

•Culture, Regulation,
•and
•Economic Growth

Byung-Hee Soh,
Kookmin University and
GSCT, KAIST

Outline of Presentation

1. Non-economic Factors for Growth
 2. A Model of Culture-Regulation-Growth
 3. Empirical Investigation
 4. Conclusion
- References

1. Non-economic Factors for Growth

- Weber(1920), Robert Nelson(2002), Barro and McCleary(2003)
- Religion and Growth
- Democracy or Freedom and Growth
- Rodrik(2000), Persson(2005), Barro(1996, 1999), Aghion et al.(2007)

- **Institution and Growth**

- Barro(1997), Orr, Biggart and Hamilton(1997), Hall and Jones(1999), Acemoglu et al.(2001, 2002, 2004), Gwartney et al.(2004)

- **Social Capital and Growth**

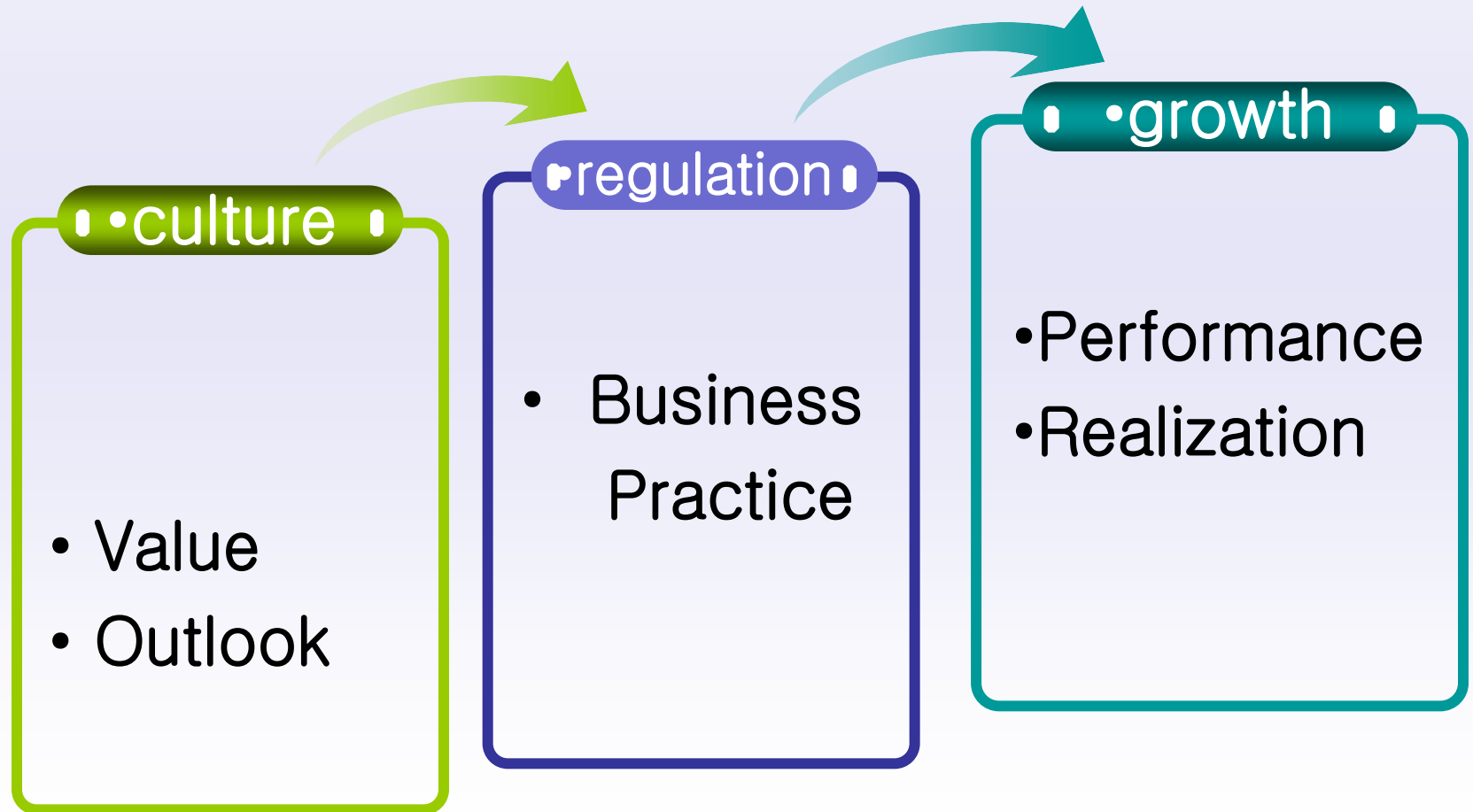
- Knack and Keefer(1997), Cozzi(1998), Sabatini(2005)

- **Culture and Growth**
- Harrison(1985), Diekmann(1996), Huntington and Harrison (2000), Kanatas and Stefanadis(2005), Beugelsdijk(2007), Tabellini (2007)
- **Regulation and Growth**
- Loayza et al.(2005), Dijankov et al.(2006), Dawson (2006), Lee(2008)

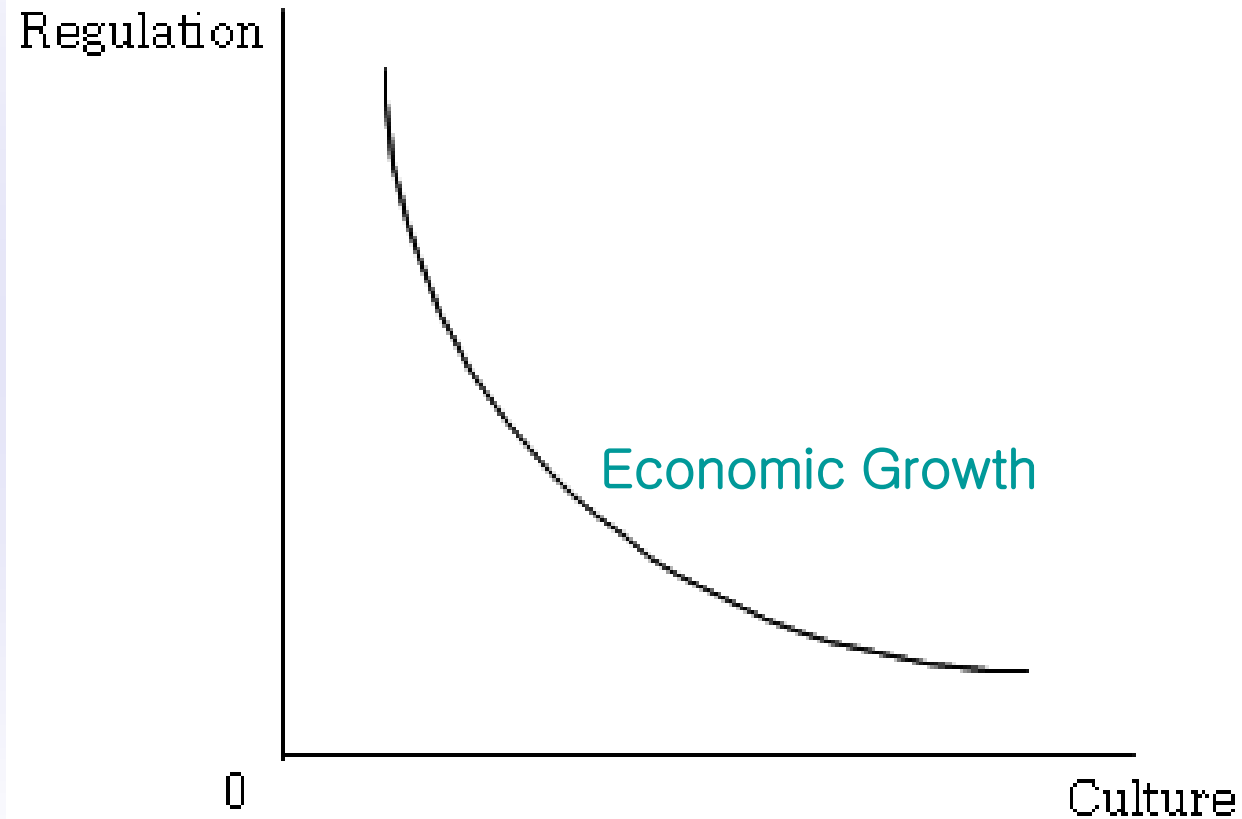
2. A Model of Culture->Regulation->Growth

- Regulations => Economic Performance
Distribution of resources
- Culture =>
Scope and Intensity of Regulations
- economic growth = $g(\text{regulation}, \text{culture})$

•From culture to growth through regulation



Culture-Regulation-Growth



3. Empirical Investigation

- Hypotheses
- Indicators of culture
- Indicators of regulation
- Result of regressions

Hypotheses

- The scope and intensity of regulation are a function of national culture.
- Different national cultures will produce different governments and different regulations for the same kind of problem.
- Regulation affects the business performance which will result in different rates of the growth of national economy.

Indicators of culture 1

- Hofstede(1991) 53nations
- H1= power distance index; 11–104score
- H2= individualism; 6–91score
- H3= masculinity; 5–95score
- H4= uncertainty avoidance; 8–112score
- H5= long-term orientation; 23nations;
0–118score

Indicators of culture 2

- **Heritage Foundation:** 1995–2008 ; 168 nations
- C1= Freedom from corruption; 0–100
- **Barro and McCleary(2003):** 59 nations
- P1= plurality index of religion;
- **IBCD;** 238 nations; Da= cultural diversity index;

- **World Bank:** 2004–2009; 183 nations;
- Q1= Enforcing contracts; time=days; 195–1800
- Q2= Enforcing contracts; cost=% of claim;0.1–163.2

Indicators of regulation

- **Heritage Foundation: 1995–2008**
- R0= 1995 score= average of all 7 kinds of freedom + gov't size+property rights 0–100
- R1= Business Freedom; 0–100
- R2= Investment Freedom; 0–100

- **World Bank: 2004–2009 ; 183 nations**
- R3= start a business/ time=days; 2–694days
- R4= start a business/ cost % of income per capita; 0.8–676%
- R5= regulation percentile of the countries in 2008

Result of Regressions

Table 1: Regulation as a Function of Culture

Variable	R3			R5		
Constant	-0.155 -2.999	0.13 20334	-0.176 -3.024	0.08 1.442	0.413 7.668	0.338 3.563
H1	0.003 3.625		0.003 3.703	0.003 3.496		0.001 0.805
H2		-0.002 -3.16			-0.003 -4.952	-0.003 -3.265
Q1			0.0002 3.435	0.0002 3.3	0.0002 3.428	0.0002 3.553
Q2	0.496 40437	0.504 40368				
Adjusted R squared	0.49	0.461	0.419	0.394	0.501	0.516
N of observations	48	48	48	48	48	48
D-W statistics	2.101	2.014	1.782	2.108	1.756	1.781
F-statistic	23.573	21.072	17.955	16.27	24.605	17.711

*coefficient and t-statistic

Table 2 Economic Growth as a Function of Regulation and Culture

• Variable	• DGDP (difference of per capita GDP between 2008 and 2004)						
• constant	• -1680.112	• 266.042	• 643.251	• 14264.8	• 14563.46	• 14282.7	• 9859.153
	• -1.452	• 0.185	• 0.484	• 10.526	• 9.979	• 10.66	• 4.291
• ROA	• 111.606	• 111.571	• 99.562				• 50.625
	• 5.509	• 5.574	• 4.973				• 2.358
• R5				• -20307.63	• -19956.23	• -18556.35	• -16798.88
				• -7.805	• -7.44	• -6.669	• -5.662
• Q1A		• -3.566			• -0.867		
		• -2.229			• -0.559		
• Q2A			• -53.417			• -28.022	
			• -3.276			• -1.709	
• R squared	• 0.156	• 0.181	• 0.208	• 0.271	• 0.272	• 0.284	• 0.295
• Adjusted R squared	• 0.151	• 0.171	• 0.199	• 0.266	• 0.263	• 0.275	• 0.286
• Number of observations	• 166	• 166	• 166	• 166	• 166	• 166	• 166
• D-W statistics	• 1.907	• 1.935	• 1.967	• 2.093	• 2.101	• 2.111	• 2.077
• F-statistic	• 30.354	• 18.028	• 21.444	• 60.913	• 30.485	• 32.273	• 34.083
• *coefficient and t-statistic							

Table 3 Economic Prosperity and Regulation

Variable	GDP2008(per capita GDP in dollars in 2008)					
Constant	-64380.65 -7.686	-31511.51 -5.661	-15156.76 -3.725	15093.91 8.398	15086.45 9.155	49062.5 12.857
R0	1282.87 9.465					
R1		704.111 8.42				
R2			561.61 7.618			
R3				-58.412 -2.473		
R4					-41.599 -3.256	
R5						-73690.51 -10.062
R squared	0.385	0.331	0.288	0.036	0.061	0.3883
Adjusted R squared	0.381	0.326	0.284	0.03	0.055	0.379
Number of observations	145	145	145	165	165	165
D-W statistics	2.177	2.139	2.139	1.831	1.813	2.216
F-statistic	89.585	70.902	58.04	6.117	10.602	101.245
*coefficient and t-statistic						

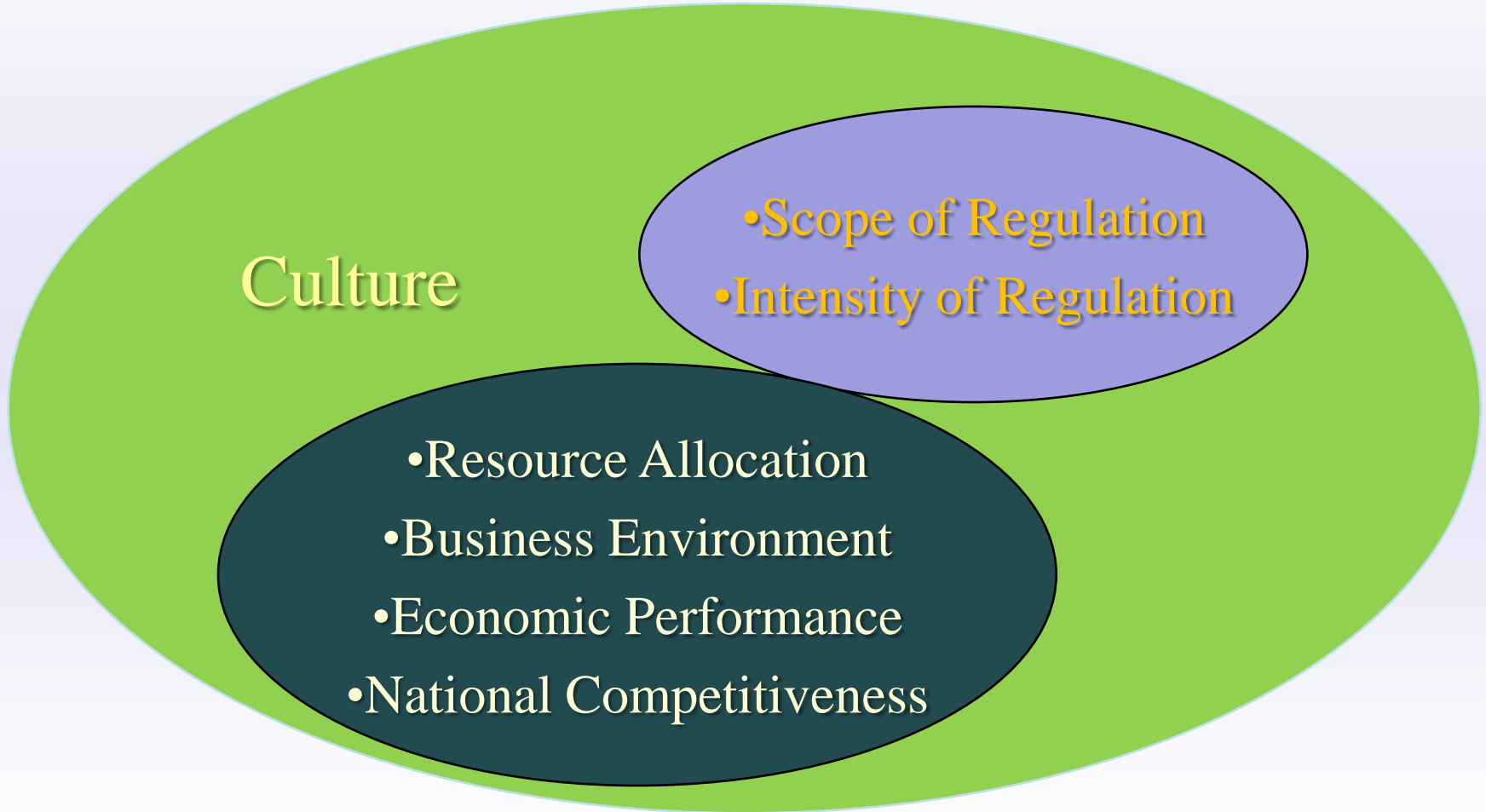
Table 4 Economic Growth and Regulation

• Variable	• DGDP					
• Constant	• -16333.19 • -5.443	• -7009.196 • -3.539	• -2873.363 • -2.018	• 4864.235 • 8.25	• 5009.876 • 9.322	• 14264.8 • 10.526
• R0	• 344.638 • 7.098					
• R1		• 181.505 • 6.099				
• R2			• 146.318 • 5.672			
• R3				• -15.208 • -1.957		
• R4					• -13.272 • -3.176	
• R5						• -20307.63 • -7.805
• R squared	• 0.261	• 0.206	• 0.184	• 0.023	• 0.058	• 0.271
• Adjusted R	• 0.255	• 0.201	• 0.178	• 0.017	• 0.052	• 0.266
• Number of observations	• 145	• 145	• 145	• 166	• 166	• 166
• D-W statistics	• 2.135	• 2.132	• 2.082	• 1.84	• 1.85	• 2.093
• F-statistic	• 50.388	• 37.204	• 32.175	• 3.832	• 10.086	• 60.913
• *coefficient and t-statistic						

4. Conclusion

- The differences in regulation can be partially explained by the difference in culture.
- Regulation index alone can explain almost 30% of the differences in per capita GDP growth.
- The prosperity of an economy is highly correlated to the regulation of the economy.

Culture, Regulation, Growth



Institutions and Economic Growth

Implications

- Regulation should be tailor-made to suit the culture.
- National competitiveness and economic growth can be achieved if culture can be changed accordingly.

References

- Acemoglu, Daron, Simon Johnson, and James A. Robinson, “The Colonial Origins of Comparative Development: an Empirical Investigation,” *American Economic Review* 91(5): 1369–1401, 2001.
- Acemoglu, Daron, Simon Johnson, and James A. Robinson, “The Rise of Europe: Atlantic trade institutional change and economic growth,” NBER working paper 2002.
- Acemoglu, Daron, Simon Johnson, and James A. Robinson, “Institutions as the fundamental cause of long-run growth,” NBER working paper 2004.
- Aghion, Phillippe, Alberto Alesina, and Francesco Trebbi, “Democracy, technology, and growth,” NBER working paper, 2007.
- Barro, Robert J., “Democracy and Growth,” *Journal of Economic Growth*, 1: 1–27, 1996.
- Barro, Robert J., *Determinants of economic growth: A cross-country empirical study*, MIT Press, 1997.
- Barro, Robert J., “Determinants of Democracy,” *Journal of Political Economy*, 107: s158–183, 1999.
- Barro, Robert J. and Rachel M. McCleary, “Religion and Economic growth,” NBER working paper 9682 May 2003.

- Cozzi, Guido, "Culture as a bubble," *Journal of Political Economy*, 106: 376–395, April 1998.
- Dawson, James, "Regulation, investment, and growth," *Cato Journal*, 26(3): 489–509, Fall, 2006.
- Dieckmann, Oliver, "Cultural Determinants of Economic Growth Theory and Evidence," *Journal of Cultural Economics*, 20,: 297–320, 1996.
- Djankov, Simeon, Caralee McLiesh, and Rita Ramalho, "Regulation and Growth," *Economic Letters*, 92: 395–401, 2006.
- Fernandez, Raquel and Alessandra Fogli, "An empirical investigation of beliefs, work, and fertility," NBER, working paper, 2005.
- Gwartney, James, Randall Holcomb, and Robert Lawson, "Economic Freedom, Institutional Quality, and Cross-country differences in income and growth," *Cato Journal*, 24(3): 205–233, Fall 2004.
- Hall, R.E. and C.J. Jones, "Why do some countries produce so much more output per worker than others?" *Quarterly Journal of Economics*, 114(1): 83–116, 1999.
- Harrison, Lawrence E., *Underdevelopment is a State of Mind – The Latin American Case*, (updated edition) Lanham: Madison Books, (originally 1985), 2000.
- Hofstede, Geert, *Culture and Organizations: software of the Mind: Intercultural cooperation and its Importance for Survival*, New York: McGraw Hill, 1991.
- Huntington, Samuel and Lawrence Harrison, *Culture Matters*, New York: Basic Books, 2000. (Korean translation, Seoul: Kimyoung-Sa, 2001.)

- Jing, Runtian and John L. Graham, “Values versus Regulation: How Culture Plays Its Role,” *Journal of Business Ethics*, 80: 791–806, 2008.
- Kanatas, George and Chris Stefanadis, “Culture, Financial Development, and Economic Growth,” working paper, Jones Graduate School of Management, Rice University, 2005.
- Knack, Stephen and Philip Keefer, “Does social capital have an economic payoff? A cross-country investigation,” *Quarterly Journal of Economics*, 1251–1288, November 1997.
- Lee, Byoungki, “The Impact of Business Regulation and Economic Freedom on Economic Growth,” *Journal of Regulation Studies*, 17–2:3–25, December 2008. (in Korean)
- Loayza, Norman, A.M. Oviedo, and L. Servén, “The impact of regulation on growth and informality: cross-country evidence,” mimeo, May 2005.
- Nelson, Robert, *Economics as religion*, University Park: Pennsylvania State University Press, 2002.
- North, Douglas, *Institutions, institutional change, and economic performance*, New York: Cambridge University Press, 1990.
- Persson, Torsten, “Forms of democracy, policy and economic development,” NBER working paper, 2005.
- Rodrik, Dani, “Institutions for high-quality growth: what they are and how to acquire them,” NBER working paper, 2000.
- Sabatini, Fabio, “The empirics of social capital and economic development: a critical perspective,” MPRA paper, 2005.

- Tabellini, Guido, “Culture and institutions: economic development in the regions of Europe,” mimeo, 2007.
- Weber, Max, *The protestant ethic and the spirit of capitalism*, New York: Scribner, 1958 (originally in German, 1920).
- Weil, David N., *Economic Growth*, Boston: Addison Wesley, 2005.
- World Bank, *Understanding Regulation*, e-book, 2004.



Thank you!

Byung-Hee Soh