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Social change and economic transformations. Can variations in social capital across time affect the structure of an economy?

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Abstract: *Drawing on a body of literature that describes how the social capital affects economic life, this paper discusses the transformation of economies. Based on indicators of trust and norms of civic cooperation from the World Values Survey that are applied to a sample of 29-nation sample I present evidence that variations of social capital across the time actually can influence the structure of an economy. The research indicates a strong positive correlation between both trust and norms of civic cooperation and the creation of new firms that shape the economy.*

Keywords: Values, Social Capital, Trust, Civic Cooperation, Economic Structure, Social Change.

At least since the work done by Pierre Bourdieu (1986) the relationship between social capital and economic structures has been an important topic in economic sociological research. In this context, this paper will present evidence for a measurable impact of social capital on the structure of an economy. The findings of the empirical study are twofold: First it turns out that – compared between different states – variance in social capital results in a different economic structure. Furthermore the change of social capital over time has an own impact on structural changes of an economy: this research gives evidence that a growth of social capital over time translates into a denser economic structure.

On the way to this result, I, *first* conceptualized the concepts of economic structure and social capital. Literature has dealt with these topoi in manifold ways. I will feature some of them in order to find proxies for measuring both. *Second*, these findings will be transferred into concrete variables. The economic structure will be measured by economic performance and the emergence of new business organizations. Social capital will be expressed as norms of civic cooperation and trust. *Third*, I will prove the correlation of both by an ordinary least squared regression analysis. Similar as in Knack & Keefer the regression analysis is based on a 29-nation sample. The huge difference is that this paper does not only focus on market economies. The sample therefore contains a huge diversity of economies to cope with the diversity of possible consequences of social capital for the structure of an economy. The influence of variations over time will be observed by a comparison between data from the sixth wave of the World Values Survey (WVS) from 2010-2014 and data from the fourth wave (1999-2004). This part of the paper also analyses the implications of social capital for the economic structure. I will conclude with a brief summary of the findings and a prospect for further research.

Theory – or, what matters?

The guiding question for this part is the search for an understanding of economic structures on a nation state level. I have two reasons for focussing on the nation state. First, this constraint enables actual measurability of the economy's properties – other than more holistic approaches.[3] Second, the focus on national economies is also prevalent in existing accounts on the relationship between culture and structure (see for instance Coates 2000; Putnam 2000; Hall & Soskice 2001; or Amable 2003). But what is it that is described as economic structure? According to Chris Howell different theories on national economies are unified on their view of interdependent political-economic institutions: national capitalisms are characterized as "particular configurations of interlocking and interdependent political-economic institutions" (Howell 2003: 103). The "Varieties of Capitalism" approach by Peter A. Hall and David Soskice regards corporations as decisive economic actors (Hall & Soskice 2001). By following this approach I will emphasise on firms and how they coordinate with other actors.

Beside firms, there is another important aspect, which is part of the economic structure. Neil Fligstein introduces four institutions that "enable actors in markets to organize themselves, to compete and cooperate, and to exchange" (1996: 658). Only with these institutions – property rights, governance structures, conceptions of control, and rules of exchange – the structure of an economy can be defined. In other words the economic structure is described as the expectations created by institutions that have a

[3] A famous representative of holistic analysis is Niklas Luhmann's theory on society (for the account on economy see Luhmann 1988). Boldyrev (2013) summarised Luhmann's contribution for economics.

high impact on the way firms operate in markets. The important task of this research is constructing a framework in order to quantitatively measure the structure of economies. As we just examined this measurement involves not only single firms and actors; it rather brings firm-influencing institutions into focus. A way to capture firm-influencing elements as well as the firms as a part of the structure lies in the measurement of economic performance. This needs some explanation: other than Knack & Keefer (1997) in their study on the impact of social capital on the economy I mainly focus on the structure, not the performance. But the performance can be an indicator for the structure. At the heart of neo-institutionalism lies the assumption that institutions rather than rational choice-driven actors structure the economy (DiMaggio & Powell 1983). As Douglass North (1990: 5) argues, "institutions affect the performance of the economy by their effect on the costs of exchange and production". Thus, structural changes in the economy find expression in a changing economic performance. In other words, to pursue the question of this paper we should identify variance in economic performance. Before moving on to the next part I will briefly touch the subject of social capital.

Fligstein (1996) already describes the connection between culture respectively social capital and market institutions. This advises us to contrive an understanding of the term "social capital". At the latest when it is about measuring social capital we must beware a squishy concept. So before explaining the proxies for economic structure and social capital I will briefly introduce the theoretical background of social capital. More than twenty years ago James Coleman described personal capabilities as "authority relations, relations of trust, and consensual allocation of rights which establish norms" (Coleman 1990: 300-1).[4] This view on individual capability can be used as a definition of social capital (Knack & Keefer 1997: 1252). Using this definition for social capital has two advantages, first, it makes this research comparable

[4] Due to constraints another important approach by Pierre Bourdieu (1986) can only be mentioned.

to the paper by Knack & Keefer (1997), as well as it refers thereby to an already accepted method of measurement for social capital. Numerous studies on the relationship between social capital and economy in the wider sense resulted in fruitful insights. Just to name Greif (1989) who exemplified how the development of trust as social capital in the Middle Ages influenced trade. Or, the paper by Helliwell & Putnam (1995), which showed higher growth rates in regions with a more developed "civic community". Therefore, in our results we should also find this positive connection between social capital and the economic structure. After laying the groundwork for an understanding of social capital and the structure of an economy we will move forward to the question how we can actually measure these phenomena.

Data and methods – or, what to measure?

This chapter will determine what kind of things we have to measure in order to measure "the right things" – described above as social capital and economic structure. We need quantifiable parameters that already have been measured. In other words, I have to identify characteristics of social capital as well as of economic structures that can be found in a dataset. Another important criterion for finding appropriate proxies is the matter of comparability. This paper wants to make a statement about the impact of variations of social capital over time. To do so I will have to compare the findings with the results of Knack & Keefer (1997). Thereby I will also follow their definition of social capital by norms of civic cooperation and trust. Let's have a closer look on how they fit this our understanding of social capital and their possible connection to the economic structure. Civic norms are defined as "those that resolve prisoner's dilemmas without imposing substantial external costs on other parties" (Knack & Keefer 1997: 1254). In other words, these norms contribute to decisions that, but a common interest in the foreground rather than pure self-interest – albeit the aggregated consequences of such

"cooperative decisions" fit the personal interest best.[5] Since civic norms constrain opportunism a variance of such norms is supposed to have an impact on economic structure. Lower costs to monitor and enforce contracts, less patent lawsuits, or more inter-organisational cooperation may result from high values of civic cooperation. So norms of civic cooperation are not only about the question if one puts his or her chewing gum in the next bin or on the street, it has the power to change the economic structure.

Trust also is a vital proxy for social capital and offers a link to economic structure. Putnam et al. (1993) utilise trust as one important brick in their framework of social capital that serves as his tool for analysing the governmental and economic capacity in Italy. They observed that a well working economy and well-functioning political system were the consequence of high values of social capital. Likewise James Coleman stresses the interrelation between trust and economy: "norms, interpersonal trust, social networks, and social organization are important in the functioning not only of the society but also of the economy" (Coleman 1988: 96). So it seems that trust, as well as civic cooperation, is a suitable concept for measuring social capital.

To measure trust and civic cooperation I will use questions from the sixth wave of the World Values Survey that has been collected from 2010 till 2014 (WVS 2014). Although I try to follow Knack & Keefer's concept, I have to apply small modifications to the measurement of civic cooperation. Knack & Keefer (1997) took the responses to the question if each of the following behaviours "can always be justified, never be justified, or something in between" (1256):

[5] A famous example for the benefit of cooperative decisions is the "tragedy of commons" (Hardin 1968).

a. "Claiming government benefits which you are not entitled to"
b. "Avoiding a fare on public transport"
c. "Cheating on taxes if you have the chance"
d. "Keeping money that you have found"
e. "Failing to report damage you've done accidentally to a parked vehicle"

Since the items "keeping money that you have found" and "failing to report damage you've done accidentally to a parked vehicle" are not part of the 2014 WVS anymore I have to drop them out. Instead I will add the item "someone accepting a bribe in the course of their duties" as another indicator for the level of civic cooperation (CIVIC). The responses to each of those items – on a range between 1 and 10 – will be aggregated to a new item with a range of 4 to 40 (Knack & Keefer 1997: 1257). In our case 40 represents a high level of cooperation.

The question used for measuring trust (TRUST) is extracted from the World Values Survey: "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" (WVS 2014). This item embraces only a two option answer: "Most people can be trusted" or "Need to be very careful". After recoding the average value of this variable it represents for each country the rate of respondents that think most people can be trusted.

The proxies for the economic structure are a little harder to find. There is no straightforward way to measure market institutions like property rights, governance structures, conceptions of control, and rules of exchange as well as firm interrelations. We have to find a quantitative, measurable proxy for qualitative properties.[6] According to the outlined framework I argue that

[6] This is called "commensuration" as it is characterised as "the transformation of qualities into quantities that share a metric, a process that is fundamental to measurement" (Espeland & Sauder 2007: 16).

economic performance – measured by growth and the number of founded firms – is part of the economic structure. Measuring change in the economic performance also facilitates implications on change in the economic structure. Therefore, this paper utilises two indicators: (1) as well as Knack & Keefer (1997) I will use average annual growth per capita.[7] Furthermore, I choose (2) the average number of newly registered firms per working-age people from 2004 till 2012 as an indicator of economic structure.[8] It is obvious that both numbers – even in combination – do not give a meaningful number for the structure of an economy at a particular point in time. But that does not matter since the proxy is only important to identify relative changes over the years, to answer the question about the impact of social capital.[9]

I will answer the question by a bifid process. *First*, I will use the items exposed above to calculate regression models that give evidence about the relation between social capital and the economic structure. In this case an additional explanatory variable will complement all models: the individual perception of science enhances the model (SCIENCE). In the fashion of CIVIC this variable is based on the answers of the question "how much you agree or disagree with each of these statements" (WVS 2014):

a. "Science and technology are making our lives healthier, easier, and more comfortable"

[7] 2004-2012; World Development Indicators (http://data.worldbank.org)

[8] The data is based on the reports of company registrars on the number of new firms. "Business entry density is defined as the number of newly registered corporations per 1,000 working-age people (those ages 15–64)." (http://www.doingbusiness.org/data/exploretopics/entrepreneurship)

[9] Labelling economies at a certain point with a single number is what rating agencies are doing.

b. "Because of science and technology, there will be more opportunities for the next generation"
c. "We depend too much on science and not enough on faith"

Furthermore, the response to the question "All things considered, would you say that the world is better off, or worse off, because of science and technology?" is taken into account. The response of all four items – on a range between 1 and 10 – will be aggregated and into a new variable SCIENCE with the range from 4 to 40.[10] As well as for CIVIC 4 equals a low affection to science, 40 a high one. The *second* step is a comparison between the results of these regression models – based on the 2014 WVS – with data from the fourth wave of the WVS (1999-2004). This will finally allow answering the question if variations in social capital across time can affect the structure of an economy.

[10] Certainly the response to the statement "we depend too much on science and not enough on faith" will be recoded, to fit the others statements trends.

Table 1: Results – or, how social capital affects the economic structure[11]

Can variations in social capital affect the structure of an economy? (OLS)				
Equation	1	3	4	6
Dependend variable	Growth	Growth	New firms	New firms
Constant	-7,559	-6,476	** 21.611	14,394
	(5,154)	(6.494)	(9.14)	(11.272)
SCIENCE	** 0.441	** 0.447	** -0.803	** -0.841
	(0,19)	(0.194)	(0.336)	(0.337)
TRUST	*** -0.0615	*** -0.061	*** 0.165	*** 0.16
	(0.02)	(0.02)	(0.035)	(0.035)
CIVIC		-0,0361		0,241
		(0.128)		(0.222)
Adj. R^2	0,24	0,21	0,42	0,42
	* p < 0.1	** p < 0.05	*** p < 0.01	

First, we have to find evidence of any relation between social capital and the economic structure, before we can proceed further and draw our attention towards the more interesting case of variations of social capital over time. Six regression models are the result of the first part of the empirical research, but only four of them possess a significant F-value.[12] Therefore, Table 1 only shows the significant regression models – without the equations 2 and 5. In the following lines I will explain the findings of the four regression models, before continuing towards the results for variances in social capital over time.

The dependent variable in equations 1 and 3 of Table 1 is average annual growth per capita in percent over the 2004-2012 period. In both equations the variables TRUST and SCIENCE show a strong relationship to

[11] Standard errors are in parentheses.

[12] All models are in the appendix.

variables of the economic structure. Interesting is the role of CIVIC. The variable has no significant relation to economic growth and as the values for the adjusted R^2 show it even weakens the explanatory power of the regression model. Therefore, I will leave equation 3 out of the analysis and focus on equation 1. The coefficient for SCIENCE suggests that a one-point rise in the 4 to 40 scale of science affection is associated with a 0.44 rise in the percentage of average annual growth. A ten percentage-point rise of TRUST is linked with a fall of annual growth by 0.62 percentage points. While the former – the strong relation between SCIENCE and growth – seems to be comprehensible this turns out to be a very interesting fact. One reason for this negative correlation may be that trust is higher in countries that already feature a strong economy. So the relative growth may be lower compared to countries with lower trust and a lower level of economy. Since TRUST is highest in the Netherlands and Sweden the suspicion arises that also the Euro crisis plays a role in this result: compared to the rest of the country sample Sweden and the Netherlands show a relatively low rate of average annual growth of 1.51% respectively 0.86%. This contributes largely to the negative correlation in the equations 1 and 3.

Equations 4 and 6 show the relation between the average number of newly funded firms per 1.000 people in working age and SCIENCE, TRUST and CIVIC. As well as in the first models CIVIC is not significant. Since model 6 with CIVIC also does not entail a bigger explanatory value I will focus the analysis on equation 4. Interesting is that the explanatory value of this model (adj. R^2 = 0.42) is far higher compared to equation 1. SCIENCE and TRUST are better to explain the number of newly founded businesses than economic growth. Precise a five-point rise in SCIENCE decreases the annual average number of new businesses per working-age people by four. A ten-percentage-point rise of TRUST leads to 1.6 more businesses per working-age people. Therefore the results exhibit a strong positive relation between TRUST and new firms as

indicator of the economic structure.[13] This result perfectly fits the findings of Putnam et al. (1993) and Coleman on the relevance of trust for the economic structure. In a nutshell, this first step of analysis revealed that there is a relationship between social capital and the economic structure. Even if the trend of this relation in case of TRUST and economic growth does not fit the assumptions the positive correlation between TRUST and the number of new businesses elucidates the importance of trust as social capital for the structure of an economy. In the next step I will show the findings on how changes over time affect the economic structure.

Table 2. [14]

Can variations in social capital across time affect the structure of an economy? (OLS)			
Equation	6		
Dependend variable	New firms		
Constant	*** 3.612		
	(.557)		
TRUST	*** .172		
	(.039)		
CIVIC	*** .754		
	(.208)		
Adj. R^2	0,69		
	* p < 0.1	** p < 0.05	*** p < 0.01

To examine the effects of variations of social capital across time I used data from the fourth wave of the WVS and compared it with results from the

[13] The relation between SCIENCE and new firms is even stronger, but negative. Since SCIENCE is not in the focus of the research question, I will leave further interpretations out.

[14] Standard errors are in parentheses.

current wave. It was possible to create the same variables for TRUST and CIVIC since the items have been the same. The final regression models tested the correlation of growth and new businesses with the difference of trust in a ten-country sample between 2004 and 2014.[15] Again six models have been calculated, only one of them turned out to be significant. In this equation the difference of TRUST and CIVIC have a positive effect on the emergence of new businesses: if the value of trust in the 2004 survey is increased by six the annual number of newly founded firms per working-age individuals raise by one between 2004 and 2012. A four-point rise in the scale of CIVIC from 2004 till 2014 is associated with a three point increases of the "new firms" index. This model, however, explains a huge part of the number of new businesses with an adjusted R^2 of 0.69. To summarise: the regression analysis between the number of new firms as response variable and changes of trust and civic cooperation as explanatory variables show a strong positive correlation between variations of social capital across time and the economic structure. This correlation is highly significant.

Conclusion

This research did reveal the relation between social capital and the structure of an economy. Based on a 29-nation sample I investigated this correlation in a two-stage process. First I have drawn attention to the general impact of social capital on the economic structure. In this part of the analysis a relationship between trust and the economic structure has been discovered. Whereas the positive effect of trust on the emergence of new firms has been expected by theory the negative impact on economic growth was peculiar. This odd correlation may be explained by not included side effects that have a bigger impact on the response variable than the response variables. In the case of trust and growth the Euro crisis may have adulterated the model. European

[15] The sample size is restricted to ten due to the fact that only ten countries of the original 29-nation sample were part of the fourth WVS wave.

countries with high trust that used to have a well-performing economy suffered from the consequences of the economic crisis. Therefore the values of annual growth have been much lower compared to other countries in the sample. Consequently, it is not surprising that these results differ from the findings of Knack & Keefer (1997) that identified a positive correlation between social capital and the economic performance.

The big finding of the second part was that variations of social capital across the time actually can influence the structure of an economy. There is a strong positive correlation between both trust and norms of civic cooperation and the creation of new firms that shape the economy. If social capital increases over time this also has a positive impact on the economy. Not necessarily for the pure performance – since this regression model turned out to be not significant – but on business organisations that represent the structure. Compared with the literature this finding is not surprising on the basis of the general positive correlation between social capital and the economy. But it gives specific evidence for the positive correlation between a rise of trust and norms of civic cooperation over time, and a change of the structure of national economies. And for that reason it is still remarkable. Further research may put more emphasis on further factors that shape the impact of social capital on the economy. For example the existing economic structure might be relevant: to which degree does it matter if a liberal market economy or a coordinated market economy is observed?

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WORLD VALUES SURVEY Wave 6 2010-2014 OFFICIAL AGGREGATE v.20140429. World Values Survey Association (www.worldvaluessurvey.org). Aggregate File Producer: Asep/JDS, Madrid SPAIN

Data Appendix

Country	Trust 2014	Trust 2002	d_Trust	Civic 2014	Civic 2002	d_Civic	Science 2014	An. Growth*	N.B. Density*
Algeria	17,93	11,22	6,71	29,09	35,16	-6,06	27,87	1,42	0,44
Armenia	10,14			36,91			27,96	6,73	1,39
Australia	54,43			37,00			29,98	1,55	10,31
Belarus	35,17			32,28			29,39	7,60	0,66
Chile	12,77	23,01	-10,24	34,77	33,11	1,66	24,77	3,49	3,55
Colombia	4,13			34,53			24,25	3,34	1,41
Ghana	4,96			36,94			27,40	4,90	0,85
Japan	38,76	43,06	-4,30	37,87	37,35	0,53	28,72	0,79	1,09
Jordan	13,25	27,65	-14,40	37,07	38,44	-1,37	27,38	3,57	0,69
Kazakhstan	38,80			33,07			30,95	5,63	1,81
Malaysia	8,54			33,54			28,57	3,19	2,33
Mexico	12,42	21,84	-9,42	30,88	32,06	-1,18	25,75	1,51	0,73
Netherlands	67,42			37,47			29,00	0,86	4,49
New Zealand	56,78			36,61			26,97	0,86	19,66
Nigeria	14,78	25,59	-10,81	34,92	35,80	-0,88	26,76	4,22	0,65
Pakistan	23,92	30,83	-6,92	36,57	38,89	-2,32	29,49	2,47	0,04
Philippines	2,84	8,61	-5,76	27,49	30,40	-2,91	25,99	3,36	0,24
Romania	7,12			37,18			27,43	4,30	5,25
Russia	29,23			32,06			29,05	4,53	4,47
Rwanda	16,63			36,28			31,01	5,41	0,40
Singapore	38,52	14,71	23,81	32,84	34,98	-2,13	27,23	3,32	6,76
Slovenia	20,11			35,90			29,28	1,47	3,51
Spain	19,51	34,02	-14,51	36,58	35,90	0,68	26,61	-0,09	3,49
Sweden	64,85			35,16			31,27	1,51	4,80
Tunisia	16,00			35,69			28,21	2,74	1,15
Turkey	12,43			37,94			28,66	3,70	1,01
Ukraine	24,95			33,23			28,70	3,56	0,94
Uruguay	15,25			36,54			25,89	5,53	3,18
Uzbekistan	14,09			35,35			31,97	6,36	0,57
Average	23,99	24,05		34,89	35,21		28,15	2,96	3,37

*Annual average 2004-2012

Regression Models

*Economic structure and social capital
. regress var2 var5 var3

```
      Source |       SS       df       MS              Number of obs =      29
-------------+------------------------------           F(  2,    26) =    5.36
       Model |  31.4418421     2  15.720921             Prob > F      =  0.0112
    Residual |  76.2036148    26  2.93090826            R-squared     =  0.2921
-------------+------------------------------           Adj R-squared =  0.2376
       Total |  107.645457    28   3.8444806           Root MSE      =   1.712

------------------------------------------------------------------------------
        var2 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        var5 |   .4407113   .1895693     2.32   0.028     .0510461    .8303766
        var3 |   -.061527   .019863    -3.10   0.005    -.102356   -.0206981
       _cons |  -7.558931   5.154209    -1.47   0.154    -18.15356    3.035697
------------------------------------------------------------------------------
```

. regress var2 var5 var4

```
      Source |       SS       df       MS              Number of obs =      29
-------------+------------------------------           F(  2,    26) =    0.57
       Model |  4.55541649     2  2.27770825             Prob > F      =  0.5700
    Residual |  103.09004     26  3.96500155            R-squared     =  0.0423
-------------+------------------------------           Adj R-squared = -0.0313
       Total |  107.645457    28   3.8444806           Root MSE      =  1.9912

------------------------------------------------------------------------------
        var2 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        var5 |   .2002921   .2007565     1.00   0.328    -.2123688    .612953
        var4 |  -.0809489   .1450131    -0.56   0.581    -.3790276    .2171298
       _cons |   .5582884   6.914219     0.08   0.936    -13.65409    14.77067
------------------------------------------------------------------------------
```

. regress var2 var5 var3 var4

```
      Source |       SS       df       MS              Number of obs =      29
-------------+------------------------------           F(  3,    25) =    3.48
       Model |  31.6854836     3  10.5618279             Prob > F      =  0.0309
    Residual |  75.9599732    25  3.03839893            R-squared     =  0.2944
-------------+------------------------------           Adj R-squared =  0.2097
       Total |  107.645457    28   3.8444806           Root MSE      =  1.7431
```

```
------------------------------------------------------------------------------
      var2 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      var5 |   .4465115   .194098     2.30   0.030     .0467592    .8462638
      var3 |  -.0608514   .0203642   -2.99   0.006    -.1027923   -.0189105
      var4 |  -.0361962   .1278232   -0.28   0.779     -.299453    .2270606
     _cons |  -6.475625    6.49425   -1.00   0.328    -19.85078    6.899534
------------------------------------------------------------------------------

. regress var1 var5 var3

      Source |       SS       df       MS              Number of obs =      29
-------------+------------------------------           F(  2,    26) =   11.01
       Model |  202.928341     2  101.46417             Prob > F      =  0.0003
    Residual |  239.642331    26  9.21701272            R-squared     =  0.4585
-------------+------------------------------           Adj R-squared =  0.4169
       Total |  442.570671    28  15.8060954            Root MSE      =   3.036

------------------------------------------------------------------------------
      var1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      var5 |  -.8028086   .3361723    -2.39   0.024    -1.493821   -.1117965
      var3 |   .1648045   .035224     4.68   0.000     .0924005    .2372084
     _cons |   21.61075   9.140206     2.36   0.026     2.822792    40.39872
------------------------------------------------------------------------------

. regress var1 var5 var4

      Source |       SS       df       MS              Number of obs =      29
-------------+------------------------------           F(  2,    26) =    0.79
       Model |  25.4633433     2  12.7316716             Prob > F      =  0.4629
    Residual |  417.107328    26  16.0425895            R-squared     =  0.0575
-------------+------------------------------           Adj R-squared = -0.0150
       Total |  442.570671    28  15.8060954            Root MSE      =  4.0053

------------------------------------------------------------------------------
      var1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      var5 |  -.1928193   .4038176    -0.48   0.637    -1.022878    .6372397
      var4 |   .3590136   .2916909     1.23   0.229    -.2405656    .9585928
     _cons |  -4.135404   13.90781    -0.30   0.769    -32.72331    24.45251
------------------------------------------------------------------------------

. regress var1 var5 var3 var4

      Source |       SS       df       MS              Number of obs =      29
```

```
-------------+------------------------------           F(  3,    25) =    7.78
       Model |  213.739942     3  71.2466472           Prob > F      =  0.0008
    Residual |   228.83073    25  9.15322919           R-squared     =  0.4830
-------------+------------------------------           Adj R-squared =  0.4209
       Total |  442.570671    28  15.8060954           Root MSE      =  3.0254

------------------------------------------------------------------------------
        var1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        var5 |  -.8414463   .3368882    -2.50   0.019    -1.53528   -.1476121
        var3 |   .1603036   .0353453     4.54   0.000     .0875085    .2330987
        var4 |   .2411195   .2218577     1.09   0.287    -.215805    .6980439
       _cons |   14.39435   11.27181     1.28   0.213    -8.820381    37.60909
------------------------------------------------------------------------------

*Economic structure and variations of social capital over time
. regress var1 var3

      Source |       SS       df       MS              Number of obs =      10
-------------+------------------------------           F(  1,     8) =    0.06
       Model |  .14478549     1  .14478549           Prob > F      =  0.8064
    Residual |  18.0418533     8  2.25523167           R-squared     =  0.0080
-------------+------------------------------           Adj R-squared = -0.1160
       Total |  18.1866388     9  2.02073765           Root MSE      =  1.5017

------------------------------------------------------------------------------
        var1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        var3 |   .0108508   .0428246     0.25   0.806    -.087903    .1096045
       _cons |    2.45574   .5138677     4.78   0.001     1.270759    3.640721
------------------------------------------------------------------------------

. regress var1 var4

      Source |       SS       df       MS              Number of obs =      10
-------------+------------------------------           F(  1,     8) =    0.03
       Model |  .073853636     1  .073853636           Prob > F      =  0.8612
    Residual |  18.1127852     8  2.26409815           R-squared     =  0.0041
-------------+------------------------------           Adj R-squared = -0.1204
       Total |  18.1866388     9  2.02073765           Root MSE      =  1.5047

------------------------------------------------------------------------------
        var1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        var4 |  -.0413904   .2291716    -0.18   0.861    -.5698611    .4870803
       _cons |   2.348136   .5736326     4.09   0.003     1.025337    3.670935
```

```
------------------------------------------------------------------------------

. regress var1 var3 var4

      Source |       SS       df       MS              Number of obs =      10
-------------+------------------------------           F(  2,     7) =    0.03
       Model |  .154806998     2  .077403499           Prob > F      =  0.9705
    Residual |  18.0318318     7  2.57597598           R-squared     =  0.0085
-------------+------------------------------           Adj R-squared = -0.2748
       Total |  18.1866388     9  2.02073765           Root MSE      =   1.605

------------------------------------------------------------------------------
        var1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        var3 |   .0092719   .0523025     0.18   0.864    -.1144038    .1329475
        var4 |  -.0174234   .2793427    -0.06   0.952    -.6779639    .6431171
       _cons |   2.424144   .7471386     3.24   0.014     .6574423    4.190847
------------------------------------------------------------------------------



. regress var2 var3

      Source |       SS       df       MS              Number of obs =      10
-------------+------------------------------           F(  1,     8) =    3.69
       Model |  13.2768184     1  13.2768184           Prob > F      =  0.0911
    Residual |  28.8175438     8  3.60219297           R-squared     =  0.3154
-------------+------------------------------           Adj R-squared =  0.2298
       Total |  42.0943621     9  4.67715135           Root MSE      =  1.8979

------------------------------------------------------------------------------
        var2 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        var3 |    .103907    .054123     1.92   0.091    -.0209007    .2287148
       _cons |     2.24431   .6494403     3.46   0.009     .7466979    3.741922
------------------------------------------------------------------------------

. regress var2 var4

      Source |       SS       df       MS              Number of obs =      10
-------------+------------------------------           F(  1,     8) =    0.87
       Model |  4.11897798     1  4.11897798           Prob > F      =  0.3788
    Residual |  37.9753842     8  4.74692302           R-squared     =  0.0979
-------------+------------------------------           Adj R-squared = -0.0149
       Total |  42.0943621     9  4.67715135           Root MSE      =  2.1787
```

```
------------------------------------------------------------------------------
      var2 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      var4 |   .3091064   .3318328     0.93   0.379    -.4561014    1.074314
     _cons |   2.200131   .8306007     2.65   0.029     .284762    4.115499
------------------------------------------------------------------------------

. regress var2 var3 var4

    Source |       SS       df       MS              Number of obs =      10
-------------+------------------------------           F(  2,     7) =   11.19
     Model |  32.0647357     2  16.0323678           Prob > F      =  0.0066
  Residual |  10.0296264     7  1.43280378           R-squared     =  0.7617
-------------+------------------------------           Adj R-squared =  0.6937
     Total |  42.0943621     9  4.67715135           Root MSE      =   1.197

------------------------------------------------------------------------------
      var2 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      var3 |   .1722698   .0390072     4.42   0.003     .0800325    .2645071
      var4 |    .754407   .2083338     3.62   0.008     .2617758    1.247038
     _cons |   3.612346   .5572161     6.48   0.000     2.294739    4.929952
------------------------------------------------------------------------------
```