a community is maximized:

$$\mathbf{MaxU}_{\underset{y_a}{\mathbf{r}}} = \sum_{\mathbf{j=1}}^{\mathbf{n}} \left(\boldsymbol{\alpha}_{\mathbf{rj}} \sum_{\mathbf{a=1}}^{\mathbf{m}} (\mathbf{2y_a})^{\boldsymbol{\delta}_{\mathbf{aj}}}\right)^{\mathbf{DI_{rj}}}, \qquad (6)$$

Then, taking the first derivative of utility (equation 6) in terms of community assets level,

$$\frac{\partial \mathbf{U_{rj}}}{\partial \mathbf{y_a}} = \sum_{\mathbf{j=1}}^{\mathbf{n}} \mathbf{DI_{rj}}\, \mathbf{CI}_{\mathbf{rj}}^{(\mathbf{DI_{rj}-1})} \frac{\partial \mathbf{CI_{rj}}(\mathbf{y_1}, \mathbf{y_2}, \cdots, \mathbf{y_m})}{\partial \mathbf{y_a}}, \qquad (7)$$

where $\mathbf{DI}_{\mathbf{rj}}$ is exogenous. Solving for $\frac{\partial \mathbf{CI_{rj}}(.)}{\partial \mathbf{y_a}}$,

$$\frac{\partial \mathbf{CI_{rj}}}{\partial \mathbf{y_a}} = \frac{\partial\left(\boldsymbol{\alpha}_{\mathbf{rj}} \sum_{\mathbf{a=1}}^{\mathbf{m}} (\mathbf{2y_a})^{\boldsymbol{\delta}_{\mathbf{aj}}}\right)}{\partial \mathbf{y_a}} = \boldsymbol{\alpha}_{\mathbf{rj}} \sum_{\mathbf{a=1}}^{\mathbf{m}} \boldsymbol{\delta}_{\mathbf{aj}} \mathbf{2}^{\boldsymbol{\delta}_{\mathbf{aj}}} \mathbf{y}_{\mathbf{a}}^{(\boldsymbol{\delta}_{\mathbf{aj}}-\mathbf{1})},$$

Incorporating the value of $\frac{\partial \mathbf{CI_{rj}}(.)}{\partial \mathbf{y_a}}$ in equation (7), we get

$$\frac{\partial \mathbf{U_r}}{\partial \mathbf{y_a}} = \sum_{\mathbf{j=1}}^{\mathbf{n}} \boldsymbol{\alpha}_{\mathbf{rj}} \mathbf{DI_{rj}} \mathbf{CI}_{\mathbf{rj}}^{(\mathbf{DI_{rj}-1})} \sum_{\mathbf{a=1}}^{\mathbf{m}} \boldsymbol{\delta}_{\mathbf{aj}} \mathbf{2}^{\boldsymbol{\delta}_{\mathbf{aj}}} \mathbf{y}_{\mathbf{a}}^{(\boldsymbol{\delta}_{\mathbf{aj}}-\mathbf{1})}$$

Thus, ranking the estimated marginal impact of assets on the social planner's utility provides benchmarks for decision making about specific regional development strategies. Taking the second derivative of utility helps us ensure (through the nature of diminishing marginal returns on assets) that utility is maximized:

$$\frac{\partial^2 \mathbf{U_r}}{\partial \mathbf{y_a}} = \sum_{\mathbf{j=1}}^{\mathbf{n}} \mathbf{2}^{\boldsymbol{\delta}_{\mathbf{aj}}} \boldsymbol{\delta}_{\mathbf{aj}} \boldsymbol{\alpha}_{\mathbf{rj}} \mathbf{DI_{rj}} \, \mathbf{CI}_{\mathbf{rj}}^{(\mathbf{DI_{rj}}-\mathbf{1})} \mathbf{y}_{\mathbf{a}}^{(\boldsymbol{\delta}_{\mathbf{aj}}-\mathbf{1})} \left[\frac{\left(\boldsymbol{\delta}_{\mathbf{a_j}}-\mathbf{1}\right)}{\mathbf{y_a}} + \frac{(\mathbf{DI_{rj}}-\mathbf{1})\boldsymbol{\alpha}_{\mathbf{rj}} \mathbf{2}^{\boldsymbol{\delta}_{\mathbf{aj}}} \boldsymbol{\delta}_{\mathbf{aj}} \mathbf{y}_{\mathbf{a}}^{\left(\boldsymbol{\delta}_{\mathbf{aj}}-\mathbf{1}\right)}}{\mathbf{CI_{rj}}} \right] \leq 0.$$

5. Data

We use secondary data collected from a survey conducted by the Area Sector Analysis Process (ASAP) Project to collect data on CI and DI parameters. Our study region includes 19 regions from Utah, Nevada, Arizona, and New Mexico.[3] We use equation (3) to calculate each's region utility.

Parameters used to calculate the compatibility index are based on information collected in the ASAP's Community Assets Inventory (Appendix E) and Business Location Choice Survey (Appendix G). Parameter $\mathbf{y_a}$ is the level of asset *a* in a community. Table 3.1 lists the 41 assets used in our model to calculate CI. Information on 32 assets was to be obtained from the Community Asset Inventory; data on the remaining 9 assets were to come from the Community Goal Survey (A33–A41 in table 3.1). These surveys help industries to make their location decisions based on CI. However, due to challenges in extracting information on all assets, we only use 27 assets to calculate CI. Of these 27 assets, we use binary codes for 9 to represent their presence or absence in a region, allowing us to estimate the marginal impact of 18 assets on the utility of 19 regions.

Space coefficient $\boldsymbol{\alpha_j}$ is the proportion of available space in a community to the space required by industry *j*. If a community has enough space to run an industry, then value of $\boldsymbol{\alpha_j}$ is 1. Information on space available in a community is obtained from the Community Assets Inventory, and space required for a sector is obtained from the Business Location Survey.

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[3] Utah: Beaver, Carbon, Emery, Escalante, Carbon-Emery Region, Millard, Grand, Juab, Lewiston, Piute, San Juan, Sanpete, Sevier, Wayne
Nevada: Lander, White Pine
Arizona: Willcox, Kingman
New Mexico: Cibola

Parameter $\boldsymbol{\delta_{aj}}$ is the relative importance of asset *a* to sector *j*, collected from the Business Location Choice Survey. Businesses weighted each asset based on the degree of need for each asset. The value is determined based on following categories: not at all important ($\boldsymbol{\delta_{aj}} = 0.25$), somewhat important ($\boldsymbol{\delta_{aj}} = 0.50$), important ($\boldsymbol{\delta_{aj}} = 0.75$), very important ($\boldsymbol{\delta_{aj}} = \mathbf{1.00}$), and do not know/no response ($\boldsymbol{\delta_{aj}} = -999$).

The first set of information on community goals is obtained from the Community Goal Survey (Appendix F), which elicits community members' preferences with respect to five specific indicators for each of three broad goals (i.e., economic, social, and environmental). Goals *i* and indicators *k* of each goal are weighted using the Analytic Hierarchy Process (AHP) algorithm designed by Saaty (1986). AHP is a structural technique used for organizing and analyzing complex decisions by making pairwise comparisons. This tool helps decision makers find the choice that best suits their goal and the understanding of the problem (Madurika & Hemakumara, 2017).

The first step in AHP is to model the problem as a hierarchy, which helps increase the surveyor's understanding of the problems and choices. This hierarchy can be visualized as a diagram with, for example, community objectives at the top, followed by three community goal types (economic, social, and environmental), followed by a third row with five indicators for each goal. Each choice in a hierarchy is called a node. Once the hierarchy has been constructed, participants analyze it using pairwise comparisons that derive numerical scales of measurement for the nodes. Bazerman et al. (1999) affirm that individuals are generally less skilled at ranking lists of ideas but more skilled at choosing their priorities when given two choices presented as a pairwise comparison. These comparisons are processed mathematically, and priorities are derived for each node.

Each indicator within a goal is compared with the other four indicators using pairwise comparison. Preferences across each pair are measured on a scale from 1 to 9. After evaluating the indicators, individuals make pairwise comparisons across the broader goals. If each goal/indicator of the pairwise choice is valued equally, the scale ranking becomes 1. However, if one is preferred, the extent to which it is preferred is indicated by an integer between 2 and 9.

A benefit of AHP tool developed by Saaty and Vargas (1979) is that it incorporates a check on the logical consistency of responses. Inconsistencies can occur in the AHP process in two ways. First, intransitivities across items can occur. For example, among 3 goals, a participant chooses social goals over environmental goals, and chooses environmental goals over economic goals. If the same participant chooses economic goals over social goals, intransitivity is observed. Second, inconsistencies can occur with regard to intensity weights.

Parameter $\boldsymbol{\gamma_{ik}}$ estimates the percentage change in a community's goal indicator levels compared to what the community expects to achieve. Due to complexity in obtaining data on baseline levels of indicator targets, the value of $\boldsymbol{\gamma_{ik}}$ is given as 1. $\widetilde{\mathbf{MC}}_{\mathbf{ijk}}$ compares the relative contribution of industry *j* to indicator *k* of goal *i*, measured as $\widetilde{\mathbf{MC}}_{\mathbf{ijk}} = \mathbf{MC}_{\mathbf{ijk}}/\mathbf{R}_{\mathbf{ik}}$, where $\mathbf{MC}_{\mathbf{ijk}}$ denotes the marginal impact of sector *j* on indicator *k* of goal *i*, while $\mathbf{R}$ is the maximum impact that any sector contributes on indicator *k* of goal *i*. Data on both these parameters are obtained through the Business Location Survey.

6. Results

We calculate the marginal impact of 18 assets and ranked them from highest to lowest value for each study region (see table 6.1). Managerial workforce is estimated to have the highest marginal impact, suggesting that investment in development strategies to increase the availability of managerial workforce would have largest payoff on utility for Millard county. Similarly, the marginal impact of favorable business climate is indicated to have the second largest in ranking, followed by marginal impact of quality of health care services. Outdoor recreational opportunities have the least marginal impact, followed by unskilled workforce and high-quality ecosystem. Investing in these assets would have the least payoff to Millard County's utility.

Column 3 of table 6.1 indicates that in Utah's Carbon and Emery region (CER), managerial workforce has the highest marginal impact, followed by unskilled workforce and favorable local business tax rates, ranked second and third, respectively. This result suggests that investments in strategies to increase the availability of managerial and unskilled workforce and decrease local business tax rates would boost CER's utility. Since the major sources of income in CER are mining, quarrying, and gas and oil extraction, the demand for unskilled workforce might be higher than that for skilled workforce (with high school education level) for desirable industries in CER.

In Nevada's Lander and White Pine Counties, the marginal impact of access to supplies is the largest.[4] To improve the accessibility of supplies, strategies like improving transportation could increase the attractiveness of these counties to desirable businesses. Unlike most of the other study regions, the marginal impact of favorable local business tax

[4] Access to supplies is measured as the ratio of distance of a region from nearest metropolitan region to the distance of the most isolated region from the nearest metropolitan region of a country.

rates is ranked relatively low Lander and White Pine Counties. The top five business climate factors based on higher marginal impact are access to supplies, access to customers, managerial workforce, retail shopping opportunities, and quality of health services, however, ranking is different for these two regions.

Utah's San Juan and Grand Counties also rank the marginal impact of access to supplies highest, suggesting that policy makers might work on this asset to better align with the needs of desirable sectors. Study regions that rank the marginal impact of access to supplies higher also rank the marginal impact of access to customers higher (and vice versa). This may be because the unit of measure for both the assets is the same, but the difference in estimated marginal impacts may be because of differences in weight on these assets given by industries.

In Willcox and Kingman, Arizona, the marginal impact of crime rate is ranked first and third, respectively, suggesting that policy makers should invest in decreasing the crime rate to increase an attractiveness of these cities to industries. Except for some regions like Grand, Sanjuan, Lander, White Pine, and CER, the most commonly high ranked strategies in most study regions can be investment to raise the availability of managerial workforce, improve the quality of health services, and decrease local business tax rates (Appendix C). Similarly, the marginal impact of assets like quality air and water, quality of natural ecosystem, social and cultural opportunities, recreational opportunities, and affordable housing are estimated to be low compared to other assets in all the study regions, implying that either these regions already have abundant supplies of these resources or that desirable industries do not consider these resources to be important factors for their location decisions.

Table 6.1 Ranking of marginal impact of 18 assets on the utility for study regions

Regions / Assets	Millard UT	Beaver UT	Lewiston UT	CER UT	Lander NV	White Pine NV	Willcox AZ	Kingman AZ	Cibola NM
Access to supplies	12	11	17	15	1	1	13	12	14
Access to customers	11	10	14	13	4	2	14	13	13
Managerial workforce	1	2	8	1	3	3	2	2	1
Skilled workforce	9	12	11	6	14	13	12	11	10
Unskilled workforce	17	15	12	2	17	18	3	17	18
Favorable local labor costs	5	6	4	8	6	11	10	9	8
Workers compensation tax rate	4	4	3	7	8	8	7	4	3
Fav. local business tax rates	2	1	1	3	12	10	4	1	2
Low crime rate	8	7	6	5	9	7	1	3	4
Affordable housing	13	14	10	14	16	15	16	14	15
Clean air and water	14	13	13	12	13	14	11	15	11
High quality natural ecosystem	16	17	15	16	15	16	17	16	12
Outdoor recreational opport.	18	18	18	18	18	17	18	18	17
Social and cultural opport.	15	16	16	17	10	12	15	7	16
Retail shopping opportunities	10	8	7	10	2	5	6	10	9
Quality of educational system	6	9	9	11	11	9	9	5	7
Quality health care	3	3	2	4	5	4	5	6	5
Public safety services	7	5	5	9	7	6	8	8	6

Table including ranking for other study regions in Appendix A.3

In spite of similar ranking for marginal impact of some assets like air and water quality, natural ecosystem, cultural and social opportunities, recreational opportunities, and affordable housing for all study regions, rankings for all study regions are different. Implementing identical development strategies will not produce similar effects and payoffs in all regions. Investment in factors with higher marginal impacts for a region will improve business environments and entice desirable businesses to that region.

Correlation

We observe considerable variation in correlation coefficients related to the marginal impact of assets among the study regions. There appears to be some link between asset levels in different study areas of Utah, as correlation coefficients for most of the Utah study regions are high. The correlation coefficient of marginal impact of assets for Carbon and Emery is high (i.e., 0.9), while the correlation coefficient of Carbon and Emery with other regions is lower. Other study regions of Utah (except CER) have high correlation coefficient with one another. In row 13 and column 13 of table 6.2, a correlation coefficient ≥ 0.8 for Millard County is observed with all regions of Utah other than CER. Similarly, the correlation coefficient for Millard with study regions from other states than Utah is found to be ≤ 0.6. In the case of White Pine, Nevada, the correlation coefficient of the marginal impact of assets is highest with Lander, Nevada. In contrast, White Pine has negative correlation coefficient with CER and lower correlation coefficient with study regions other than Lander. One possible reason to the higher correlation coefficient between Carbon and Emery, among study areas of Utah other than CER, and Lander and White Pine may be their somewhat similar asset levels and community preferences. There is potential for targeting similar development strategies in regions with higher correlation coefficients. In CER, the major

industries are mining, quarrying, and oil and gas extraction; both Carbon and Emery have similar types and levels of resources available (Data USA: Carbon County, UT, 2017; Data USA: Emery County, UT, 2017). High correlation coefficients may create the possibility of cluster targeting development strategies in CER. Similarly, higher correlation coefficients among other Utah study areas suggest that social developers and policy makers implement cluster targeting strategies to improve investment efficiency.

In contrast, the correlation coefficients of marginal impact of factors for CER with both White Pine and Lander Counties are either negative or ≤ 0.3. One possible explanation is the different types of resources available in different study areas and the different asset preference levels and community goals.

Table 6.2 Correlation between marginal impact of different assets among study regions: Beaver (Bvr), Carbon (Crb), Carbon-Emery Region (CER), Cibola(Cbl), Emery(Emr), Escalante(Esl), Grand(Grd), Juab(Jb), Kingman (Kgm), Lander(Lnd), Lewiston (Lst) Millard(Mld), Piute(Pt), San Juan(SnJ), Sanpete(Snp), Sevier(Svr), Wayne(Wyn), White Pine(WP), Willcox(Wcx)

	Bvr	**Crb**	**CER**	**Cbl**	**Emr**	**Esl**	**Grd**	**Jb**	**Kgm**	**Lnd**	**Lst**	**Mld**	**Pt**	**SnJ**	**Snp**	**Svr**	**Wyn**	**WP**	**Wcx**
Bvr	1.0																		
Crb	0.7	1.0																	
CER	0.6	1.0	1.0																
Cbl	0.8	0.6	0.4	1.0															
Emr	0.5	0.9	1.0	0.2	1.0														
Esl	0.8	0.4	0.3	0.7	0.2	1.0													
Grd	0.8	0.3	0.2	0.6	0.2	0.9	1.0												
Jb	0.9	0.7	0.6	0.9	0.5	0.7	0.6	1.0											
Kgm	0.8	0.5	0.4	0.9	0.3	0.7	0.6	0.9	1.0										
Lnd	0.6	0.3	0.2	0.5	0.3	0.9	0.8	0.5	0.5	1.0									
Lst	0.9	0.6	0.6	0.7	0.5	0.6	0.6	0.8	0.7	0.2	1.0								
Mld	0.9	0.6	0.5	0.9	0.4	0.9	0.8	0.9	0.9	0.6	0.8	1.0							
Pt	0.8	0.4	0.3	0.8	0.2	0.9	0.7	0.8	0.8	0.7	0.6	0.8	1.0						
SnJ	0.8	0.3	0.2	0.7	0.1	1.0	0.9	0.7	0.7	0.9	0.5	0.8	0.9	1.0					
Snp	0.9	0.6	0.5	0.9	0.3	0.8	0.8	1.0	0.9	0.6	0.8	1.0	0.9	0.8	1.0				
Svr	0.9	0.7	0.6	0.9	0.5	0.8	0.8	0.9	0.9	0.6	0.8	1.0	0.7	0.8	0.9	1.0			
Wyn	0.9	0.5	0.4	0.7	0.3	0.9	0.9	0.8	0.8	0.7	0.7	0.9	0.9	0.9	0.9	0.8	1.0		
WP	0.5	0.0	-0.1	0.4	0.0	0.8	0.8	0.3	0.4	0.9	0.0	0.5	0.6	0.8	0.4	0.5	0.6	1.0	
Wcx	0.7	0.8	0.7	0.5	0.6	0.4	0.4	0.7	0.6	0.3	0.6	0.6	0.5	0.4	0.6	0.7	0.5	0.1	1.0

7. Discussion

Our findings of low local business tax rates, access to supplies, and access to customers as prominent factors in creating favorable business environment for some study regions are supported by Kinkel et al. (2007) and Maccarthy and Atthirawong (2003), who claim that a region's attractiveness can be improved by reducing of labor cost and improving access to markets, vicinity to customers, tax incentives, and access to knowledge and technology. McQuaid et al. (2004) also conclude that access to supplies, access to customers, low tax rates, access to quality schools, and low crime rates are important determinants of business location decisions.

Our finding that the managerial workforce, the most prominent determinant of favorable business climate in most study regions is supported by Cohen (2000). Cohen argues businesses prioritize regions as industrial sites when public officials focus on education and training systems capable of producing enough skilled employees. If a region does not have universities and colleges, research and development sectors might not be able to recruit enough workforce (with university degrees) from the immediate region, resulting into an undesirable place for a business. In contrast, CER has high marginal impact of unskilled workforce compared to other assets, which is supported by the fact that mining, quarrying, and oil and gas extraction are a major source of income for these regions, which demand high numbers of unskilled workers (Data USA: Carbon County, UT, 2017; Data USA: Emery County, UT, 2017).

Further, the lower rank of marginal impact of clean air and water, natural ecosystem, social and cultural opportunities, and recreational opportunities is supported by the fact that Utah already has an incredible wealth of these assets: 5 national parks, 43 state parks, 14 ski

resorts, and countless hiking trails. Utah is considered to be a great place to live and raise children, and some people like the state's traditional values (Starner, 2018).

8. Conclusion

This study contributes to still-undeveloped literature investigating the marginal impact of business climate factors. Our focus on the firm location decision is motivated by the continued prevalence of community policies that aim to create attractive business climates for desirable companies (i.e., those that help the community achieve targeted levels of different community goals). Thus, we develop the theoretical model in the form of a social planner's utility to capture the trade-off between business needs and community needs.

We use compatibility and desirability to determine the extent to which a community can provide a sector's production requirements and the extent to which a sector can meet a community's goals, respectively. Compatibility is the function of set of production function of a sector and assets available in a community, quantified as a compatibility index. Similarly, desirability is the function of preferences on community goals and the extent to which a business can meet the targeted level of preferred goals, quantified as a desirability index. We therefore develop utility based on these two parameters. The model is proposed as a normative one-period model with the aim of providing guidance to policy makers and economic planners in future regional development. This model can fit regions as large as small countries or as small as cities, provided sufficient data are available.

We calculate the compatibility and desirability indices using data provided by the ASAP and collected from the Community Assets Inventory, the Community Goals Survey, and the Business Location Choice Survey. We calculated the partial derivative of utility with respect to assets to estimate the marginal impact of different business climate factors. Due to diminishing marginal returns of assets to utility and their capacity to capture the trade-offs between compatible and desirable industries, the utility best fits the social planners'

development objective for the region. We analyze the data for this study using the GAMS tool.

The result illustrates that managerial workforce, quality of health services, favorable local business tax rates, skilled workforce, access to supplies, access to customers, quality education, and low crime rate have relatively larger marginal impacts on utility for most of the study regions. Policy makers should focus on development strategies that prioritize improvements to assets with higher marginal impact to achieve a desirable business climate. Resources like cultural and social opportunities, high quality natural ecosystem, and outdoor recreational opportunities have relatively lower marginal impact on the utility for almost all study regions, implying that investment in these resources would not be as efficient as investment in assets with higher marginal impacts.

While assets' marginal impacts are similarly ranked in some study areas, we observe differences in preferences and priorities in different regions. For CER, the marginal impact of unskilled workforce is higher than the marginal impact of skilled workforce. Similarly, access to supplies and access to customers seem to be priorities in San Juan, Grand, Lander, and White Pine, while other regions give more importance to managerial workforce and local business tax rates. This suggests the policy makers must be prudent in selecting development strategies, which should to be based on regions rather than on generalizations. Implementing similar strategies will not work in every region.

Policy interventions focused on assets with larger marginal impact are more likely to create an attractive business environment for desirable industries. Policy makers can manipulate fiscal power and affect the level of spending targeted toward certain resources that determine business environment. They can stimulate an attractive business climate

through increased spending on universities and colleges to create an abundant skilled workforce, health services, local business tax rate cuts, and transportation facilities. This research provides a benchmark for policy makers to develop strategies for regional economic development.

Although the research reveals the relative benefits of investing in certain assets, a limitation of the study is that we did not consider the relative costs of different investment. It may not always be feasible to invest in strategies to improve the status of an asset, even if it would create higher benefits than other assets. Investing in certain resources, in spite of their higher marginal impact, can be more expensive than investing in assets with lower marginal impacts. The difference in marginal impact of different factors for a region is very low (Appendix A.4.). The benefit gained from investing in different assets might not be as expected because of variation in the costs of implementing different strategies. This provides avenue for future research.

Improving the status of some factors− like managerial workforce, skilled workforce, quality health services, access to supplies, and access to customers− seems to a priority in most of the study regions. Also, marginal impacts of assets for some regions are highly correlated, providing opportunities to future research on cluster targeting development strategies. Perhaps further study on the implementation costs of different development strategies is required to select appropriate development strategies and incentives for creating a business climate that is attractive to desirable industries.

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Appendix A: List of Community goals and indicators included in calculation of Desirability index.

G1: Economic Quality
G1.I1 Every new job generates additional jobs in the community
G1.I2 New businesses return profits to the community
G1.I3 New businesses hire locally
G1.I4 New businesses buy locally
G1.I5 New businesses increase the average local wage
G2: Environmental Quality
G2.I1 New businesses do not pollute the water
G2.I2 New businesses do not release toxic chemicals in the air
G2.I3 New businesses stay in compliance with hazardous waste management
G2.I4 New businesses do not emit greenhouse gas
G2.I5 New businesses do not develop undeveloped land
G3: Social Quality
G3.I1 New businesses increase the local tax base
G3.I2 New jobs are full-time
G3.I3 New jobs offer benefits (health and/or retirement)
G3.I4 New jobs provide training programs
G3.I5 New businesses support community activities

Appendix B

Table B.1 Information on parameters used in calculation of weighted MC of indicators to community goals (x_{ijk})

Indicator	MC Index and Definition	*R* (upper bound)	γ (% target improvement at the community level)
G1.I1	# additional jobs created per firm = employment multiplier * # employees in each firm[1]	Max Type II multiplier across firms	% increase in the number of jobs at the community level
G1.I2	Profit margin[2]	1	% increase
G1.I3	# local hires per firm = # new hires * % local hire[3]	Total across firms	% increase in the number of local hires
G1.I4	Proportion of local purchases[2]	1	% increase
G1.I5	Wage rate[2]	County max across firms	% increase in the average wage rate
G2.I1	Amount of toxic chemicals released per firm = average amount per employment * # employees in each firm[1]	Max/employee across industries * # employees for the firm	1-% tolerable increase in toxic releases at the community level
G2.I2	Amount of toxic chemicals released per firm= average amount per employment * # employees in each firm[1]	Max per employee across industries * # employees for the firm	1-% tolerable increase in toxic releases at the community level
G2.I3	Average clean-up expenditure per pound of released toxic chemical[2]	Maximum across industries	% increase in the county level figure
G2.I4	% of each industry in total GHG emission[2]	1	1-% tolerable increase in GHG emission
G2.I5	Land area necessary for relocation[3]	Maximum across businesses	1-% tolerable increase in developed land
G3.I1	Amount of additional tax generated per firm = tax per employment * # employees in each firm[1]	Max per employee across industries * # employees for the firm	% increase in tax revenue at the community level
G3.I2	Proportion of jobs that are full time[4]	1	% increase
G3.I3	Proportion of jobs with benefits (health and/or retirement)[4]	1	% increase
G3.I4	Proportion of jobs that offer training programs[4]	1	% increase
G3.I5	Proportion of businesses that support community activities[4]	1	% increase

[1] Industry-level information, adjusted for firm size [2] Industry-level information, independent of firm size
[3] Firm-specific information, varies with firm size [4] Firm-specific information, independent

Appendix C

Table C.1 Ranking of marginal impact of assets on the utility of different study areas

Regions / Assets	Beaver UT	Carbon UT	Emery UT	Escalante UT	Grand UT	Juab UT	Piute UT	San Juan UT	Sanpete UT	Sevier UT	Wayne UT
Access to supplies	11	15	12	5	1	16	9	1	14	9	8
Access to customers	10	13	13	4	2	13	11	3	11	10	9
Managerial workforce	2	1	2	2	9	1	2	5	2	1	7
Skilled workforce	12	5	7	12	14	12	10	12	10	11	12
Unskilled workforce	15	2	1	17	17	17	18	18	17	16	17
Local labor costs	6	8	6	8	11	7	8	10	6	6	10
Worker comp. tax rate	4	7	8	9	7	5	7	8	4	4	6
Local business tax rate	1	4	3	3	3	2	4	4	1	2	1
Low crime rate	7	3	10	11	10	4	5	9	7	3	11
Affordable housing	14	14	16	13	12	11	13	14	12	12	13
Clean air and water	13	12	14	14	13	10	13	13	13	13	14
Quality natural ecosystem	17	16	17	16	15	14	16	16	16	17	16
Outdoor recreational opport.	18	18	18	18	18	18	17	17	18	18	18
Social & cultural opport.	16	17	15	15	16	15	15	15	15	15	15
Retail shopping opport.	8	10	5	1	8	9	1	2	9	14	2
Quality of educational system	9	11	11	6	6	8	12	11	8	8	4
Quality health care services	3	6	4	7	4	3	3	6	3	5	3
Public safety service	5	9	9	10	5	6	6	7	5	7	5

Appendix D

Table D.1 Marginal impact of different assets on the utility of study areas

Regions / Assets	Beaver UT	Carbon UT	CER UT	Cibola NM	Emery UT	Kingman AZ	Lander NV	Lewiston UT	Millard UT	Wayne UT	White P NV	Willcox AZ
A9	0.589	0.610	0.627	0.324	0.764	0.563	1.623	0.371	0.104	1.630	16.243	0.572
A10	0.590	0.625	0.643	0.325	0.763	0.558	1.599	0.385	0.105	1.611	15.872	0.569
A20	0.650	0.872	0.916	0.443	1.063	0.665	1.612	0.416	0.121	1.632	13.110	0.691
A21	0.567	0.715	0.729	0.343	0.823	0.572	1.260	0.404	0.108	1.547	10.635	0.579
A22	0.550	0.781	0.870	0.240	1.091	0.476	1.155	0.403	0.088	1.352	7.662	0.672
A23	0.618	0.699	0.721	0.360	0.825	0.600	1.467	0.447	0.114	1.576	10.816	0.623
A24	0.632	0.702	0.722	0.390	0.822	0.649	1.365	0.447	0.115	1.633	11.534	0.643
A25	0.665	0.737	0.758	0.402	0.864	0.690	1.308	0.468	0.120	1.780	11.020	0.658
A31	0.617	0.756	0.731	0.377	0.793	0.663	1.353	0.427	0.111	1.568	11.664	0.821
A32	0.561	0.617	0.634	0.320	0.717	0.551	1.216	0.406	0.102	1.495	10.488	0.551
A33	0.566	0.632	0.650	0.342	0.739	0.544	1.306	0.393	0.101	1.447	10.634	0.586
A34	0.521	0.603	0.618	0.331	0.686	0.533	1.228	0.381	0.097	1.389	10.091	0.542
A35	0.471	0.520	0.533	0.283	0.595	0.472	1.072	0.344	0.081	1.190	8.927	0.493
A36	0.538	0.589	0.610	0.310	0.721	0.613	1.349	0.375	0.097	1.435	10.690	0.561
A37	0.615	0.675	0.700	0.343	0.832	0.600	1.613	0.416	0.106	1.716	12.503	0.654
A38	0.596	0.674	0.693	0.360	0.782	0.623	1.329	0.413	0.112	1.657	11.521	0.632
A40	0.642	0.714	0.735	0.374	0.837	0.619	1.489	0.461	0.116	1.677	12.944	0.656
A41	0.627	0.688	0.709	0.366	0.814	0.608	1.432	0.437	0.112	1.652	12.161	0.637

Description of Assets A9-A41 in table 3.1

Appendix E: Survey of Community Assets

Community Name: _____

Date: _____

Table E.1 Availability of land and building space for new businesses

	Please indicate the available area of the following in your community	Now	In 1-2 years	Unit
1	Undeveloped land (excluding agricultural land)			acres
2	Undeveloped land (agricultural land)			acres
3	Undeveloped land with infrastructure			acres
4	Undeveloped land with partial infrastructure			acres
5	Undeveloped land near infrastructure			acres

	Please indicate the available area of the following in your community	Now		In 1-2 years		Unit
		Total area	Occupancy rate	Total area	Expected occupancy rate	
6	Manufacturing space		%		%	sqft
7	Warehouse space		%		%	sqft
8	Office space		%		%	sqft
9	Retail space		%		%	sqft

Table E.2 Availability of infrastructure and services

	Is the following available in your community?	Please check one	
		Yes	No
1	Access within 30 minutes to an interstate highway		
2	Access within 30 minutes to package freight services		
3	Immediate access to a railhead or rail spur		
4	Access within 30 minutes to rail freight		
5	Access within 30 minutes to passenger air services		
6	Access within 30 minutes to port or harbor facilities		
7	Access within 30 minutes to an international trade port		
8	Access to natural gas pipeline		
9	3-phase electric power		
10	Fiber optic lines		
11	High-volume water supply		
12	High-volume wastewater disposal		
13	Solid waste disposal		
14	Cell phone service		
15	High-speed internet		
16	Local public transportation		
17	State and local government incentives		
18	Specialized job training programs (excluding college and university)		
19	Access within 30 minutes to a college or university		
20	Short- and long-term financing		
21	Business/trade association		

Table E.3 Business and Social Indicators

Please indicate for your community			**Unit**	**Sources/Notes**
1	Total workforce		#	
2	% of workforce with less than HS degree		%	
3	% of workforce with HS degree or equivalent		%	
4	% of workforce with college degree or higher		%	
5	% of union labor (2008 national average = 12.4%)		%	
6	Prevailing yearly wage rate		$/year	
7	Prevailing monthly wage rate		$/hour	
8	Workers compensation tax rate		%	
9	Local business tax rate		%	
10	Crime rate		#/pop	
11	Median home price		$	
12	Distance to a major metropolitan area		miles	

Appendix F: Community Goals Survey

Community Goal Survey: Priorities for Quality of Life

Community Name: _____

Date: _____

OVERVIEW

The purpose of this survey is to gain understanding about the goals and priorities for economic development that are specific to each community. This survey is being conducted as part of the Area Sector Analysis Process (ASAP). ASAP is an outreach and research tool focused on examining factors unique to each community that will contribute to sustainable economic development. ASAP is a collaborative effort of research and outreach professionals at University of Idaho, University of Nevada, Reno, University of Utah, and community representatives.

Your unique perspective and feedback will ensure that a broad range of community outlooks and opinions are represented. Obtaining feedback from a wide variety of community members is key to the success of this survey specifically and ASAP in general. Survey participation is voluntary, and all responses are strictly confidential. University research adheres to strict federal privacy standards that require your answers to be both anonymous and confidential.

This survey will take approximately 20 minutes to complete – your time is greatly appreciated.

This survey contains four sections: Section 1: economic outlook perceptions; Section 2: compare and rate the importance of priorities specific to each goal category; Section 3: compare and rate the importance of the general goal categories; Section 4: demographics.

Section 1: This section asks for your outlook regarding your personal economic goals and the economic goals of your community.

Section2: This section investigates three community goal categories – economic, environmental, and social. One goal category is presented per page and asks you to compare several pairs of priorities related to the specific goal category. For each pair, consider which priority is more important to your community and how much more important it is in comparison to the other priority within the pair.

Section 3: Similar to Section 2, this section asks you to consider which goal category is more important to your community and how much more important it is in comparison to the other goal categories.

Section 4: This section presents a set of general demographic questions.

The next page provides an example of questions presented in Section 2 and Section 3.

EXAMPLE

For each pair, if the priority on the left is more important than the priority on the right, circle a value from 2 to 9 on the left side of the scale, where 2 is moderately more important and 9 is extremely more important. Likewise, if the priority on the right is more important than the priority on left, circle a value from 2 to 9 on the right side of the scale where 2 is moderately more important and 9 is extremely more important.

For priority pairs that you feel are equally important, circle a value of 1. Reporting the importance of one priority in comparison to another may be challenging – when ranking goals as exactly equal give extra consideration to make sure it is not just the 'easier' choice.

It is very important to make a choice for each pair of priorities!

For each pair, what is the relative importance of each ECONOMIC priority to your community?																		
	Extremely		Very strongly		Strongly		Moderately		Equally		Moderately		Strongly		Very strongly		Extremely	
Every new job generates additional jobs in the community	9	8	(7)	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses return profits to the community.
Every new job generates additional jobs in the community.	9	8	7	6	5	4	3	2	1	2	(3)	4	5	6	7	8	9	New businesses hire locally.
Every new job generates additional jobs in the community.	9	8	7	6	5	4	3	2	(1)	2	3	4	5	6	7	8	9	New businesses buy locally.

In the first pair presented in the example above, the number 7 on the left hand side of the scale is circled to indicate that the "Every new job…" priority on the left is ranked as very strongly more important in comparison to the "New businesses…" statement on the right.

In the second pair presented in the example above, the number 3 on the right hand side of the scale is circled to indicate that the "New businesses…" priority on the right is ranked as moderately more important in comparison to the "Every new job…" statement on the left.

In the third pair presented in the example above, the number 1 in the center of the scale is circled to indicate that the "New businesses…" priority on the right is ranked as equally important in comparison to the "Every new job…" statement on the left.

Section 1: ECONOMIC OUTLOOK

Please tell us how you perceive the current and future economic outlook first for your personal economic standing (Q1-Q6), then for the economic standing of your community (Q7 – Q13).

Personal Goals

1. How secure do you feel about your personal financial situation as it is today?

Extremely Secure	Secure	Somewhat Secure	Barely Secure	Not at all Secure
○	○	○	○	○

2. What are your expectations about your personal financial situation 5 years from now?

Much Improved	Slightly Improved	About the same	Slightly Worse	Much Worse
○	○	○	○	○

3. Over the past year, have you made any specific goals to improve your personal economic condition?

No ○ → → If NO, go to **Q6** below

Yes ○ → → If YES, what was/is your goal(s)?

_____

4. If you stated a personal financial goal in Q3, how much better-off do you think you will be if you achieve this goal(s) this year?

Much Better-off	Moderately Better-off	A Little Better-off	Barely Better-off	The Same
○	○	○	○	○

5. If you stated a personal financial goal in Q3, what do you estimate is the probability of achieving your goal(s) this year?

Very Low (0% - 5%)	○
Low (6% - 20%)	○
Moderately Low (21% - 40%)	○
Moderate (41% - 60%)	○
Moderately High (61% - 80%)	○
High (81% - 95%)	○
Very High (96% - 100%)	○
I have already achieved the goal(s)	○

6. How much influence do you feel you have on your personal future economic well-being?

I have little influence; my personal future is mostly dictated by outside forces.	○
My personal future is equally dictated by myself and outside forces.	○
I have a lot of influence on my personal future, outside forces play only a small role.	○

Community Goals

1. How secure do you feel about financial situation of your community as it is today?

Extremely Secure	Secure	Somewhat Secure	Barely Secure	Not at all Secure
○	○	○	○	○

2. What are your expectations about the community's financial situation 5 years from now?

Much Improved	Slightly Improved	About the same	Slightly Worse	Much Worse
○	○	○	○	○

3. Over the past year, have you made any specific goals to improve the community's economic condition?

No ○ → → If NO, go to **Q6** below

Yes ○ → → If YES, what was/is your goal(s)?

_____

4. If you stated a community's financial goal in Q3, how much better-off do you think you will be if you achieve this goal(s) this year?

Much Better-off	Moderately Better-off	A Little Better-off	Barely Better-off	The Same
○	○	○	○	○

5. If you stated a community's financial goal in Q3, what do you estimate is the probability of achieving your goal(s) this year?

Very Low (0% - 5%)	○
Low (6% - 20%)	○
Moderately Low (21% - 40%)	○
Moderate (41% - 60%)	○
Moderately High (61% - 80%)	○
High (81% - 95%)	○
Very High (96% - 100%)	○
I have already achieved the goal(s)	○

6. How much influence do you feel you have on your personal future economic well-being?

I have little influence; the community's future is mostly dictated by outside forces.	○
The community's future is equally dictated by me and outside forces.	○
I have a lot of influence on the community's future, outside forces play only a small role.	○

7. Please rate the quality for each of the following characteristics of your community. [(1 = Lowest) and (10 = Highest)]											
	1	2	3	4	5	6	7	8	9	10	N/A
Air and water quality	○	○	○	○	○	○	○	○	○	○	○
Natural ecosystem	○	○	○	○	○	○	○	○	○	○	○
Outdoor recreation opportunities	○	○	○	○	○	○	○	○	○	○	○
Social and cultural opportunities	○	○	○	○	○	○	○	○	○	○	○
Retail shopping opportunities	○	○	○	○	○	○	○	○	○	○	○
Education System (K-12)	○	○	○	○	○	○	○	○	○	○	○
Local College and Universities	○	○	○	○	○	○	○	○	○	○	○
Health care services	○	○	○	○	○	○	○	○	○	○	○
Public safety services (e.g. police, fire)	○	○	○	○	○	○	○	○	○	○	○

Economic Goals

For each pair, what is the relative importance of each ECONOMIC priority to your community?																		
	Extremely		Very strongly		Strongly		Moderately		Equally		Moderately		Strongly		Very strongly		Extremely	
Every new job generates additional jobs in the community	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses return profits to the community.
Every new job generates additional jobs in the community.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses hire locally.
Every new job generates additional jobs in the community.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses buy locally.
Every new job generates additional jobs in the community.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses increase the average local wage.
New businesses return profits to the community.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses hire locally.
New businesses return profits to the community.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses buy locally.
New businesses return profits to the community.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses increase the average local wage.
New businesses hire locally.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses buy locally.
New businesses hire locally.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses increase the average local wage.
New businesses buy locally.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses increase the average local wage.

Environmental Goals

For each pair, what is the relative importance of each ENVIRONMENTAL priority to your community?																		
	Extremely		Very strongly		Strongly		Moderately		Equally		Moderately		Strongly		Very strongly		Extremely	
New businesses do not pollute the water.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses do not release toxic chemicals in the air.
New businesses do not pollute the water.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses stay in compliance with hazardous waste management.
New businesses do not pollute the water.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses do not emit greenhouse gas.
New businesses do not pollute the water.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses do not develop undeveloped land.
New businesses do not release toxic chemicals in the air.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses stay in compliance with hazardous waste management.
New businesses do not release toxic chemicals in the air.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses do not emit greenhouse gas.
New businesses do not release toxic chemicals in the air.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses do not develop undeveloped land.
New businesses stay in compliance with hazardous waste management.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses do not emit greenhouse gas.
New businesses stay in compliance with hazardous waste management.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses do not develop undeveloped land.
New businesses do not emit greenhouse gas.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses do not develop undeveloped land.

Social Goals

For each pair, what is the relative importance of each SOCIAL priority to your community?																		
	Extremely		Very strongly		Strongly		Moderately		Equally		Moderately		Strongly		Very strongly		Extremely	
New businesses increase the local tax base.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New jobs are full-time.
New businesses increase the local tax base.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New jobs offer benefits (health and/or retirement).
New businesses increase the local tax base.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New jobs provide training programs.
New businesses increase the local tax base.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses support community activities.
New jobs are full-time.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New jobs offer benefits (health and/or retirement).
New jobs are full-time.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New jobs provide training programs.
New jobs are full-time.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses support community activities.
New jobs offer benefits (health and/or retirement).	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New jobs provide training programs.
New jobs offer benefits (health and/or retirement).	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses support community activities.
New jobs provide training programs.	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	New businesses support community activities.

General Goals Categories

Now that you have given some thought and consideration to the importance of priorities to achieve each of the three community goal categories, please consider the importance of the community goals relative to each other.

For each pair, what is the relative importance of each goal CATEGORY to your community?																	
	Extremely		Very strongly		Strongly		Moderately		Equally		Moderately		Strongly		Very strongly		Extremely	
Economic Quality	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Environmental Quality
Economic Quality	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Social Quality
Environmental Quality	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Social Quality

Demographics

Please provide demographic information requested. UNR research adheres to strict federal privacy standards that require all your answers to be confidential. They will be combined with the responses of others to produce a data set representative of your community. No individual personal information will be disclosed in any way under any circumstances. Demographic information is gathered only for use in analysis of group preferences.

1. What is your gender? Male ◯ Female ◯

2. What is your age? _____years

3. What is the highest level of education that you have completed?

◯ Eighth Grade ◯ High School ◯ Other Post-High School
◯ 2-Year College ◯ 4-Year College ◯ Graduate School Education

4. How long have you lived in the community? _____years

5. What is your occupation? _____

6. In which economic sector are you employed? _____

7. Please indicate your estimated total household income from all sources for the 2018 tax year. Please report income before taxes.

◯ Under $15,000 ◯ $35,000-$49,999 ◯ $100,000-$149,999
◯ $15,000-$24,999 ◯ $50,000-$74,999 ◯ $150,000-$199,999
◯ $25,000-$34,999 ◯ $75,000-$99,999 ◯ $200,000 or more

Appendix G: Business Location Choice Survey

Section 1. Relocation/Expansion History

Please tell us about your company's past relocation/expansion history.

1. What is the primary industry or your company?

_____

2. Has your company relocated in the last 5 years?

☐ Yes

☐ No (Skip to Question 6)

3. What were the two most important reasons for your company's decision to relocate?

Most important: _____

2nd most important: _____

4. In the most recent move, you relocated... ***Please choose only one response.***

☐ Within the same city/town
☐ Within the same county but in a different city/town
☐ Within the same state but in a different county
☐ To a different state
☐ Internationally

5. In your most recent move, roughly how many miles did the company move from the previous location? ……. miles

6. Has your company established additional locations in the last 5 years?

☐ Yes

☐ No (Skip to Section 2, Question 10)

7. What were the two most important reasons for your company's decision to establish additional locations?

Most important: _____

2nd most important: _____

8. In your most recent expansion, did you establish an additional location**…** ***Please choose only one response.***

- ☐ Within the same city/town
- ☐ Within the same county but in a different city/town
- ☐ Within the same state but in a different county
- ☐ To a different state
- ☐ Internationally

9. In your most recent expansion, roughly how many miles was the additional location from the previous location?

……. miles

In the next four sections we are not only interested in factors you have considered in previous relocations of your company, if any, but also, what factors your company would consider if the opportunity to relocate were to present itself in the future.

Section 2: Physical Infrastructure

Please tell us about the importance of physical infrastructure in making company relocation/ expansion decisions.

10. In the following table, please indicate how potentially important each factor would be to your company if the opportunity to relocate or establish an additional location presented itself.

	Not at all Important	Somewhat Important	Important	Very important
Access within 30 minutes to an interstate highway	☐	☐	☐	☐
Access within 30 minutes to package freight services	☐	☐	☐	☐
Immediate access to railhead or rail spur	☐	☐	☐	☐
Access within 30 minutes to rail freight	☐	☐	☐	☐
Access within 30 minutes to passenger air services	☐	☐	☐	☐
Access within 30 minutes to port or harbor facilities	☐	☐	☐	☐
Access within 30 minutes to an international trade	☐	☐	☐	☐
Access to natural gas pipeline	☐	☐	☐	☐
Access within one day, at a reasonable cost, to the supplies you need	☐	☐	☐	☐

Access within one day, at a reasonable cost, to your customers	☐	☐	☐	☐
Access to 3-phase electric power	☐	☐	☐	☐
Access to fiber optic lines	☐	☐	☐	☐
Access within 30 minutes to an interstate highway	☐	☐	☐	☐
Access within 30 minutes to package freight services	☐	☐	☐	☐
Immediate access to railhead or rail spur	☐	☐	☐	☐
Access within 30 minutes to rail freight	☐	☐	☐	☐
Access within 30 minutes to passenger air services	☐	☐	☐	☐
Access within 30 minutes to port or harbor facilities	☐	☐	☐	☐
Access within 30 minutes to an international trade	☐	☐	☐	☐

Section 3. Economic Infrastructure

Please tell us about the importance of economic infrastructure in making company relocation/expansion decisions.

11. In the following table, please indicate how potentially important each factor would be to your company if the opportunity to relocate or establish an additional location presented itself.

	Not at all Important	Somewhat Important	Important	Very important
Availability of a managerial workforce	☐	☐	☐	☐
Availability of a skilled workforce	☐	☐	☐	☐
Availability of a technical workforce	☐	☐	☐	☐
Availability of an unskilled workforce	☐	☐	☐	☐
Favorable local labor costs	☐	☐	☐	☐
Favorable workers compensation tax rate	☐	☐	☐	☐
Favorable local business tax rates	☐	☐	☐	☐
Favorable state and local government incentives	☐	☐	☐	☐
Availability of union labor	☐	☐	☐	☐
Availability of specialized job training programs	☐	☐	☐	☐
Availability of short– and long-term financing	☐	☐	☐	☐
Existence of a business/trade association	☐	☐	☐	☐
Lenient environmental regulations	☐	☐	☐	☐

Section 4. Quality of Life

Please tell us about the importance of "quality of life" in making company relocation/expansion decisions.

12. In the following table, please indicate how potentially important each factor would be to your company if the opportunity to relocate or establish an additional location presented itself.

	Not at all Important	Somewhat Important	Important	Very important
Low crime rate	☐	☐	☐	☐
Availability of affordable housing	☐	☐	☐	☐
Clean air and water	☐	☐	☐	☐
High quality natural ecosystem	☐	☐	☐	☐
Outdoor recreational opportunities	☐	☐	☐	☐
Social and cultural opportunities	☐	☐	☐	☐
Retail shopping opportunities	☐	☐	☐	☐
Quality of educational system (K-12)	☐	☐	☐	☐
Access within 30 minutes to college or university	☐	☐	☐	☐
Availability of quality health care	☐	☐	☐	☐
Public safety services (e.g. police, fire station)	☐	☐	☐	☐
Climate	☐	☐	☐	☐

Section 5. Information Sources

Please tell us about the importance of potential information sources for making company relocation/expansion decisions.

13. In the following table, please indicate if your company is using or likely to use each of the following sources by checking one of the options below.

	Not at all Important	Somewhat Important	Important	Very important
Radio	☐	☐	☐	☐
Television	☐	☐	☐	☐
Local Newspapers	☐	☐	☐	☐
National Newspapers	☐	☐	☐	☐
Regional Trade Publications	☐	☐	☐	☐

National Trade Publications	☐	☐	☐	☐
Local Chamber of Commerce	☐	☐	☐	☐
State Chamber of Commerce	☐	☐	☐	☐
Local economic development agencies	☐	☐	☐	☐
State economic development agencies	☐	☐	☐	☐
Real estate agent	☐	☐	☐	☐
Internet	☐	☐	☐	☐
Word of mouth	☐	☐	☐	☐
Experience from previous travel	☐	☐	☐	☐

If Other, please specify:

_____

Section 6. Employee Benefits

14. Do you provide the following benefits to your non-managerial employees

	Not at all Important	Somewhat Important	Important	Very important
Health Insurance	☐	☐	☐	☐
Paid Vacation	☐	☐	☐	☐
Job-related training programs	☐	☐	☐	☐
A retirement plan with employer contributions	☐	☐	☐	☐

Section 7. Company's Community Activities

15. Please indicate whether your company has supported in the past, is currently supporting, or will support in the future the following activities: **(*Please check all that apply*.)**

	Not at all Important	Somewhat Important	Important	Very important
Cultural programs (arts, music, etc.)	☐	☐	☐	☐
Youth athletic activities	☐	☐	☐	☐
Environmental protection	☐	☐	☐	☐
Poverty alleviation	☐	☐	☐	☐
Health and wellness	☐	☐	☐	☐
Local Education	☐	☐	☐	☐

Section 8. Business Relationships

16. Please tell us about the importance of other businesses to your company.

	Not at all Important	Somewhat Important	Important	Very important
Joint research and development activities with other firms in your sector	☐	☐	☐	☐
Joint research and development activities with other firms close by in your state	☐	☐	☐	☐
Coordinated marketing efforts with other firms in your sector	☐	☐	☐	☐
Coordinated marketing efforts with other firms close by in your state	☐	☐	☐	☐

17. Has your company ever coordinated the purchase of supplies or equipment with other firms in your sector?

☐ Yes

☐ No

18. Where are the majority of your **suppliers** located? Please choose only one response.

☐ Within the same city/town

☐ Within the same county but in a different city/town

☐ Within the same state but in a different county

☐ In a different U.S. state

☐ Internationally

☐ Not applicable

19. Where are the majority of your **customers** located? Please choose only one response.

☐ Within the same city/town

☐ Within the same county but in a different city/town

☐ Within the same state but in a different county

☐ In a different U.S. state

☐ Internationally

☐ Not applicable

20. Where are the majority of your **employees** located? Please choose only one response.

☐ Within the same city/town

☐ Within the same county but in a different city/town

☐ Within the same state but in a different county

☐ In a different U.S. state

☐ Internationally

☐ Not applicable

Section 9: Future Relocation/Expansion

Please tell us about your company's future plans for relocation and expansion.

21. How likely is it that your company will **relocate** in the next 5 years?

☐ Not at all likely

☐ Somewhat likely

☐ Likely

☐ Very likely

☐ Don't Know

22. If the opportunity to relocate presented itself in the next 5 years, where would you most likely **relocate**? ***Please choose only one response.***

☐ Within the same city/town

☐ Within the same county but in a different city/town

☐ Within the same state but in a different county

☐ To a different U.S. state (Please list state(s), Please write out the full name of the state(s), Do not use abbreviations)

_____

☐ Internationally (Please list country/countries, Please write out the full name of the country/ countries, Do not use abbreviations)

_____

☐ Don't know

23. How likely is it that your company will establish an **additional location** in the next 5 years?

☐ Not at all likely

☐ Somewhat likely

☐ Likely

☐ Very likely

☐ Don't Know

24. If the opportunity to establish an additional location presented itself in the next 5 years, where would you most likely establish the **additional location**? ***Please choose only one response.***

☐ Within the same city/town

☐ Within the same county but in a different city/town

☐ Within the same state but in a different county

☐ To a different U.S. state (Please list state(s), Please write out the full name of the state(s), Do not use abbreviations)

_____

☐ Internationally (Please list country/countries, Please write out the full name of the country/ countries, Do not use abbreviations)

_____

☐ Don't know

25. If your company were to relocate or expand to an additional location in the next 5 years, what is your best estimate of the total acres of property you would need in the new location?

☐ Less than 1 acre

☐ 1-3 acres

☐ 4-5 acres

☐ Over 5 acres

☐ Don't Know

26. If your company were to relocate or expand to an additional location in the next 5 years, what is your best estimate of the total amount of building space in square feet you would need?

Note: Please include in this estimate exterior infrastructure areas such as parking, loading docks, and equipment storage.

☐ Less than 10,000 sq. ft.

☐ 10,001—25,000 sq. ft.

☐ 25,001—50,000 sq. ft.

☐ 50,001—75,000 sq. ft.

☐ 75,001—100,000 sq. ft.

☐ Over 100,000 sq. ft.

☐ Don't know

27. Please specify what percentage of this building space would be used for each of the following. (***Please enter your response in numerical format (e.g., 10 to represent 10% or 72 to represent 72%.) Please ensure that the sum of your responses equals 100.***)

	% of Building Space
Manufacturing	%
Warehouse Space	%
Office Space	%

Retail Space	%
External infrastructure like parking, loading docks, or equipment storage	%
TOTAL	100%

If other, please specify the type and the proportion:

_____

28. If your company were to relocate or expand to an additional location in the next 5 years, how many total employees would you expect to employ at the new or additional location?

Total employees:

29. Please specify what percentage of the total number of employees would be needed for each of the following: **(*Please enter your response in numerical format (e.g. 10 to represent 10% or 72 to represent 72%.) Please ensure that the sum of your responses equals 100.*)**

	% of Employees
Managerial and professional workforce	%
Technical workforce	%
Skilled workforce	%
Unskilled workforce	%
TOTAL	100%

30. In your best estimate, what percentage of the total work force at this new or additional location would be full-time workers? Please enter your response in numerical format (e.g. 10 to represent 10% or 72 to represent 72%.)

F/T workers:

31. In your best estimate, what percentage of the total work force at this new or additional location would be hired locally? Please enter your response in numerical format (e.g. 10 to represent 10% or 72 to represent 72%.)

Local workers:

32. If your company were to relocate or expand to an additional location in the next 5 years, would you purchase or lease the property you would need?

☐ Purchase

☐ Lease (skip to Question 38) →

☐ Don't know (skip to Question 39) →

33. Would you purchase vacant land, or would you purchase land with an existing structure?

☐ Vacant land

☐ Existing structure (skip to Question 36) →

☐ Don't know (skip to Question 39) →

34. Approximately, how much would you be willing to pay per acre for this land? Please enter your response in U.S. dollars (e.g. $340). $

35. Approximately, how much would you be willing to pay per square foot for the development of this property? Please enter your response in U.S. dollars (e.g. $340). $

(Skip to question39→)

36. Approximately, how much would you be willing to pay for this location? Please enter your response in U.S. dollars (e.g. $340). $

37. Approximately, how much would you be willing to pay per square foot for improvements of this property? Please enter your response in U.S. dollars (e.g. $340). $

(Skip to question39→)

38. Approximately, how much would you be willing to pay per square foot per month to lease this property? Please enter your response in U.S. dollars (e.g. $340). $

39. In your best estimate, what would be the total annual sales or revenue at this location when things are fully operational?

☐ Less than 1 million dollars per year

☐ 1 million to 2 million dollars per year

☐ 2 million to 3 million dollars per year

☐ 3 million to 5 million dollars per year

☐ 5 million to 10 million dollars per year

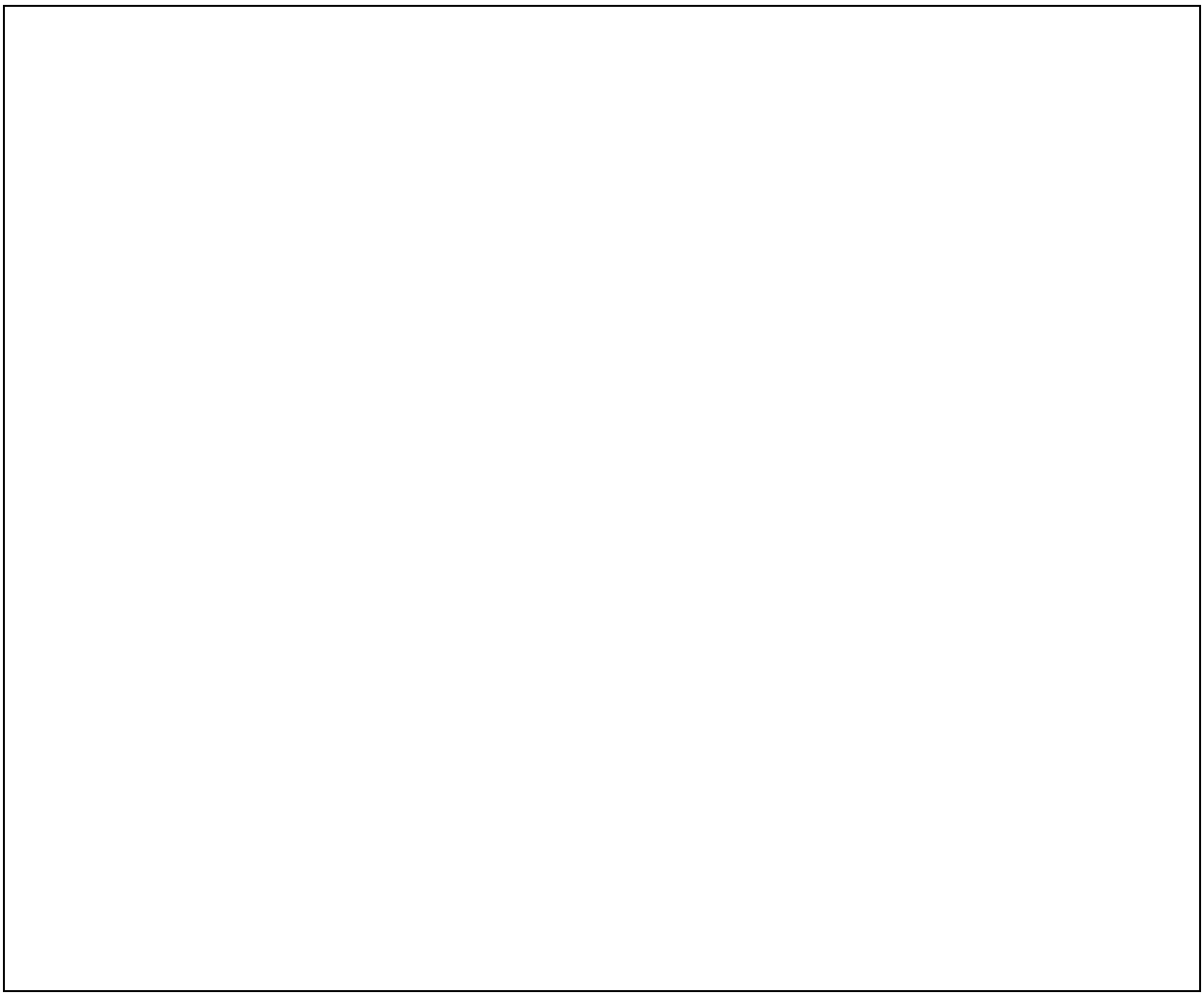
☐ Over 10 million dollars per year

☐ Don't know

Thank You very much for your help with our study. If you would like a copy of summary results when they are ready, please enter your email here:

_____

If you have any comments or suggestions related to this survey, please write them in the space below.



Thank you for your participation!