Economic Opportunity Analysis: a Case Study

Thomas G. Johnson

December 2, 2004

This approach

1. identify the region’s preferences for economic, social and environmental and other outcomes,
2. estimate the potential contribution of various industries to the region's preferences;
3. calculate the desirability of the sectors given the region’s preferences;
4. identify the region’s attractiveness to particular industries, and
5. identify strategies for increasing the region’s attractiveness to the highest ranked sectors.

Theory

- Social welfare function which is a some function of all residents of the community or region

- Tiebout Rules!!!

- Okay. We got that over with

Theory

$$S_L = I_{jL} * w_{jL}$$

- Where S is the score,
- I is the impacts on community characteristics
- w is the weight assigned to this type of impact
- L is the community,
- j is the argument in the residents' utility functions

Theory

- Several arguments in utility function:
  - Jobs
  - Income
  - Tax base
  - Environment
  - Social
  - Etc.
- Multi-attribute decision-making problem

Tools

- AHP (Analytical Hierarchy Procedure) used to measure preferences
- IMPLAN data used to measure performance
- NEEDS (North East Economic Development System) used to measure attractiveness of region to industry
- COMPAS (Community Policy Analysis System) used to measure attractiveness of industry to community

Initial Screening

- Sectors are screened (rather arbitrarily) so that only those sectors considered footloose are considered
  - Eliminate land and resource-tied sectors such as mining, forest harvesting, farming
  - Eliminate highly factor oriented sectors
  - Eliminate highly market oriented sectors such as retail, and many services (technology is rapidly reducing this category)

Initial Screening

- Sectors not present in current economy are added
  - We assumed that new sectors would initially only have backward linkages with the economy
- In the New River Valley (NRV) this left 73 candidate sectors

Scoring Sectors

- We first interviewed and surveyed members of the community to get a list of issues that residents felt should be considered when scoring new firms

Scoring Sectors

1. Employment
   - Direct + indirect employment per $ million of direct output
   - Considers both the degree of linkages and the density of jobs in output
2. Quality of jobs
   - Direct + indirect wage income per employee
3. Economic benefits
   - Direct + indirect wages and property income per dollar of sales
   - This indicator is the “density” of benefits

Scoring Sectors

4. Sectoral growth rate
   - 10 year average growth rate of sector in the national economy
5. International competitiveness
   - Based on government forecasts of export potential
6. Environmental impacts
   - Based on reported by-products and environmental concerns from secondary sources of information

Criteria identified but not used in our studies

1. treatment of employees,
2. equal opportunity,
3. environmental protection procedures,
4. community relations, and
5. ethical business practices.

Using the Criteria

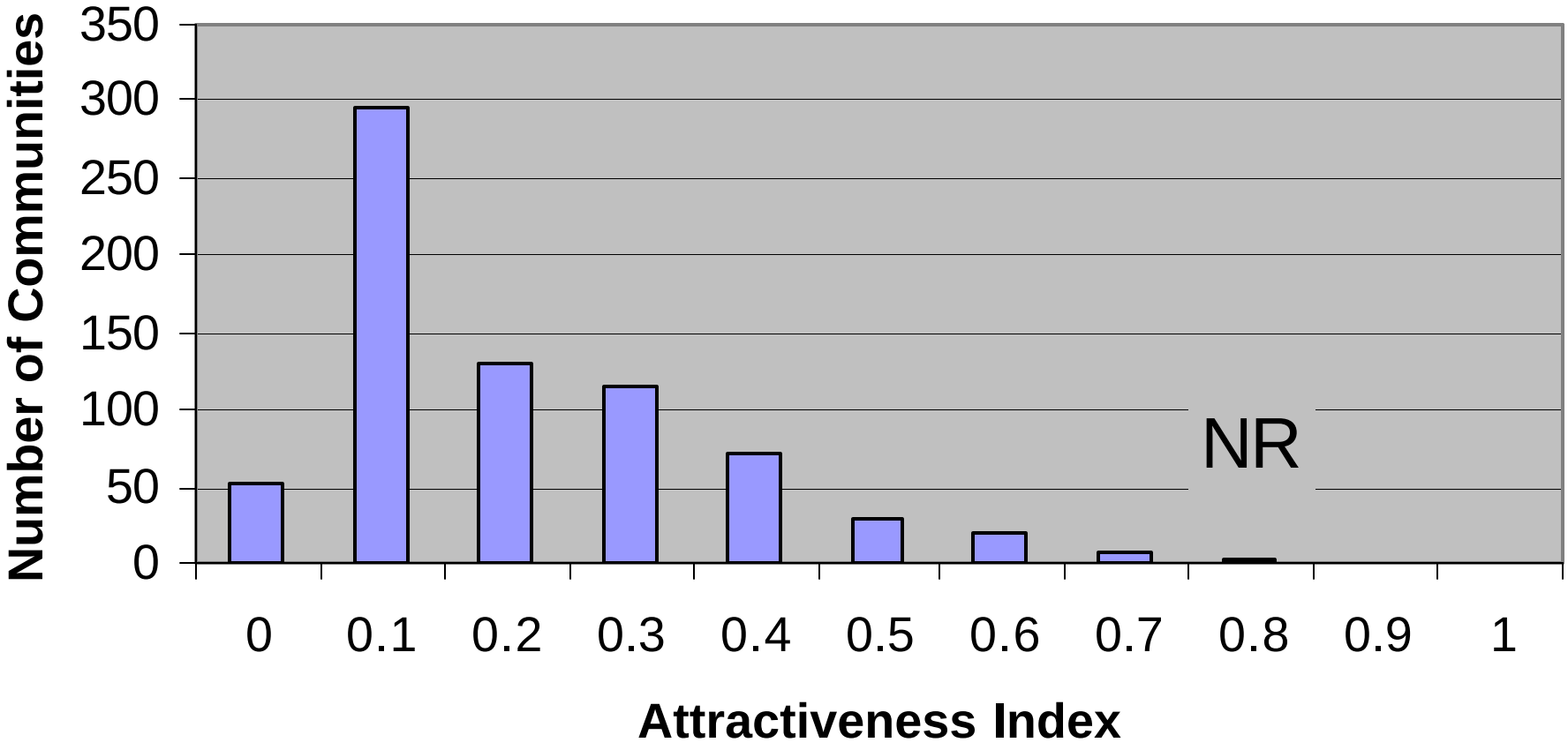
In earlier applications of this approach we eliminated sectors that scored very low on some criteria, or quite low on several criteria

The result was 15 sectors left for comparison

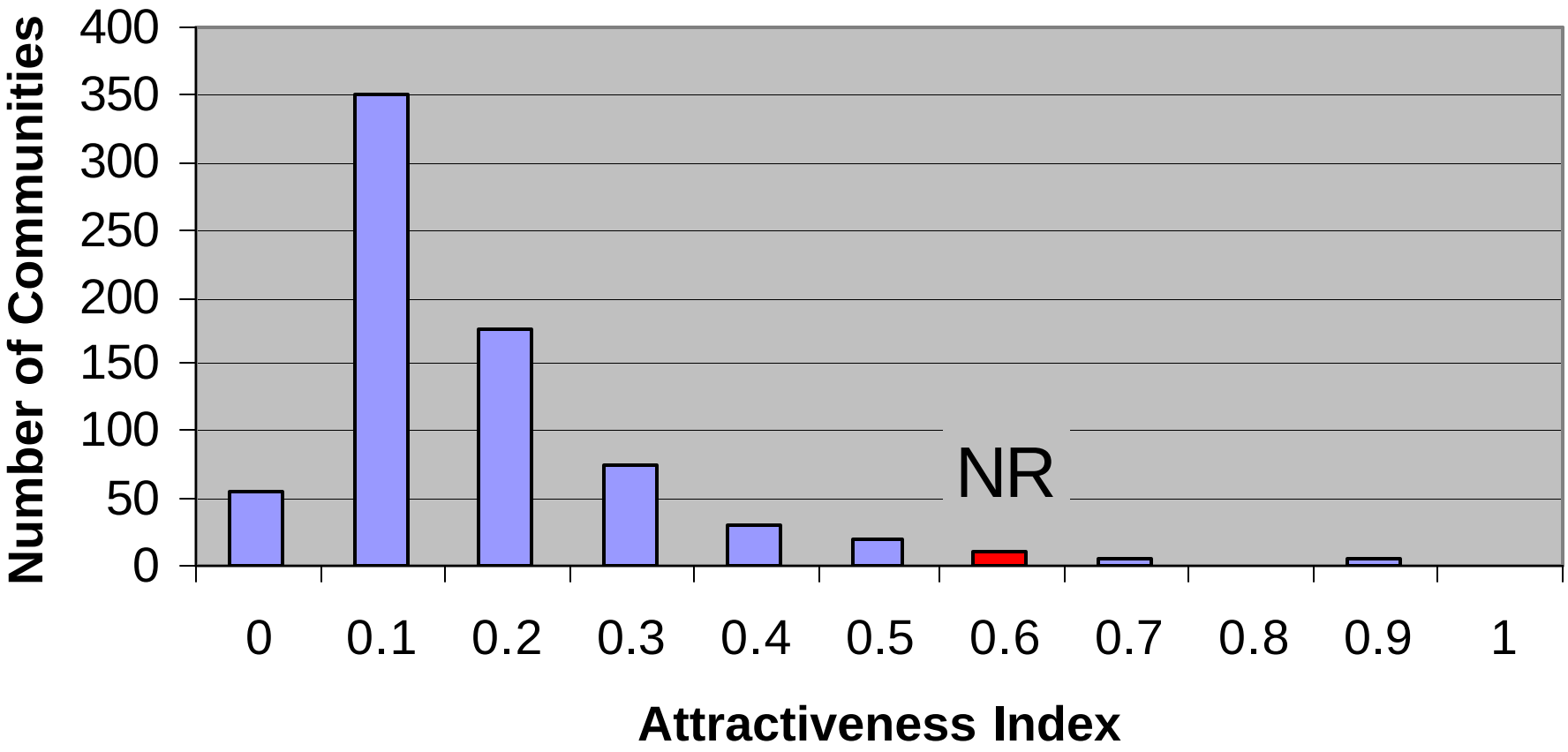
Attraction to the Region

- The New River Valley included 8 communities in the NEEDS model
- 13 of our 15 potential targets were included in the NEEDS model
- We calculated scores for each community for each sector and then looked at the maximum score for each sector

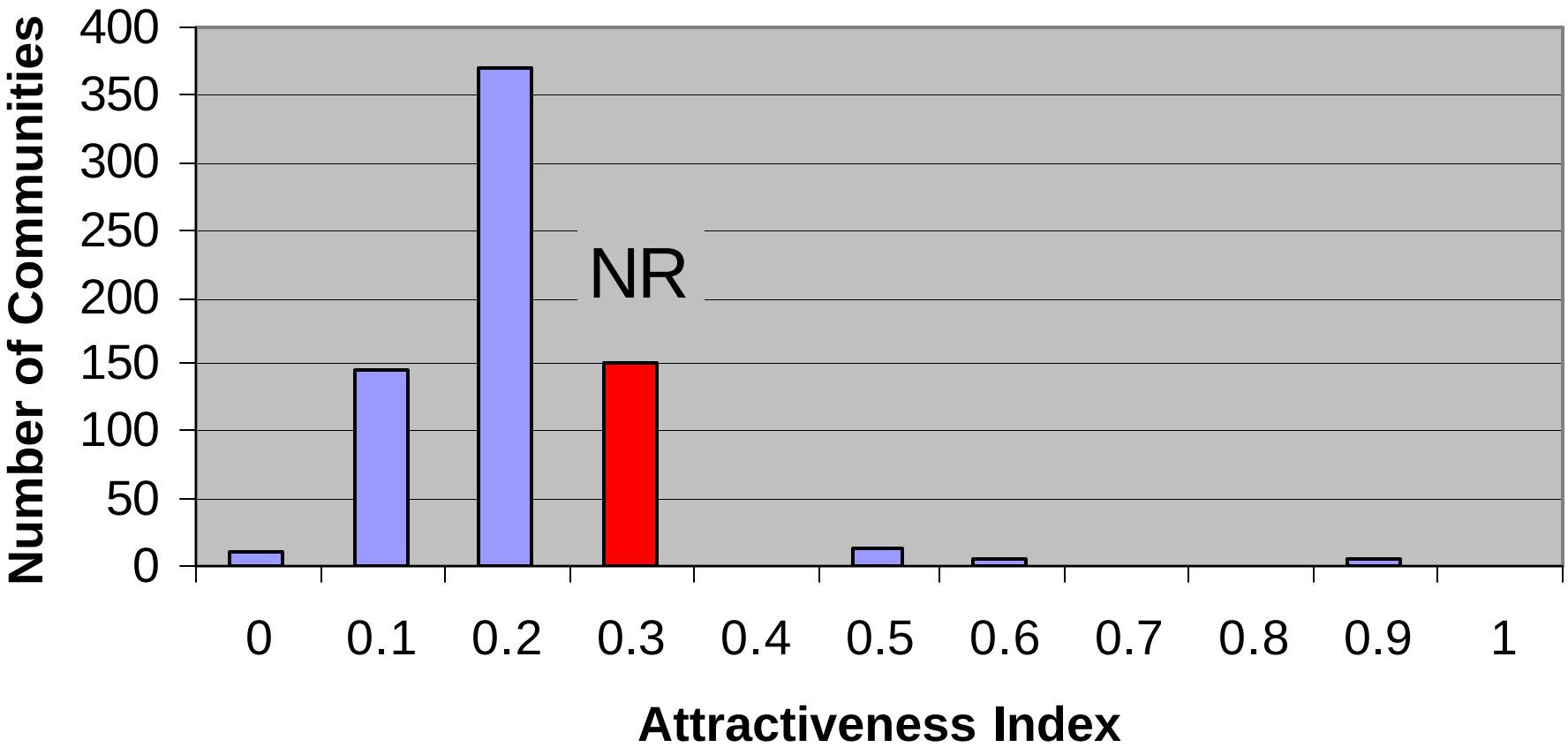
Measuring and Controlling Devices



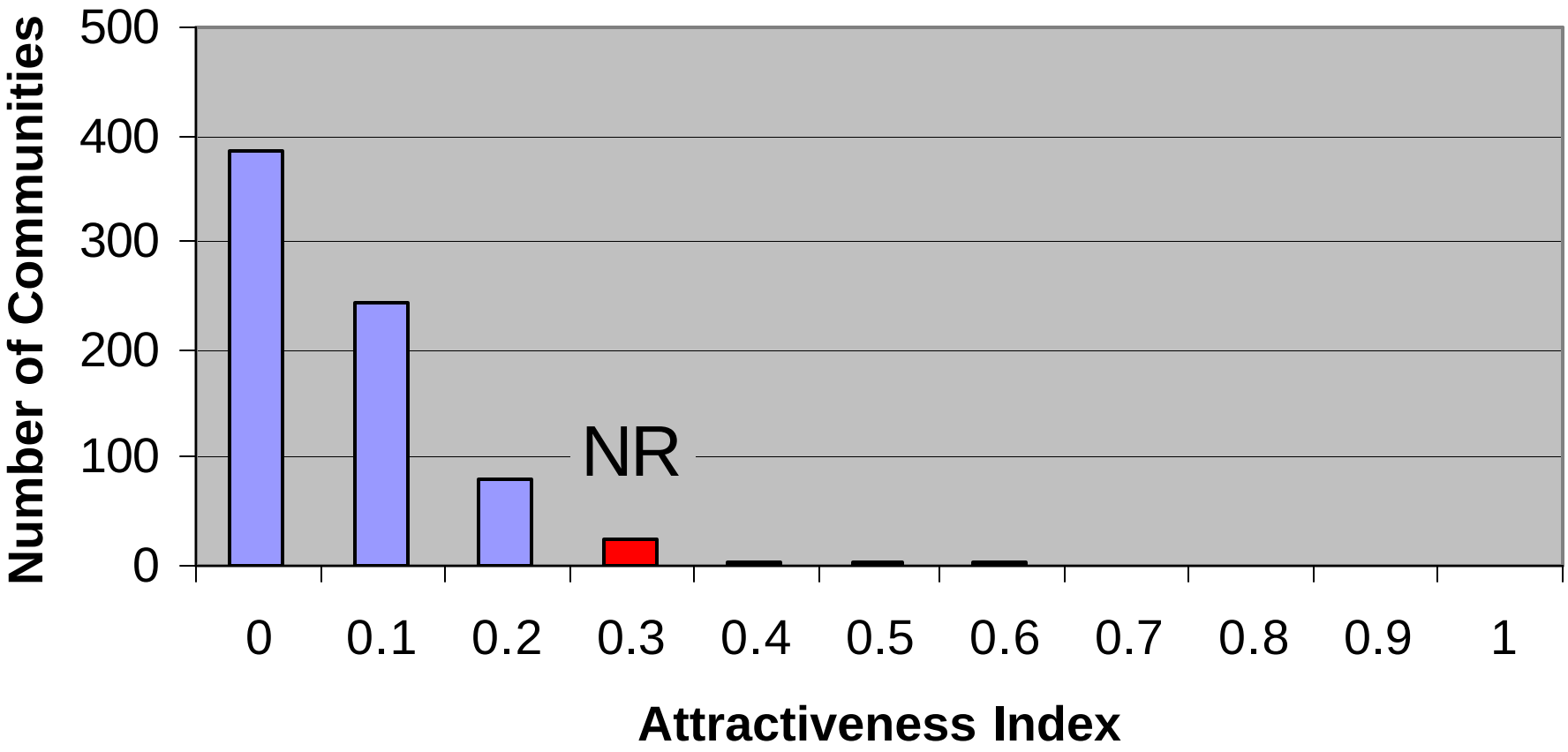
Electrical Components



Motor Vehicles and Equipment



Search, Detection and Navigation Equipment



Economic and Fiscal Impacts

- The IMPLAN model and the Virginia Economic Impact Model was then used to measure impacts for each of the target sectors for each of the jurisdictions

Fiscal & Economic Impacts

Industry	Population	Employment	Per Capita Income	Retail Sales	Net Public Service Benefits	Cash Flow
Automatic Temperature Controls	32	190	130	2,052,930	193,883	30,211
Ball Bearings and Roller Bearings	33	198	163	2,175,415	255,290	52,296
Communications. Except Radio	38	227	340	2.525,012	497,407	($14,088)
Diagnostic Substances	56	333	283	3,754,358	409,043	14,634
Fabricated Plate Work	34	203	176	226,538	261,525	27,265
Gaskets, Packing and Scaling	32	191	179	2,103,607	267,809	26,104
Industrial Machines	32	192	140	2,095,980	207,181	22,086
Industrial Patterns	31	186	129	2,020,144	189,962	18,733
Mechanical Measuring Devices	33	195	188	2,128,286	279,122	19,435
Miscellaneous Plastic Products	39	234	191	2,570,427	282.899	27,629
Optical Instruments and Lenses	39	232	211	2,554,849	309,224	16,434

Strategies

- The North East Economic Development System Calculates the attractiveness of places to sectors on the basis of several dozen characteristics of the place.
- We calculated the increased probability of attracting each target sector assuming increases in policy relevant variables such as education, infrastructure, labor force, etc.