Urban Amenities, Aging and Social Capital

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My three motivating questions:

1. How can an urban area improve its social capital?

2. How do amenities and urban demographics affect the steady state mean social capital and health of the residents?

3. How do these elements show up empirically?

Outline of the presentation:

A. Three theoretical models addressing these questions.

B. Two empirical sections, one on urban data and the second on a panel of state data.

Section 1.0: How a city can invest in individual capital:

This theory has two main ideas:

A. A city cannot invest directly into individual hearts and minds;
instead it can invest in social capital enablers.

B. No free lunch. Expanding bonds with people is costly, at least in time;
if this opportunity cost lowers income, then
social capital investment competes with other goals.

As in FKI, let the individual's choice to be that of utility maximizing the LaGrange utility function.

$$L=\gamma U(S, E, C)+\varphi[w(24-S)-pC]$$

Where γ is the probability of surviving the period, U is the individual's utility function, S equals social capital, E equals exogenous investment for the city, and C equals some other good to be described.

Let an urban area make an exogenous investment, E, in facilities that enable S (such as parks or recreation areas).

Then three cases arrive:

1) $\gamma_c = 0$, $U_{CE}=0$, then the city's goal of more healthy citizens through higher S has no competition and $\partial S/\partial E > 0$ and $\partial C/\partial E < 0$;

2) if $\gamma_c > 0$, $U_{CE} \geq 0$, and $\partial C/\partial E > ? < 0$ and $\partial S/\partial E > ? < 0$, that is C correlates with social capital and

3) if $\gamma_c < 0$, $U_{CE}=0$, (such as when C consists of cigarette consumption), then $\partial S/\partial E > 0$ and $\partial C/\partial E < 0$ and the city achieves both goals.

Section 2.0 : A Dynamic Model of Social Capital, Age, Amenities, and Health

A few preliminary comments:

A dynamic model is useful here mainly to let us see how changes in the levels of amenities and sizes of population groups affect long run movements towards a new steady state equilibrium.

A modification of the Solow growth model is both clear and convenient for this purpose.

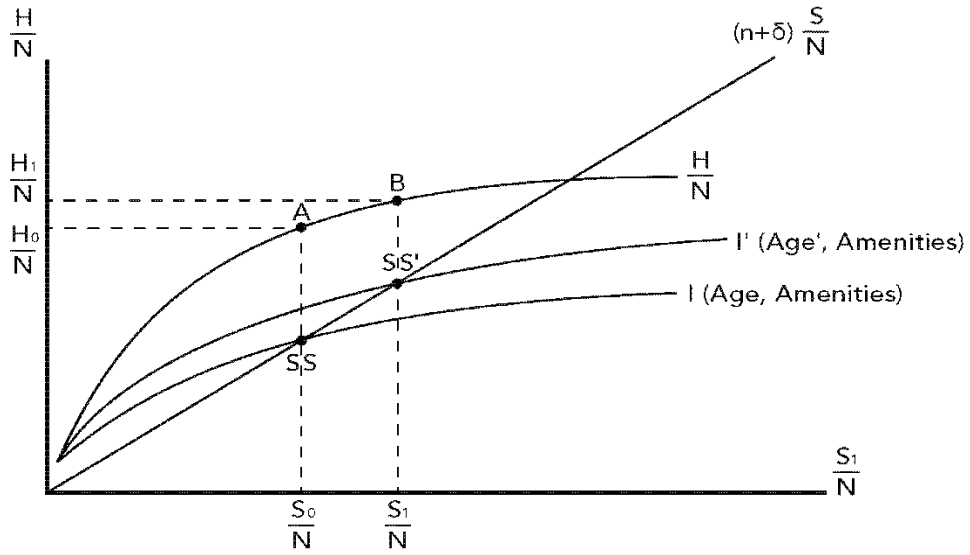

Figure 1.0 How Age and Urban Amenities Affect
Steady State Social Capital and Health per Capita

An Aside on Aging

1. Glaeser et al 2002:

   a. their model, sophisticated dynamic. Claims that S rises rapidly from youth to adulthood, then declines in old age.

   b. A critique: they assume that the end of life is fixed and well known; and their metric for S is active club memberships.

2. Suther and Koch, 2007; Garbinio and Slavin, 2009:

   The Investment Game: This measures trust by the initial donation. Player A donates chips to B (the amount is tripled by the game manager. Then B is asked to reciprocate. Trust doesn't decline with age.

An aside on measuring Urban Amenities:

The Regional Science literature has measured the effect of urban amenities it two ways:

1. The added amenity increases asset values: in particular, urban land values and housing values.

2. The amenity affects migration patterns: includes natural benefits like mountain scenery, sea coasts…

A comment on Glaeser's new paper. Happiness measure does not affect migration patterns in the economic way.

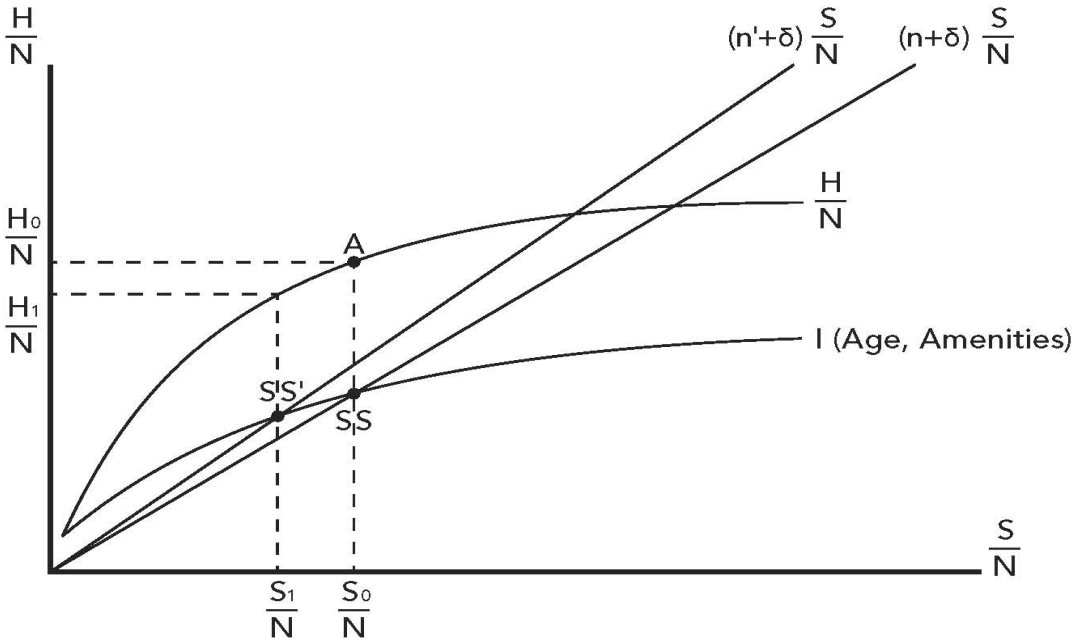

Figure 2.0 How Increased Rates of Population Growth Affect Steady State Social Capital and Health per Capita

An aside on population growth rates:

1. The Solow growth model, implies that an increased population growth rate tends to decay the capital/labor ratio. Does this apply in the social capital context?

2. Putnam: His work tests the effect of population increase, especially new and different people degrade S temporarily.
There are substantial benefits that come later.

These theoretical considerations imply the following predictions:

Increased amenities*: $\Delta S/N > 0$; $\Delta H/N > 0$

Increased aging: $\Delta S/N > ? < 0$; $\Delta H/N > ? < 0$

Increased population: $\Delta S/N < 0$; $\Delta H/N < 0$

Section 3.0 The political economy of urban amenities.

Two main ideas:

1. The mayor only wants to be reelected.

2. He seeks to maximize his votes, which depend on social capital in the city but also competing benefits to residents, such as new industry, crime control, water, gas and so on.

Section 4.0 Empirical tests of the effect of urban amenities:

1. The effects of urban social capital on urban health.

2. The effects of urban amenities on urban social capital.

3. The effects of an older population on urban social capital.

4. The effects of population growth on urban social capital.

Variable definitions.

InfMort: Infant mortality rates, CDC/

Parkscore: The Trust for Public Land evaluates parks in 60 of the largest U.S. cities.
The scale, from 0 to 100, is based on their amount of a) acreage; b) service and investment; c) accessibility.

ParkPop: Measures the city's expenditure on parks per resident
Source: website 2012 City Park Facts from The Trust For Public Land.

Pctparkland: The percentage of city land acreage dedicated to parks.
Source: website 2012 City Park Facts from The Trust For Public Land.

Walkscore: Measures the amount of area that is walkable and accessible to city transportation.
"WalkScore" is the corporate brand name with a copyrighted website accessed August 2014.

WalkUP: Stands for walkability of urban places
Source: Cristopher B. Leinburger and Patrick Lynch, George Washington University School of Business Center for Real Estate and Urban Analysis website August 2014.

Happiness: Index derived from the "Behavioral Risk Factors Surveillance System" (FBRFSS of CDC) by Edward Glaeser, Joshua Gottlieb, and Oren Ziv, "Unhappy Cities" NBER
working paper 20291 July 2014.

VCrime: Violent crime per 100,000 populations, FBI uniform crime report website August 2014.

PoliceCap: Active police offers per 10,000 population.
Source: Governing website August 2014.

City Populations: 1980, 1990, US Bureau Census website 2014.

The Social Capital Variables:

Trust: Average city score in 2008 from NLSY79.

S: The weighted sum of six Putnam type variables (see below)

S8694: sums the city's score for 1986, 1990 and 1994.

S98: the city score from 1998

S = -6.604 + clubmeet*0.2.65 + commproj*0.462 + enthome*0.180 +
volunt*0.162 + honest*0.013 + visfrd*0.098 Rsquare= 0.802 Prob>F 0.0000

Table 4.1 Descriptive Statistics for the Urban Variables

Variable	Observation	Mean	SDev	Min	Max
Trust	73	.355	.117	.063	.685
Soc8694	76	9.55	2.57	1.15	17.27
Soc98	61	-.849	1.28	-3.81	2.37
WalkUP	27	17.4	9.68	5	43
WalkScore	65	47.3	16.6	18	87.6
ParkScore	45	51.2	14.2	26	82
Pop2010	165	1246	2211	81	19567
Happiness	25	-.003	.084	-.147	.144
Pop1990	108	436	813	100	7322
Pop1980	108	413	783	80	7071
Parkpop	46	98.3	65.2	22.8	353
PoliceCap	103	21.6	8.99	9.4	47.4
Pctland	46	10.5	5.66	2.2	26.4
VCrime	50	846	408	352	2123
Chpct8090	108	9.01	17.8	-23.1	65.7

Table 4.1 Social Capital and Health

S variables	S8694	S98	Trust
Other variable	Infmort	Infmort	Infmort
correlation coeff	-0.3126	-0.2585	-0.2538
n of cases	41	29	37
t value	2.06	1.39	1.55

Table 4.1A Parks quality and investment

S8694	S98	S8694	S98	Trust	Trust
ParkScore	ParkScore	ParkPop	ParkPop	ParkScore	ParkPop
.562	.195	.338	.369	.082	.202
42	28	43	29	35	35
3.77	1.01	2.30	2.06	.473	1.185

Table 4.2B Walking:

S8694	S98	S8694	S98	Trust	Trust
WalkUP	WalkUP	WalkScore	WalkScore	WalkScore	WalkUP
.178	.087	.117	.070	-.138	.127
26	22	38	38	46	27
.88	.39	.7	.42	.924	.640

Table 4.2C Change in Population:

	SCX	SC98
Variable	CH8090	CH8090
Correlation coeff	.019	.019
Obs	61	46
T statistic	.146	.126

Table 4.2D Older Population Percent:

	Popold	Popold	Trust
Variable	S8694	S98	Popold
Correlation coeff	.073	.174	-.129
Obs	67	51	67
T statistic	.59	.124	1.050

Table 4.2E Crime and Police:

ParkScore	ParkPop	Trust	Trust
VCrime	VCrime	Cops	VCrime
-.144	-.193	-.261	-.231
32	33	44	31
.79	1.09	1.752	1.279

Section 5.0: Panel Data of the 48 Contiguous US States

Table 5.1 Descriptive Statistics for the State Panel Analyses

Variable	Obs	Mean	Std Dev.	Min	Max
S	288	.1608476	1.20605	-3.55905	4.239226
BA	288	18.84549	4.923003	9.1	34
unempct	288	6.155208	2.249314	2.2	15.5
popold	288	12.1875	1.89839	7.6	18.4
poverty	288	.1281433	.0372103	.0595564	.2638889
hexpop	288	2.057283	1.091393	.0375372	4.91264
persinc	288	.0164634	.0065149	.0059484	.0373244
chpop	240	4.374152	5.265842	-9.270217	33.63636
pctvoting	288	55.00036	7.031564	38.95694	72.5363

Table 5.2: Panel Regression of Illness Rates, with Period Effects

Variables	Total Mortality Rate	Infant Mortality Rate	Percent Low-Weight Births	Suicide Rate
S	-0.912 (2.55)	-0.241 (2.61)	-0.266 (3.86)	-0.360 (1.71)
unempct	0.167 (0.76)	-0.050 (0.90)	-0.033 (0.80)	-0.027 (0.21)
popold	0.471 (22.3)	-0.068 (1.25)	-0.860 (2.38)	-0.347 (2.80)
BA	-0.073 (5.52)	-0.095 (2.80)	-0.074 (2.92)	-0.034 (0.44)
poverty	3.307 (3.00)	18.31 (6.51)	14.74 (6.98)	-11.73 (1.81)
hexpop	0.104 (0.93)	-0.245 (0.86)	-0.042 (0.20)	-1.222 (1.87)
persinc	34.21 (1.64)	116.77 (2.18)	137.77 (3.45)	-304.9 (2.49)
constant	2.994 (6.70)	9.202 (8.08)	5.991 (6.77)	27.31 (10.42)
Probability>F	0.000	0.000	0.019	0.000

Table 5.3: Regressions of Variables Contributing to Social Capital, Period Effects

Independent Variable	Coefficient	T Values
BA	0.081	(3.68)
persinc	-38.66	(1.39)
% Voting	0.032	(3.38)
popold	0.123	(3.53)
chpop	-0.019	(1.72)
constant	-4.201	(6.16)
Probality>F		0.000

Concluding Remarks