What Women Want: Estimating Gender Differences in the Quality of Life Across Cities

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The University of Akron
College of Business Administration
QUALITY OF LIFE

FUN for family and friends!

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Quality of Life and the Consumer City

• “The success of cities hinges more and more on cities’ role as centers of consumption” (Glaeser, Kolko, Saiz, 2001)
U.S. News and World Report
5 Best Cities to Live

5) Fayetteville, AR
4) Des Moines, IA
3) Denver, CO
2) Colorado Springs, CO
1) Austin, TX
Revealed Preferences

- Households are willing to pay higher housing prices \textit{and} forego higher wages to live in areas with a high quality of life (Rosen, 1979; Roback, 1982; Albouy, 2011)

\[
\log(r_{ij}) = \alpha^r + \beta^r X_i^r + \phi_j^r + \epsilon_{ij}^r
\]

\[
\log(w_{ij}) = \alpha^w + \beta^w X_i^w + \phi_j^w + \epsilon_{ij}^w
\]

\[
\hat{Q} = 0.33\hat{\phi}_j^r - 0.51\hat{\phi}_j^w
\]
A Revealed Preference Ranking (Albouy, 2011)

5) San Luis Obispo, CA
4) San Jose-San Francisco, CA
3) Monterey, CA
2) Santa Barbara, CA
1) Honolulu, HI
Revealed Preferences!

- Revealed preferences should also match where people have chosen to live.
- Bigger cities are likely bigger because they are more desirable places to live (Albouy, 2008)

### Table 1: Wage, Housing-Cost, and Quality-of-Life Differentials, 2000

<table>
<thead>
<tr>
<th>MSA Population</th>
<th>Adjusted Differentials</th>
<th>Unadj.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Population Size</td>
<td>Wages</td>
</tr>
<tr>
<td>MSA, Pop &gt; 5 Million</td>
<td>84,064,274</td>
<td>0.16</td>
</tr>
<tr>
<td>MSA, Pop 1.5-4.9 Million</td>
<td>57,157,386</td>
<td>0.03</td>
</tr>
<tr>
<td>MSA, Pop 0.5-1.4 Million</td>
<td>42,435,508</td>
<td>-0.03</td>
</tr>
<tr>
<td>MSA, Pop &lt; 0.5 Million</td>
<td>42,324,511</td>
<td>-0.10</td>
</tr>
<tr>
<td>Non-MSA areas</td>
<td>55,440,227</td>
<td>-0.16</td>
</tr>
<tr>
<td>United States total</td>
<td>281,421,906</td>
<td>0.13</td>
</tr>
</tbody>
</table>

*standard deviations*
Why Are People Willing to Pay so Much?

• Estimate the role of location specific amenities ($A_j$) on QOL
  $$\hat{Q}_j = \alpha + \gamma A_j + \epsilon_j$$

• **Natural amenities** (beaches, mountains, climate, hilliness)

• **Public goods and services** (crime rates, air quality)

• **Private goods and services** (eating and drinking places, recreation, arts and culture)
Gender Differences in QOL

• QOL literature never considered whether men and women’s preferences could differ
  – Marriage and bargaining literature fails to uphold the assumption of common preferences (Lundberg, Pollak, and Wales 1997; and Ward-Batts, 2008)
  – Women prefer to allocate more household spending toward women’s clothing, restaurant meals, and goods and services for children

• Average QOL and amenity valuations may mask distinctions between men and women
Would Women Want Something Different?

• Gender differences in general decision making behaviors → different preferences
• Experimental economics (Croson and Gneezy, 2009)
  – Risk aversion
    • Crime, environmental quality, healthier product choices
  – Altruism
    • Caretaking activities, childcare, differences in time use (children's goods and restaurants)
Would Women Want Something Different?

• Still, gender similarities hypothesis suggests men and women are similar on most though not all psychological variables (Hyde, 2005; Zell, Krizan, Teeter, 2015)

• Averages across genders can vary while significant overlap in distributions remain

• Valuations of natural amenities like beaches are likely similar

• But any distinctions may be meaningful and important to policymakers
Would Women Want Something Different?

• We separately estimate QOL for never married/single men and women age (23-39)
Would Women Want Something Different?

- We separately estimate QOL for never married/single men and women age (23-39)

1) Santa Barbara, CA
2) Santa Cruz, CA
3) Monterey, CA
4) San Jose, CA
5) San Luis Obispo, CA
6) Ventura, CA
7) Honolulu, HI
8) San Diego, CA
9) San Francisco, CA
10) Santa Rosa, CA

1) Honolulu, HI
2) Santa Barbara, CA
3) Santa Cruz, CA
4) San Jose, CA
5) Monterey, CA
6) San Francisco, CA
7) San Diego, CA
8) Los Angeles, CA
9) Ventura, CA
10) Flagstaff, AZ
Gender Similarities and Differences in QOL
Worst Cities for Women

1) Gadsden, AL
2) Michigan City, IN
3) Shreveport, LA
4) McAllen, TX
5) Idaho Falls, ID
Spatial Differences in QOL

Savannah, GA
Specific Consumption Amenities

• Only 283 cities and *A LOT* of amenities
  – **Natural amenities** (climate, mountains, hilliness, distance to coast...)
  – **Private goods and services** (clothing stores, restaurants, fast food, bars, grocery stores, toy stores, gyms, golf courses, casinos, stadiums, museums, hospitals, ...)
  – **Public goods and services** (parks, schools, school spending, higher education enrollment, violent and nonviolent crime rates, public transportation,...)

• LASSO approach
### Natural Amenities

- Men’s and women’s preferences are nearly identical (no statistical difference)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Full Male $\beta$</th>
<th>LASSO Male $\beta$</th>
<th>Full Female $\beta$</th>
<th>LASSO Female $\beta$</th>
<th>Male-Female $\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hilliness</td>
<td>0.005***</td>
<td>0.006***</td>
<td>0.005***</td>
<td>0.004***</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.001)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Cooling Days</td>
<td>-0.011***</td>
<td>-0.011***</td>
<td>-0.015***</td>
<td>-0.017***</td>
<td>0.005</td>
</tr>
<tr>
<td></td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Percent sun</td>
<td>0.098***</td>
<td>0.075***</td>
<td>0.124**</td>
<td>0.131***</td>
<td>-0.027</td>
</tr>
<tr>
<td></td>
<td>(0.025)</td>
<td>(0.021)</td>
<td>(0.029)</td>
<td>(0.029)</td>
<td></td>
</tr>
<tr>
<td>Miles to Coast</td>
<td>-0.004*</td>
<td>-0.004*</td>
<td>-0.004*</td>
<td>-0.004*</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.001)</td>
</tr>
<tr>
<td>Heating Days</td>
<td>-0.009***</td>
<td>-0.012***</td>
<td>-0.009***</td>
<td>-0.010***</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>(0.002)</td>
<td>(0.001)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
</tr>
</tbody>
</table>
Private Amenities

- Private amenities aren’t explaining much if any of the gender differences
- Women show stronger preferences for restaurants and men for health services

<table>
<thead>
<tr>
<th>Variables</th>
<th>Male</th>
<th>Female</th>
<th>Male-Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full</td>
<td>LASSO</td>
<td>Full</td>
</tr>
<tr>
<td>LS Restaurants</td>
<td>0.037</td>
<td>0.057**</td>
<td>0.057*</td>
</tr>
<tr>
<td></td>
<td>(0.026)</td>
<td>(0.022)</td>
<td>(0.029)</td>
</tr>
<tr>
<td>Movie theaters</td>
<td>0.356</td>
<td>0.644**</td>
<td>0.574</td>
</tr>
<tr>
<td></td>
<td>(0.302)</td>
<td>(0.281)</td>
<td>(0.352)</td>
</tr>
<tr>
<td>Gambling places</td>
<td>-0.211**</td>
<td>-0.146</td>
<td>-0.115</td>
</tr>
<tr>
<td></td>
<td>(0.100)</td>
<td>(0.098)</td>
<td>(0.115)</td>
</tr>
<tr>
<td>Sport Teams</td>
<td>0.094</td>
<td>0.043</td>
<td>0.044</td>
</tr>
<tr>
<td></td>
<td>(0.169)</td>
<td>(0.169)</td>
<td>(0.193)</td>
</tr>
<tr>
<td>Health Service</td>
<td>0.029***</td>
<td>0.023***</td>
<td>0.015*</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.007)</td>
<td>(0.009)</td>
</tr>
</tbody>
</table>
Public Amenities

- Women show stronger preferences for better air quality, public parks, lower violent crime rates
- Men show stronger preferences for public transportation and cultural sites

<table>
<thead>
<tr>
<th>Variables</th>
<th>Male</th>
<th>Female</th>
<th>Male-Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full</td>
<td>LASSO</td>
<td>Full</td>
</tr>
<tr>
<td>Poor Air Quality</td>
<td>-0.009 (0.012)</td>
<td>-0.030** (0.014)</td>
<td>-0.034** (0.013)</td>
</tr>
<tr>
<td>Public Transport</td>
<td>0.297*** (0.048)</td>
<td>0.241*** (0.030)</td>
<td>0.074 (0.055)</td>
</tr>
<tr>
<td>Public Parks</td>
<td>0.052*** (0.015)</td>
<td>0.052*** (0.014)</td>
<td>0.074*** (0.017)</td>
</tr>
<tr>
<td>Cultural Sites</td>
<td>0.481 (0.412)</td>
<td>0.492** (0.191)</td>
<td>-0.639 (0.473)</td>
</tr>
<tr>
<td>Violent Crime</td>
<td>-0.000 (0.001)</td>
<td>0.001 (0.001)</td>
<td>-0.001 (0.001)</td>
</tr>
</tbody>
</table>
Single Men and Women &
The Marriage Market

- Women especially prefer cities with a higher % of single men, educated single men
- Men – meh

<table>
<thead>
<tr>
<th>Variable</th>
<th>Male</th>
<th>Female</th>
<th>Male-Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>%Single Men</td>
<td>0.392**</td>
<td>1.142***</td>
<td>-0.245***</td>
</tr>
<tr>
<td></td>
<td>(0.184)</td>
<td>(0.220)</td>
<td>(0.113)</td>
</tr>
<tr>
<td>%Single Women</td>
<td>-0.176</td>
<td>-0.902***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.165)</td>
<td>(0.198)</td>
<td></td>
</tr>
</tbody>
</table>
## Gadsden, AL?

<table>
<thead>
<tr>
<th>Amenity</th>
<th>Violent Crime</th>
<th>% Park</th>
<th>AQI</th>
<th>Commute</th>
<th>Transportation</th>
<th>College</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>4.210</td>
<td>0.082</td>
<td>50.060</td>
<td>22.951</td>
<td>0.017</td>
<td>50.741</td>
</tr>
<tr>
<td>st dev</td>
<td>2.271</td>
<td>0.121</td>
<td>13.924</td>
<td>3.249</td>
<td>0.025</td>
<td>54.530</td>
</tr>
<tr>
<td>Gadsden</td>
<td>1.392</td>
<td>0.000</td>
<td>56.574</td>
<td>24.507</td>
<td>0.001</td>
<td>0.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Amenity</th>
<th>Gender Attitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>0.000</td>
</tr>
<tr>
<td>st dev</td>
<td>0.759</td>
</tr>
<tr>
<td>Gadsden</td>
<td>-0.715</td>
</tr>
</tbody>
</table>
Gender Role Attitudes

- Women prefer cities in states with progressive gender role attitudes

![Map of the United States with gender role attitudes color-coded.](image)
Conclusion

• Men and women have similar valuations of many cities (and local amenities)
• Still, quality of life valuations of cities are more heterogeneous than previous studies suggest
• Public amenities are a larger driver of gender differences (though only in relative importance)
Conclusion

• Men and women both prefer larger cities
• But women are more affected by the costs of cities (air quality, crime, commute – Black et al., 2014)
• Policymakers may need to address these costs to meet the needs of women
Conclusion

• Women feel vastly underserved (Silverstein and Sayre, 2009)
  – Just over 5% of Fortune 500 CEOs are women (Pew Research Center)
  – Less than 25% of mayors and state legislators are women (Center for American Women and Politics, National League of Cities 2018; Pew Research Center, 2017)

• Women’s buying power has likely increased over time (LFPR, wages, time)

• About 70% of household consumption decisions are made by women (King, 2017; Browning, Chiappori, Lewbel, 2013; Silverstein, Sayre, Butman, 2009)
Conclusion

• At this point, there may be a greater marginal benefit to investing in amenities women prefer.
• Cities preferred by women grew faster.
Questions
The Worst Cities to Live

1) Gadsden, AL
2) Lima, OH
3) Jackson, MI
4) Fort Wayne, IN
5) Danville, VA

1) Sheboygan, WI
2) St. Cloud, MN
3) Elkhart, IN
4) Rockford, IL
5) Fort Wayne, IN
Private Amenities

![Graphs showing data points for private amenities in different cities.](image)
Public Amenities