

Locational Analysis of High-Tech Industry in Oregon

Introduction

Objective:

Examine employment growth in the Oregon technology sector and factors that may aid that growth.

Methods and Materials

- Data from Leading Edge Communications
Corporate survey database (based on Zip Code)
- Comparison between the years 2001 and 2006
- Layers from Oregon GIS Clearing House and ESRI
- Software used ArcMap, ArcCatalog OpenOffice Base, Excel, Open Office Base

Methods and Materials

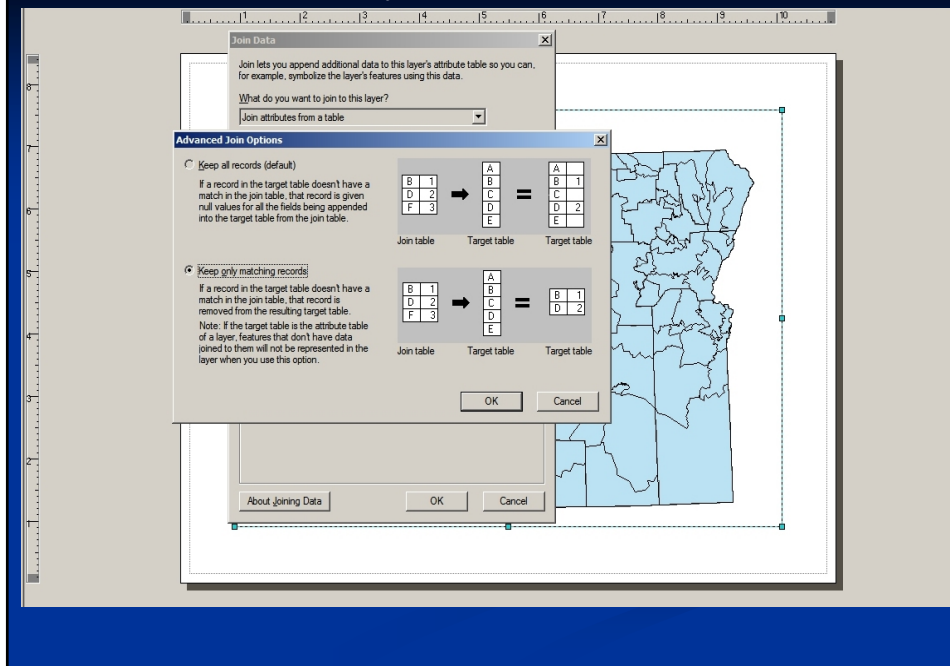
North American Industry Classification System

- Used to identify and group job types
- Constantly being revised but always obsolete
- “Technology” jobs have many categories
- Wide disagreement over “High Tech” definition

Methods and Materials

- Databases subsets created of Oregon only data
- New fields added for job totals per Zip Code
- Join used to merge Zip Code table to Jobs database

Many to one Join



Expanded Attribute Table

| ORZip_PO_NAME | ORZip_STATE | ORZip_AREA | ORZip_SUMBLKPOP | ORZip_POP2001 | Shape_Length | Shape_Area | OBJECTID * | OR06JobCnt.ZIP * | OR06JobCnt.TOTALJOBS |
|---------------|-------------|------------|-----------------|---------------|---------------|------------------|------------|------------------|----------------------|
| AURORA | OR | 43.39588 | 5823 | 6034 | 262535.456054 | 1209568849.53026 | 1 | 97002 | 479 |
| BEAVERTON | OR | 4.88885 | 22770 | 23265 | 65340.919763 | 136289958.765422 | 2 | 97005 | 2424 |
| BEAVERTON | OR | 12.13706 | 52369 | 54747 | 98854.743947 | 338359991.60057 | 3 | 97006 | 2890 |
| BEAVERTON | OR | 25.74944 | 56540 | 58597 | 150933.83834 | 717815041.978336 | 4 | 97007 | 116 |
| BEAVERTON | OR | 5.38875 | 28799 | 29219 | 54290.343682 | 150222457.98558 | 5 | 97008 | 1926 |
| BORING | OR | 40.88875 | 12849 | 12407 | 275133.314113 | 1139828548.48284 | 6 | 97009 | 53 |
| CANBY | OR | 57.73194 | 19805 | 20384 | 272891.286689 | 1689135472.34702 | 7 | 97013 | 434 |
| CLACKAMAS | OR | 17.37049 | 23082 | 23721 | 156786.575174 | 484220719.000014 | 8 | 97015 | 574 |
| CORBETT | OR | 156.57082 | 2868 | 2848 | 437914.604955 | 4364827078.16397 | 9 | 97019 | 4 |
| FAIRVIEW | OR | 3.17459 | 8144 | 8396 | 50141.687789 | 88503976.280019 | 10 | 97024 | 1 |
| GLADSTONE | OR | 2.56769 | 11945 | 12156 | 49602.928017 | 71575749.618027 | 11 | 97027 | 5 |
| GRESHAM | OR | 7.60803 | 30344 | 30995 | 83723.842102 | 212097261.449709 | 12 | 97030 | 328 |
| HOOD RIVER | OR | 201.65242 | 16686 | 16909 | 507595.825603 | 5621980434.51709 | 13 | 97031 | 135 |
| HUBBARD | OR | 17.22407 | 4264 | 3850 | 171762.096227 | 480668592.635034 | 14 | 97032 | 45 |
| LAKE OSWEGO | OR | 8.39515 | 18579 | 18390 | 104477.637284 | 234023490.558531 | 15 | 97034 | 12 |
| LAKE OSWEGO | OR | 5.80852 | 22950 | 23235 | 79443.555607 | 161918736.251558 | 16 | 97035 | 1573 |
| MOLALLA | OR | 290.02831 | 12737 | 12905 | 518760.013346 | 8083029730.31603 | 17 | 97038 | 36 |
| MULINO | OR | 27.39265 | 2975 | 2619 | 165248.126388 | 763500391.775541 | 18 | 97042 | 50 |
| OREGON CITY | OR | 85.51367 | 45742 | 45924 | 359275.54774 | 2383652228.43103 | 19 | 97045 | 182 |
| SAINT HELENS | OR | 31.79189 | 12952 | 13096 | 195034.584224 | 886577183.929049 | 20 | 97051 | 7 |
| DEER ISLAND | OR | 53.69652 | 1700 | 1738 | 249769.389369 | 1503106076.5588 | 21 | 97054 | 54 |
| SANDY | OR | 153.60933 | 13495 | 13928 | 427520.111364 | 4281982102.71371 | 22 | 97055 | 38 |
| SCAPOOSE | OR | 108.18795 | 9326 | 9495 | 375927.332818 | 3016742317.63446 | 23 | 97056 | 130 |
| TROUTDALE | OR | 18.77403 | 17965 | 18403 | 153663.072459 | 523393881.871745 | 24 | 97060 | 228 |
| TUALATIN | OR | 14.33409 | 24309 | 25396 | 111755.660048 | 399565809.988147 | 25 | 97062 | 2976 |
| VERNONIA | OR | 169.46146 | 3528 | 3579 | 333994.295369 | 4725699720.53604 | 26 | 97064 | 12 |
| WEST LINN | OR | 25.21608 | 25567 | 26312 | 145440.944268 | 702895921.052585 | 27 | 97068 | 38 |
| WILSONVILLE | OR | 20.27789 | 15333 | 15881 | 195362.913309 | 565228044.37857 | 28 | 97070 | 5117 |
| WOODBURN | OR | 62.00464 | 25499 | 26014 | 332543.519698 | 1728151391.22326 | 29 | 97071 | 53 |
| ASTORIA | OR | 239.61649 | 16882 | 16471 | 535545.408 | 688938695.21498 | 33 | 97103 | 12 |
| CORNELIUS | OR | 33.52207 | 12086 | 12594 | 243640.470911 | 934525656.444876 | 34 | 97113 | 245 |
| FOREST GROVE | OR | 113.52128 | 21448 | 22037 | 491847.598165 | 3165013816.04053 | 35 | 97116 | 1311 |
| GASTON | OR | 154.57671 | 4133 | 4101 | 420143.434417 | 4309175899.79889 | 36 | 97119 | 9 |
| HILLSBORO | OR | 56.81213 | 36696 | 37802 | 275080.756017 | 1583735930.1393 | 37 | 97123 | 736 |
| HILLSBORO | OR | 49.07247 | 38336 | 40081 | 247429.668899 | 1368117748.89626 | 38 | 97124 | 21832 |
| MCMINNVILLE | OR | 116.02313 | 30265 | 30843 | 337650.603206 | 3233522232.45218 | 39 | 97128 | 470 |
| NEWBERG | OR | 62.84611 | 24193 | 24553 | 305446.44366 | 1751796035.96047 | 40 | 97132 | 1895 |
| NORTH PLAINS | OR | 60.92943 | 3324 | 3426 | 274483.713597 | 1698862049.01986 | 41 | 97133 | 41 |
| SHERWOOD | OR | 43.43004 | 16691 | 17533 | 229245.026809 | 1210612791.85646 | 42 | 97140 | 161 |
| YAMHILL | OR | 128.06385 | 3085 | 3091 | 372372.517477 | 3569800345.10926 | 43 | 97148 | 8 |
| PORTLAND | OR | 6.41966 | 25461 | 25607 | 73302.027176 | 178986228.535405 | 44 | 97201 | 1136 |
| PORTLAND | OR | 7.56439 | 37037 | 36814 | 67964.256992 | 210876444.663018 | 45 | 97202 | 725 |
| PORTLAND | OR | 14.54749 | 27743 | 27859 | 95264.867037 | 405599575.871565 | 46 | 97203 | 190 |
| PORTLAND | OR | 0.23665 | 1259 | 1263 | 10820.40891 | 6597286.802669 | 47 | 97204 | 1576 |
| PORTLAND | OR | 0.44386 | 8160 | 8103 | 15376.880705 | 57333365.086679 | 48 | 97205 | 436 |







U.S. NAICS Codes

Largest NAICS Survey Categories

| NAICS Code | Count | Description |
|------------|-------|-------------------------------------------------------------------------|
| 54151 | 203 | Computer Systems Design and Related Services |
| 33441 | 97 | Semiconductor and Other Electronic Component Manufacturing |
| 51121 | 90 | Software Publishers |
| 33451 | 87 | Navigational, Measuring, Medical, and Control Instruments Manufacturing |
| 33271 | 73 | Machine Shops |
| 33911 | 51 | Medical Equipment and Supplies Manufacturing |
| 51419 | 50 | Other Information Services |
| 33411 | 39 | Computer and Peripheral Equipment Manufacturing |
| 54138 | 36 | Testing Laboratories |
| 33641 | 32 | Aerospace Product and Parts Manufacturing |

Select by Attributes

Enter a WHERE clause to select records in the table window.

Method: Create a new selection

ORDENAICS OBJECTID

ORDENAICS COMPNAME

ORDENAICS COMPCITY

ORDENAICS COMPZIP

ORDENAICS EMPLOYEES

ORDENAICS NAICS1

= < > Like

> > * Post

< < * Or

? = () Not

Is Get Unique Values Go To

SELECT * FROM ORZp_ORDENAICS WHERE

ORDENAICS.NAICS1 = '33451'

Clear Verify Help Log Save

Apply Close

ies of ORZp

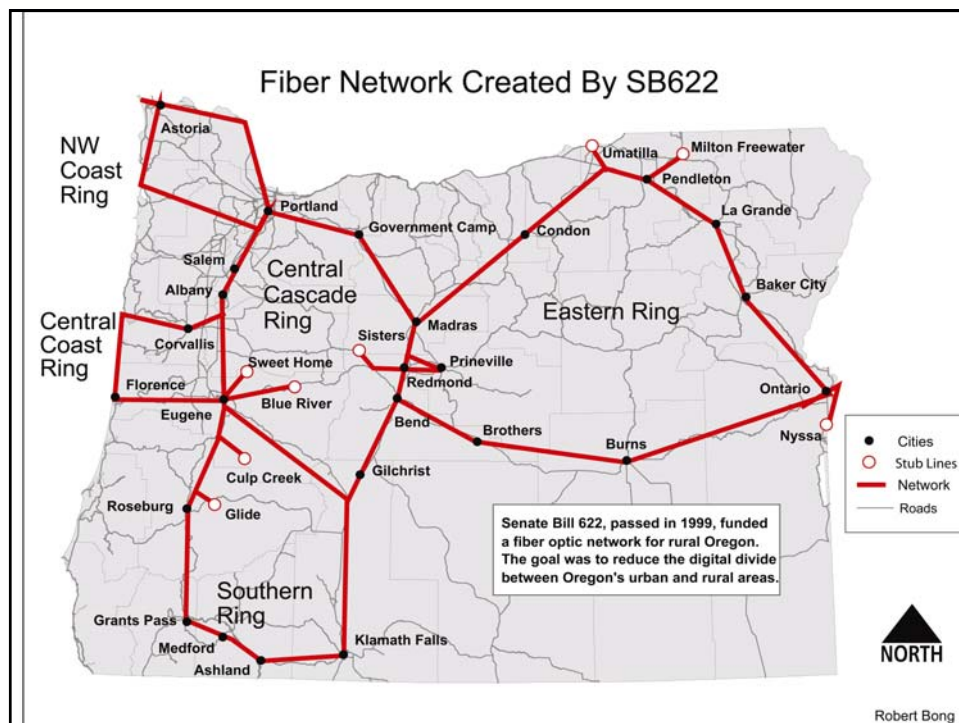
| CTID | Shape | ORZp_ZIP | ORZp_PO_NAME | ORZp_STATE | ORZp_AREA | ORZp_SUMBL | KPOP |
|------|---------|----------|--------------|------------|-----------|------------|------|
| 4 | Polygon | 97103 | ASTORIA | OR | 239.81648 | | 1688 |
| 12 | Polygon | 97054 | DEER ISLAND | OR | 53.89552 | | 170 |
| 13 | Polygon | 97084 | VERNONA | OR | 169.46146 | | 352 |
| 14 | Polygon | 97002 | UMATILLA | OR | 25.90114 | | 629 |
| 18 | Polygon | 97051 | SANT HELENS | OR | 31.79189 | | 1293 |
| 23 | Polygon | 97050 | SCAPPOOSE | OR | 100.10795 | | 932 |
| 32 | Polygon | 97133 | NORTH PLAINS | OR | 60.82943 | | 332 |
| 30 | Polygon | 97231 | PORTLAND | OR | 57.21764 | | 419 |
| 39 | Polygon | 97116 | FOREST GROVE | OR | 113.52128 | | 2144 |
| 40 | Polygon | 97031 | WOOD RIVER | OR | 201.65242 | | 1600 |
| 47 | Polygon | 97124 | HILLSBORO | OR | 49.07247 | | 3833 |
| 50 | Polygon | 97203 | PORTLAND | OR | 14.54749 | | 2774 |
| 51 | Polygon | 97217 | PORTLAND | OR | 11.37758 | | 2973 |
| 57 | Polygon | 97019 | CORVALLIS | OR | 156.57062 | | 204 |
| 58 | Polygon | 97113 | CORNELLIS | OR | 33.52207 | | 1206 |
| 59 | Polygon | 97211 | PORTLAND | OR | 7.04062 | | 3120 |
| 60 | Polygon | 97218 | PORTLAND | OR | 7.33658 | | 1413 |
| 60 | Polygon | 97210 | PORTLAND | OR | 7.33650 | | 1413 |
| 61 | Polygon | 97229 | PORTLAND | OR | 22.31327 | | 4212 |
| 62 | Polygon | 97210 | PORTLAND | OR | 7.52641 | | 965 |
| 65 | Polygon | 97220 | PORTLAND | OR | 7.55131 | | 2974 |
| 66 | Polygon | 97119 | GASTON | OR | 154.57671 | | 413 |
| 67 | Polygon | 97060 | TROUTDALE | OR | 18.77403 | | 1796 |
| 68 | Polygon | 97230 | PORTLAND | OR | 14.33552 | | 3455 |
| 69 | Polygon | 97024 | FAIRVIEW | OR | 3.17459 | | 814 |
| 70 | Polygon | 97006 | BEAVERTON | OR | 12.13706 | | 5220 |
| 71 | Polygon | 97227 | PORTLAND | OR | 1.18502 | | 325 |
| 72 | Polygon | 97212 | PORTLAND | OR | 2.70176 | | 2359 |
| 73 | Polygon | 97213 | PORTLAND | OR | 4.09427 | | 2031 |
| 76 | Polygon | 97209 | PORTLAND | OR | 1.1452 | | 810 |
| 76 | Polygon | 97209 | PORTLAND | OR | 1.1452 | | 810 |
| 70 | Polygon | 97232 | PORTLAND | OR | 1.84539 | | 1970 |
| 79 | Polygon | 97030 | GRESHAM | OR | 7.60503 | | 3534 |
| 80 | Polygon | 97123 | HILLSBORO | OR | 56.81213 | | 3888 |
| 81 | Polygon | 97201 | PORTLAND | OR | 6.41966 | | 2546 |
| 82 | Polygon | 97205 | PORTLAND | OR | 0.44385 | | 835 |
| 83 | Polygon | 97214 | PORTLAND | OR | 3.12176 | | 2290 |
| 85 | Polygon | 97204 | PORTLAND | OR | 0.23855 | | 128 |

Records: 14 1 2 Shows: All Selected Records: 0 out of 788 Selected Options



Oregon's "Digital Divide"

- Concern in the 90's that rural Oregon needed broadband to compete economically
- Senate Bill 622 (1999) designed to spur development
- In response Qwest builds several fiber rings
- Ring construction completed in 2002





Conclusions

- Transportation Infrastructure
- The new Fiber Network
- Population
- “Livability”

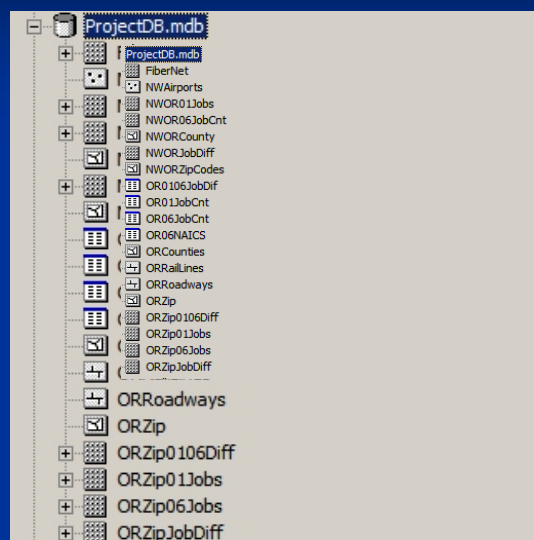
Conclusions

- Economic Clustering
- Past Examples
 - Resource based – Pittsburg
 - Facility Based – Detroit
 - Knowledge Based – Silicon Valley

Problems with the data

- Database relies on return of surveys
 - Inconsistent return year to year
 - Figures poorly defined, not verified
 - Based on Zip Codes that change
- Power net layer or database not available
- Fiber Network layers available but costly

Data Base Contents



References

- Leading Edge Communications, Inc.
http://www.hightechdirectories.com/Business_directory_lecfaqs.htm
- Oregon Geospatial Data Clearinghouse
<http://gis.oregon.gov/DAS/EISPD/GEO/sdlibrary.shtml>
- ESRI Corporation
<http://www.esri.com/>