Non-pecuniary Benefits: Evidence from Private Company Sales

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2nd Private Markets Research Conference - July 2018

Motivation

- Non-pecuniary factors are crucial to the decisions of entrepreneurs – Hurst and Pugsley (2011)
  - e.g., Passion, Autonomy, Flexibility
- Geography matters for many financial decisions
  - Stock Ownership – Coval and Moskowitz (1999, 2001)
  - Payout Policies – John et. al (2011)
  - Corporate Decisions – Dougal, Parsons and Titman (2015)
  - Asset Pricing Returns – Hirshleifer and Shumway (2003)
- Locations provide benefits to those who live there in terms of amenities – higher quality of life (QOL)
  - Workers in high amenity locations have lower wages – Rosen (1979) and Roback (1982)
  - CEOs have higher pay in low amenity locations – Deng and Gao (2013)

This paper

Do entrepreneurs pay a premium for the private benefits that high amenity (high QOL) locations provide?

- Identify effects of QOL on valuation of private firms
  - New effect of geography on private firms
  - Furthers understanding of their valuation
  - Policy implications – Haltiwanger et. al. (2013)
- Identify new agency issue in private (and smaller) firm transactions
  - Manager enjoys benefits from higher QOL
  - Not shared with providers of capital

Preview of Key Results

- Using "best places" as proxy for QOL
  - ≈16% premium for firms in high QOL locations
  - Robust to variety of geographic and firm financial controls
- Sub-sample results
  - Results not driven by economic factors associated with location
  - Significant premium only for firms with non-public buyers
  - Premium does not scale or appear for firms unlikely to attract non-local buyers
- Alternative tests
  - Instrument for QOL using lagged rent-wage differentials (Albouy, 2012)
  - Alternative proxies for QOL
  - Use of weather and topography index

Compensating Differentials

- Rosen (1979) and Roback (1982)
  - Worker utility consists of wages and flow from the amenities of their location (QOL)
  - Workers can freely locate across areas
  - Firms set wages to attract workers
  - Competitive market
- Equilibrium:
  - Workers are indifferent across locations
    $\Longrightarrow$ wages compensate for lower location amenities

Empirical Methodology

- Want to compare companies with similar economic prospects (fundamentals) but differing exposure to local amenities
  - Variable of interest: QOL Proxy
- Empirically difficult to detect due to relationship between high QOL and firm fundamentals
- Empirical Strategy
  - Control for firm financials and observable geographic variables that directly affect firm fundamentals
  - Fixed Effects – State, Year, Industry (Industry $\times$ Year)
  - Compare subset of buyers who value amenities differently
  - Historical proxy as instrument for current QOL
  - Weather/Topography based measures of amenities

Transaction Data (Pratt Stats)

- Provided by Business Valuation Resources
  - Widely used by transaction intermediaries on subscription basis
  - Excludes deals where primary consideration is real estate
- Informationally rich dataset
  - Target (industry, location, and financials)
  - Acquisition (date, price, and consideration)
  - Sale price excludes "(1) the real estate value, (2) any earn outs (because they have not and may not be earned), and (3) the employment/consulting agreement values."
  - **Caveat** – Almost no buyer details
- Final sample includes over 7,500 transactions across 17 years, 48 states, and 41 industries
  - Only focus on firms within CBSAs
  - Include firms sold from 1995-2012

Other Data

- Quality of Life (QOL)
  - Primary proxy is "Best Places" measure
  - Indicator of whether the firm's location is listed as a "Best Place" in one of five national magazines
    - Highly public – easily observed by buyers
    - Based on variety of characteristics
  - CBSA is high QOL if city or town was a "Best Place" within an hour's drive of the population center
  - Other proxies: state rankings and weather/topography index
- Other data sources - Matched to CBSA
  - U.S. Census (Population, Education, Wealth)
  - FHFA (Home Prices), Reference USA (HQ's), BEA (Establishments), NOAA (Weather), BLS (Employment)

Baseline Specification

$$\ln(\text{Price}_{i,j,k,t}) = \beta_1 X_{i,j,k,t} + \beta_2 DX_{k,t} + \beta_3 \text{BP}_{k,t}$$

Dep. Var. = ln(Price)	**Firm Financials (1)**	**Best Place (2)**	**Geographic Controls (3)**	**State FE (4)**	**Assumed Lease (5)**
Best Place – Quality of Life (QOL)		0.144***	0.170***	0.181***	0.180***
		(0.0329)	(0.0336)	(0.0401)	(0.0397)
Firm Financial Controls					
ln(Sales)	0.980***	0.977***	0.971***	0.962***	0.963***
	(0.00721)	(0.00742)	(0.00927)	(0.00902)	(0.00892)
Operation Profit/Sales	0.388***	0.426***	0.473***	0.457***	0.456***
	(0.104)	(0.104)	(0.109)	(0.110)	(0.109)
Employment Agreement	-0.0345	-0.0277	-0.0196	-0.0252	-0.0225
	(0.0247)	(0.0225)	(0.0222)	(0.0229)	(0.0232)
Assumed Lease					-0.0204
					(0.0221)
Geographic Controls	No	No	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
State FE	No	No	No	Yes	Yes
Adj. R2	0.850	0.851	0.849	0.851	0.851
Obs.	8272	8272	7823	7822	7822

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Alternate Channels

- Agglomeration/Competition (Krugman, 1991; Audretsch and Feldman, 2006)
  - Control: Industry Concentration
  - Ratio of establishments in given industry in CBSA to total
- Capital Availability/Home Bias (Lerner, 1995; Coval and Moskowtiz, 1999; Becker, 2007)
  - Control: Local Wealth
  - % Households with Income $>$ \$ 200 K in CBSA
- Liquidity (Loughran and Schultz, 2005)
  - Control: Scaled Transactions
  - Ratio of transactions per year to establishments with revenues $>$ \$ 1 MM in CBSA

Alternate Channels

Dep. Var. = ln(Price)	**Agglomeration (1)**	**Home Bias (2)**	**Liquidity (3)**	**All (4)**	**Industry x Year FE (5)**
Best Place – Quality of Life (QOL)	0.178***	0.178***	0.159***	0.158***	0.154***
	(0.0389)	(0.0425)	(0.0400)	(0.0413)	(0.0398)
Agglomeration					
Local Industry Concentration	-1.045***			-1.050***	-0.982***
	(0.198)			(0.198)	(0.208)
Capital Home Bias					
% of Households with Inc.>$200K		3.301***		3.129***	2.900**
		(1.181)		(1.190)	(1.217)
Market Liquidity					
Avg Transactions per yr/Firm HQ ('000)			-5.172**	-4.482**	-5.250**
			(2.027)	(2.193)	(2.237)
Firm Financial Controls	Yes	Yes	Yes	Yes	Yes
Geographic Controls	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	No
Year FE	Yes	Yes	Yes	Yes	No
State FE	Yes	Yes	Yes	Yes	Yes
Industry x Year FE	No	No	No	No	Yes
Adj. R2	0.851	0.851	0.851	0.851	0.855
Obs.	7813	7822	7822	7813	7679

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Sub-Sample Tests

Transaction Size

- Without competition (or threat of) from non-local buyers should not observe premium
  - Unlikely to materialize for firms with small price
  - Buyers of small firms purchased by local buyers 80% of time (IBBA Market Pulse, Q1-2015)
    $\Longrightarrow$ no premium for small targets
- Effects of economic characteristics of area likely to scale with size (e.g. talent, entrepreneurial activity)
  - Value of benefit to entrepreneur scales less with size
    $\Longrightarrow$ small/difficult to detect premium (as %) for large targets

Sub-Sample Tests

Dep. Var. = ln(Price)	**Small (1)**	**Medium (2)**	**Large (3)**
Best Place – Quality of Life (QOL)	-0.030	0.136***	-0.052
	(0.029)	(0.032)	(0.097)
Firm Financial Controls			
ln(Sales)	0.173***	0.677***	0.529***
	(0.017)	(0.014)	(0.028)
Operating Profit/Sales	0.157***	0.541***	0.043
	(0.053)	(0.083)	(0.138)
Employment Agreement in Place	0.0258	0.0994***	-0.230***
	(0.0198)	(0.0199)	(0.0607)
Assumed Lease	-0.017	-0.036	-0.043
	(0.025)	(0.025)	(0.061)
Geographic Controls	Yes	Yes	Yes
Additional Controls	Yes	Yes	Yes
Industry FE	No	No	No
State FE	Yes	Yes	Yes
Year FE	No	No	No
Industry x Year FE	Yes	Yes	Yes
Adj. R2	0.130	0.640	0.498
Obs.	1422	4873	1133

Sub-Sample Tests

Buyer Type

- Only those who co-locate consume benefit of higher QOL
  - Shareholders of public firms do not receive private benefits of higher QOL
- Public firm unlikely to relocate to run acquired target
  - Management team unlikely to consume private benefits

$\Longrightarrow$ Only observe premium for firms bought buy private buyers who are likely to relocate

Sub-Sample Tests

Dep. Var. = ln(Price)	Full Sample		Middle Quintiles	
	Private	Public	Private	Public
	(1)	(2)	(3)	(4)
Best Place – Quality of Life (QOL)	0.140***	-0.010	0.128***	-0.057
	(0.035)	(0.110)	(0.033)	(0.139)
Firm Financial Controls				
ln(Sales)	0.817***	0.773***	0.668***	0.321***
	(0.013)	(0.026)	(0.016)	(0.068)
Operating Profit/Sales	0.824***	0.089	0.820***	-0.035
	(0.066)	(0.155)	(0.078)	(0.234)
Employment Agreement in Place	0.115***	-0.133*	0.117***	0.084
	(0.0189)	(0.0769)	(0.0207)	(0.133)
Assumed Lease	-0.025	-0.045	-0.024	0.102
	(0.024)	(0.060)	(0.027)	(0.118)
Geographic Controls	Yes	Yes	Yes	Yes
Additional Controls	Yes	Yes	Yes	Yes
Industry FE	No	No	No	No
State FE	Yes	Yes	Yes	Yes
Year FE	No	No	No	No
Industry x Year FE	Yes	Yes	Yes	Yes
Adj. R2	0.724	0.614	0.607	0.351
Obs.	6058	1466	4429	323

Adjusted QOL

- Potential for unobservable variation in entrepreneurial activity correlated with QOL
- Instrument for current QOL with historical measure:
  - Albouy (2012) method – Wage to rent differentials
  - Based on worker wages (opposed to entrepreneurs)
  - Using IPUMS census data from 1990 census (minimum lag of 5-years)
  - Control for additional production amenity from Albouy (2012)

Adjusted QOL

	First Stage			Second Stage		
Dep. Var.	**Best Place**	**Best Place**	**Best Place**	**ln(Price)**	**ln(Price)**	**ln(Price)**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Quality of Life (QOL)						
Adj.-QOL 1990	6.050***	5.406***	6.730***			
	(1.259)	(1.652)	(2.115)			
Best Place (Instr.)				0.156**	0.193**	0.269**
				(0.0746)	(0.0823)	(0.114)
Other Controls						
Production Amenity		1.274	-0.442		-0.0769	-0.0512
		(0.978)	(1.038)		(0.298)	(0.592)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geographic Controls	No	No	Yes	No	No	Yes
Additional Controls	No	No	Yes	No	No	Yes
Industry FE	Yes	No	No	Yes	No	No
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	No	No	Yes	No	No
Industry x Year FE	No	Yes	Yes	No	Yes	Yes
Adj. R2	0.525	0.548	0.694	0.863	0.865	0.865
Obs.	8424	8197	7738	8424	8197	7738
First Stage F-Stat	23.094	10.709	10.122			

Adjusted QOL

	First Stage			Second Stage		
Dep. Var.	**Best Place**	**Best Place**	**Best Place**	**ln(Price)**	**ln(Price)**	**ln(Price)**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
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		(0.978)	(1.038)		(0.298)	(0.592)
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geographic Controls	No	No	Yes	No	No	Yes
Additional Controls	No	No	Yes	No	No	Yes
Industry FE	Yes	No	No	Yes	No	No
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	No	No	Yes	No	No
Industry x Year FE	No	Yes	Yes	No	Yes	Yes
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Obs.	8424	8197	7738	8424	8197	7738
First Stage F-Stat	23.094	10.709	10.122			

Alternative Measures

- Morgan Quinto Rankings
  - Used in Deng and Gao (2013)
  - States ranked (1-50) in terms of quality of life
- Weather and Topography Index
  - Examine six measures of weather and two of topography
    - Total precipitation
    - # Days Precip. $>$ .01 in.
    - # Days Temp. $>$ 90 F
    - # Days Temp. $<$ 20 F
    - Mean July Humidity
    - Mean Hours Jan. Sunlight
    - % Surface Area Water
    - Land Topography Code
  - Generate z-score for each measure
  - Take sum of z-scores and standardize
  - Alternative – Sum of Indicator if in top 20% for each

Alternative Measures

Dep. Var. = ln(Price)	Morgan Quinto		Weather & Top. Index	
	Varying (1)	Static (2)	Z-Score (3)	Rank (4)
Quality of Life (QOL)				
State Rank (Varying)	0.00312**			
	(0.00123)			
State Rank (Static)		0.00264**		
		(0.00123)		
Weather and Topography (Z-Score)			0.0872**	
			(0.0420)	
Weather and Topography Index (Top 20%)				0.0524**
				(0.0250)
Firm Controls	Yes	Yes	Yes	Yes
Geographic Controls	Yes	Yes	Yes	Yes
Additional Controls	Yes	Yes	Yes	Yes
Industry FE	No	No	No	No
State FE	No	No	Yes	Yes
Year FE	No	No	No	No
Industry x Year FE	Yes	Yes	Yes	Yes
Adj. R2	0.852	0.852	0.852	0.852
Obs.	7405	7405	7223	7223

Alternative Measures

Dep. Var. = ln(Price)	Morgan Quinto		Weather & Top. Index	
	Varying (1)	Static (2)	Z-Score (3)	Rank (4)
Quality of Life (QOL)				
State Rank (Varying)	0.00312**			
	(0.00123)			
State Rank (Static)		0.00264**		
		(0.00123)		
Weather and Topography (Z-Score)			0.0872**	
			(0.0420)	
Weather and Topography Index (Top 20%)				0.0524**
				(0.0250)
Firm Controls	Yes	Yes	Yes	Yes
Geographic Controls	Yes	Yes	Yes	Yes
Additional Controls	Yes	Yes	Yes	Yes
Industry FE	No	No	No	No
State FE	No	No	Yes	Yes
Year FE	No	No	No	No
Industry x Year FE	Yes	Yes	Yes	Yes
Adj. R2	0.852	0.852	0.852	0.852
Obs.	7405	7405	7223	7223

Other Results/Robustness

- QOL proxies do not predict:
  - Discount to Asking Price
  - Likelihood of Firm Survival
- QOL Premium robust to:
  - Additional controls (e.g. Cash Consideration, Realized Growth)
  - Subset of locations (e.g. No CA firms)
  - Subset of time periods (e.g. recessions, dot-com period)
  - Use of historical measure of "Best Places"

Conclusion

- Entrepreneurs pay economically meaningful premium for firms in high QOL locations
  - Small business buyers paying for the non-pecuniary private benefits from high QOL
- Entrepreneur derives non-pecuniary benefits that do not accrue to other shareholders
  - Firm is not a purely financial asset
  - Identify effect of important channel for how geography affects entrepreneurship
- Manager's consumption of the benefits does not diminish the value of the firm
  - Meaningful policy implications
  - Potential agency issue between buyer and provider of capital