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Tetiana Kostiuhenko:

Interlocks between political and business elite groups and their impact on the economic development of Ukrainian enterprises

About the author:

Tetiana Kostiuhenko is a Ph.D. candidate in Sociology and a lecturer in the Sociology Department of the National University of "Kyiv-Mohyla Academy". Her research interests include the role of various social groups in state functioning, the impact of social systems on the formation of individual identity, and the application of network analysis for research perspective in the social sciences.

This paper presents certain outcomes from the author's dissertation research on the structure and particularities of the political elite network in the Ukraine. This study has been conducted over the past three years and is expected to be submitted for defence at the end of 2011. Kostiuhenko has published several articles on the topic in Ukrainian and English.

e-mail: tetiana.kostiuchenko@yahoo.com

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Forschungsstelle Osteuropa an der Universität Bremen

Research Centre for East European Studies at the University of Bremen

Klagenfurter Straße 3

28359 Bremen

Germany

e-mail: fsopr@uni-bremen.de

Abstract

This paper focuses on networks of Ukrainian political elite members (legislative and executive branches) that were affiliated with large businesses between 2007 and 2009. The analysis of such connections specifically allows for (i) the identification of interlocks within power circles connecting state power and business and (ii) the definition of the advantageous network profiles of enterprises affiliated with political elite members. The theoretical framework includes the work of C. Wright Mills on elitism, such as his 'interlocking directorates' concept, which was developed further by Domhoff, Useem, and Allen and was later explored by practitioners of the social network analysis paradigm (Scott, or Mintz & Schwartz).

The network data are based on (a) employment histories of 'businessmen-politicians' and (b) publications on major enterprises affiliated with particular political actors. The biographical method and in-depth interviews are used for collecting and verifying network data.

The paper identifies the following results:

- (i) Interorganisational networks of business enterprises and state institutions are not as dense as we might expect, with the average path between the pair of actors including 3 to 4 steps
- (ii) Legislative and executive power institutions have higher centrality than business enterprises, both in terms of possible direct influence (degree centrality) and brokerage positions between cohesive sub-groups (betweenness centrality)
- (iii) The TOP10 ranking of degree centrality contains much more business enterprises, leading to the assumption that the largest industrial actors have only one step between them—they 'share' one person, which thereby creates overlapping affiliations
- (iv) Five clusters could be defined by applying a partition algorithm, and those clusters vary in number and composition, as well as in regional particularities of enterprises appearing in different groups.

1. Introduction

The role of networks between political and business actors has been explored by social scientists in a number of studies. The role of elite members as "gatekeepers" to decision making is particularly salient in societies undergoing post-Soviet transformations. Changes in political power and economic recession, however, might constrain the development and functioning of governing institutions and privately held enterprises. Such difficulties could be overcome if the interest groups and friendship networks became the basis for the creation of an internally circulating 'power class', whose members periodically seize key positions in different governing institutions and collectively capture the economic and political decision-making process at the state level. A wide range of publications have focused on 'oligarchy' as a post-Soviet phenomenon among Ukrainian power circles (Puglisi, 2003)¹. Another topic of interest for these publications concerns the involvement of post-Soviet business elites in state decision making due to the funding of political parties from 'business groups' (Avioutskaa, 2009)². This is an approach that certain US-based researchers have relied on for defining power interlocks and interest groups in that it calls for

1 Puglisi, Rosaria. (2003). The rise of the Ukrainian oligarchs. In *Democratization*. – Vol.10, issue 3 – pp.99–123. (published online in Oct 2010: http://commonweb.unifr.ch/artsdean/pub/gestens/f/as/files/4760/21686_122448.pdf)

2 Avioutskaa, Viatcheslav (2009) The Consolidation of Ukrainian Business Clans. Paper presented on the 4th Danyliw Research Seminar on Contemporary Ukraine in the University of Ottawa, October 29-31, 2009.

tracing contributions to election campaigns from different companies and individuals (Mintz & Schwartz, 1981)³.

Nevertheless, a gap in the understanding of which methodological approaches could be applied to the systematic tracking of the relational patterns between political and economic elites still exists. This information would also aid in understanding the reasons for the formation and circulation mechanism of this power class in post-Soviet society. Moreover, because the analysis of the financial contributions of Ukrainian billionaires during election campaigns is impossible to conduct when it is based on open access information, researchers must rely on assumptions and rumours.

The objective of this paper is to map ties that connect members of the political elite (legislative and executive branches) with large businesses, to identify gatekeepers and key decision-makers, and to estimate possible outcomes of information flow, resource exchange and opportunities for coalition building. The research tasks could be listed as follows:

- i) To identify the interlocks within 'power circles' based on the principles of network analysis
- ii) To define and analyse enterprises and areas of business affiliated with political elite members in different branches of political power
- iii) To assess the functionality of the identified network ties for business development

This analysis was conducted between 2007 and 2010 from organisational and interpersonal network perspectives. Two major types of connections are illustrated: the first one pertains to political and business connections, and the second one involves educational, kinship and civic ties. The network data is based on (a) biographical information and (b) publications about owners, profits, acquisitions and mergers of major enterprises.

2. Research Framework and Problem Description

My research focuses on the central idea of the network approach, which refers to the notion that economic actions are embedded in social structures and that they are more likely to occur when two actors already know one another⁴. This awareness of each other's values, attitudes, interests and objectives reduces uncertainty and increases interpersonal trust during a period of radical social transformation. Of equal interest to me, when analysing interlocks between economic elites and governing structures, is the question of what keeps elite members in power. Continuing with the topic of 'Soviet legacies' and arguments based on the path-dependency approach, I suggest that elite networks of informal relationships exist that derive from common backgrounds, political experiences and shared history⁵.

Interlocks between business and politics in post-Soviet states have been studied in various aspects, especially in the context of how they aid in creating favourable conditions for one's large enterprise to increase its profitability. This was known as the 'Komsomol economy' phenomenon in the late USSR and

3 Mintz, Beth, & Michael Schwartz (1981) Interlocking Directorates and Interest Group Formation. *American Sociological Review*. – vol.46, №6. – pp.851-869..

4 This idea could be found in M.Granovetter (1985) "Economic Action and Social Structure: The Problem of Embeddedness", *American Journal of Sociology*. – Vol.91, issue 3. – pp.481-510.

5 Kostiuchenko, Tetiana & Mychailo Wynyckyj (2009). "The 'Komsomol Economy' Twenty Years Later", paper presented at the Danyliw Seminar in the University of Ottawa, Chair of Ukrainian Studies, October 29-31, 2009. Access <http://www.ukrainianstudies.uottawa.ca/pdf/Proceedings%2009.pdf>

'privatization' in the post-Soviet era (Kryshtanovskaya, 2005; Fortesque, 2006)⁶. For instance, a study of Ukrainian banks affiliated with political authorities has revealed a correlation between the efficiency of a bank's business activity and its unofficial co-operation with governing and legislative authorities (Baum et al., 2008)⁷.

In this paper, the concept of elites refers to the overlapping 'power circles' of people connected together through their affiliation with several power institutions as suggested by C. Wright Mills in his book "The Power Elite". Those who occupy strategic positions in large corporations, civic organisations, and political institutions, according to Mills, are able to provide regular influence on state decision making (Wright Mills, 1956)⁸. Consequently, large companies might aim to gain access to political authorities to lobby in state parliament or with the government. Wright Mills also emphasised that an increasing number of interlocks between economic, political and military institutions might lead to a reciprocal influence between the actors.

The concept of overlapping power circles was later developed as 'interlocking directorates' or 'corporate interlocks' in studies conducted by William Domhoff, Michael Patrick Allen, and, later, Michael Useem. They argued that 'interlocks of directors' are formed when the same top managers (non-owners) are gathered in corporate boards of several different companies, which happens not only because of their professional qualities but also because of their interpersonal connections with each other. That was one of the principal conditions for the successful functioning of the company. Domhoff argued that such interlocking persons who make information flow faster among actors of corporate networks were also invited often to the sessions of state committees (Domhoff, 1970)⁹. Allen and Useem developed the analysis of who the 'interlocking persons' are between corporations, banks, and state institutions (Allen, 1974; Useem, 1984)¹⁰. In the case of the present-day Ukraine, several large business owners have obtained their own places in parliamentary committees or government after recent elections, thus serving as 'interlocks' between their businesses and political structures.

3. Methodology

To gain a better understanding of common/shared experiences, I decided to trace biographical ties among power elite members. My intention was to rely on official and open facts about one's life-story, while avoiding assumptions or rumours based on journalistic investigations (i.e., the website of *Ukrainska Pravda* often features publications on this topic).

In other words, I aimed to assess the commonalities in backgrounds and to define mutual ties between those actors who occupied the top political elite positions in legislative and executive power branches in 2007 and those who remained in power until the end of 2009.

6 Kryshtanovskaya, Olga (2005) *Anatomiya rossijskoj elity*. – M.: Zakharov; Fortesque, Stephen (2006) *Russia's Oil Barons and Metal Magnets: oligarchs and the state of transition*. – Palgrave Macmillan.

7 Baum, Christopher F., Mustafa O. Caglayan, Dorothea Schäfer and Oleksandr Talavera. (2008). *Political Patronage in Ukrainian Banking*. *Economics of Transition*. — vol.91, №3. — p.537-557.

8 Wright Mills, C.. (1956) *The Power Elite*. Oxford Press.

9 Domhoff, William G. (1970) *The Higher Circles: The Governing Class in America*. – N.Y.: Random House.

10 Allen, Michael Patrick (1974) "The Structure of Interorganizational Elite Cooptation: Interlocking Corporate Directorates" *American Sociological Review*. vol.39, №3. – pp. 393-406; Useem, Michael (1984) *The Inner circle: Large and the Rise of Business Political Activity in the U.S. and U.K.* New York: Oxford University Press.

Therefore, the social network analysis (SNA) approach, along with the perspective of 'interlocking directorates', was applied to investigate Ukrainian power elites. This approach included an analysis of elite member biographies and in-depth interviews to identify and verify possible network ties based on common life experiences (e.g., individuals who attended the same faculty of the same university at the same time, individuals who were/are co-owners of the same company, individuals who are members of the same civic organisation, etc.).

The initial sample covered a range of 493 biographies of political elite members who occupied the highest positions in state power institutions (parliamentary deputies, ministers of the Cabinet of Ministers, high-level functionaries within the Presidential Secretariat) from 2007 to 2009. Some of these state officials are nevertheless affiliated with large enterprises as major shareholders, investors, owners, or board members. Thus, in 2009, approximately 30 people who occupied the highest positions in state power were also among the TOP100 richest Ukrainians affiliated with the largest enterprises in various sectors of the Ukrainian economy¹¹. Different rankings also provided information about the dynamic of outcomes of these enterprises in the beginning of the economic crisis in 2008, and also any changes in 2009, before the new government came into power. The biographies of elite members in political and business sectors were collected from the official websites of state institutions, political parties, and enterprises, as well as from periodicals, annual handbooks, such as *"Who Is Who in the Ukraine"*, press interviews and other open information sources.

Finally, 15 in-depth interviews were conducted to verify biographical data to check the continuity of ties deriving from common life experience and to receive additional information about the social (network) capital of elite members. Interviews were conducted between April 2008 and April 2010, with a short break in the period before the presidential election in two years¹².

4. Research Results

Business connections discovered among the political actors in the legislative and executive branches based on shared biographical experiences appeared to be not as numerous as was assumed before the empirical stage of this research project. This assumption derived from a common media view that although Ukrainian members of parliament (MPs) manage to combine their political activity with business, the formally illegal nature of such activity for parliamentarians or state officials leads them to prefer to not mention their business affiliations in official/open biographies published in media, handbooks or magazines. Despite the fact that journalists and civil activists have sent requests to Verkhovna Rada regarding the publication of the tax declarations of the deputies¹³, only a few of the MPs reported their income from 2010.

11 According to the data collected by Korrespondent and Focus magazines for TOP100 rankings of Ukrainian millionaires in 2008-2010, and by InvestGazeta for the two special issues of this magazine that published the rankings on TOP100 of enterprises in Ukraine in 2008 and in 2009.

12 In-depth interviews were half-structured; the guide (scenario) was developed in advance. They were conducted personally by the author of this paper and by one of the students of MA program in Sociology within his master diploma research which was partially based on the network data compiled by the author of this paper as for 2008. For more details on sample description and SNA method justification with regard to the exploration of Ukrainian political elites, please consult Kostiuchenko, Tetiana (2011) "Central Actors and Groups: Advantages of Network Approach", Polish Sociological Review, issue 2. – pp.55-65 (forthcoming)

13 This demand corresponds with the 'anticorruption' politics of the President and his team. Several scanned declarations were published on the website of Ukrainska Pravda—an independent electronic media source (mode of access: www.pravda.com.ua)

Thus, to assess the share of economic connections in the Ukraine's political sphere, I have extracted the subnetwork out of the total dataset of almost 500 actors. This newly extracted dataset combined 79 actors with common business activities in the past and their shared political affiliations in various regional councils, administration and parliamentary committees. The number of actors was reduced to show only those political actors whose biographies provided information about overlapping experiences of being employed as top managers or members of the board at the same enterprise or as shareholders of the same company.

A primary outcome of compiling the 2-mode biographical network dataset was a graphical representation of the ties between political actors as representatives of state institutions and, at the same time, as businessmen who annually appear in the list of Ukrainian billionaires or millionaires. Picture 1 represents actor-by-affiliation networks in terms of two types of agents: individuals and companies/state institutions. According to the brief visual analysis shown on the graph in Picture 1 below, the Donetsk regional council (*Donetska oblasna rada*) is one of the most 'popular' affiliations for current MPs who are involved in big business at the same time (15 out of 79 individuals had some experience in occupying the position of deputy in this regional council). This fact is also supported by some observations concerning political elite circulation and replacements. As was noted by Mychailo Wynnnykyj during his lectures in the Kyiv-Mohyla Academy (specifically during his course on "The Sociology of Elites" for MA-level students), regional elite groups such as the 'Donetsk clan' began entering the top-positions in state institutions after 2002-2004. This circulation started with the appointment of Viktor Yanukovych as a Prime Minister in Leonid Kuchma's government in 2002 and continued when the Party of Regions (*Partiya Regioniv*) received the majority of seats in the parliamentary elections of 2006 and the pre-term elections of 2007, as well as when Yanukovych won the presidential election in 2010.

The next step in the research was to transform the 2-mode network with individual 'businessmen-politicians' and their affiliations into a 1-mode interorganisational network¹⁴. This newly created dataset, which contained companies and state institutions, was then analysed with regard to basic network measures, such as density and average distance, to assess the share of existing ties out of all possible connections and to estimate the average path length within pairs of actors. The results were as follows:

Density = 0.0799

Average Distance (among reachable pairs) = 3.282

Frequency Proportion:

| | | |
|---|-----------|--------|
| 1 | 364.0000 | 0.0875 |
| 2 | 756.0000 | 0.1817 |
| 3 | 1218.0000 | 0.2928 |
| 4 | 1148.0000 | 0.2760 |
| 5 | 526.0000 | 0.1264 |
| 6 | 136.0000 | 0.0327 |
| 7 | 12.0000 | 0.0029 |

¹⁴ Interorganisational network was created using the procedure of transforming 2-mode "actor-by-affiliation" network dataset into 1-mode "affiliation-by-affiliation" dataset, where companies and state institutions were treated as actors while ties meant shared individuals affiliated with both companies thus connecting them into pairs. (Hanneman, Robert A., Mark Riddle (2005) Introduction to social network methods. Riverside, CA: University of California, Riverside. – Published in digital form at <http://faculty.ucr.edu/~hanneman/>)

Over half of all pairs have paths of 3-4 steps, which implies the existence of two or three ‘brokers’—actors that need to be passed through when moving from one organisation to the other in a pair that is not directly connected. On the other hand, the possible negative effect of this particular network structure might lead to the overestimation of the importance of certain actors. To check which institutions and companies exactly might be considered to be such central points or bridges between subsets, it is necessary to perform an analysis of centrality measures.

Hence, at the next stage, the procedure of defining the most ‘central’ corporate and state actors within interorganisational networks was conducted through the procedure of centrality measures analysis¹⁵. To define enterprises and political institutions with the highest possible level of influence, centrality measures should be calculated for each node, such as *degree* and *betweenness centrality*, which use two different paradigms of the network centrality concept and show the level of actor’s influence in different ways. These paradigms depend on 1) the number of an actor’s direct ties and 2) the ‘gate-keeping’ or bridging position between different cohesive subgroups of actors. Thus, actors can be perceived as being influential and powerful through their *direct* or *indirect* connections with others.

Centralities for parliamentary committees in previous terms and regional councils and administrations (Table 4 in Appendix 2, and Pictures 2 & 3 below) support the assumption that the group of ‘businessmen in politics’ considered the Committees on Economic Policy (S13) to be most attractive when starting a career in the highest level of state power, i.e., Parliament. Another popular institution, in terms of degree centrality, is the Donetsk Regional Council (S17). All other organisational actors that appeared in the TOP10, according to their degree centralities, were business organisations, especially those in the group of System Capital Management (SCM), where the richest Ukrainian, Rinat Akhmetov, is the major shareholder (he is also a deputy from the Party of Regions faction in *Verkhovna Rada*).

Table 1 – TOP10 organisations by Degree and Betweenness Centralities

| TOP10 | Degree | NrmDegree | TOP10 | Betweenness | NrmBetweenness |
|-------|--------|-----------|-------|-------------|----------------|
| S13 | 16 | 23,88 | S17 | 639,78 | 28,94 |
| B1 | 14 | 20,90 | S13 | 561,65 | 25,40 |
| S17 | 14 | 20,90 | S4 | 316,84 | 14,33 |
| B8 | 13 | 19,40 | B30 | 278,92 | 12,61 |
| B12 | 13 | 19,40 | S11 | 222,68 | 10,07 |
| B22 | 13 | 19,40 | B43 | 217,46 | 9,84 |
| B23 | 13 | 19,40 | S7 | 209,62 | 9,48 |
| B7 | 12 | 17,91 | B38 | 171,91 | 7,78 |
| B39 | 12 | 17,91 | S3 | 166,85 | 7,55 |
| B41 | 12 | 17,91 | B42 | 150,34 | 6,80 |

Moreover, the Committee on Economic Policy (S4, S13) and the Committee on Budget (S7, S11) of the 4th and 5th terms of Verkhovna Rada both appeared to have the high betweenness centralities within interorganisational networks, thus showing their strategically important positions for the clusters of enterprises despite the economic sector. Nevertheless, it was the Donetsk Regional Council (S17) that

¹⁵ Centrality is a network measure that determines the relative importance of an actor within the network due to the relational pattern of everyone and with regard to the structure of the whole network (see for further details: Wasserman & Faust (1994) *Social Network Analysis: Methods and Applications*. Cambridge University Press.

possessed the highest betweenness centrality. Again, one of the explanations for this result might be that the regional elite group from the Eastern Ukraine actively entered the power structures on the national level, thus connecting the 'Donetsk' cluster with the central power institutions in Kiev.

Remarkably, the ranking of TOP10 institutions by degree centrality contains only two state power actors: the Parliamentary Committee on Economic Policy of the V term of *Verkhovna Rada* and the Donetsk Regional Council. The ranking, however, of TOP10 institutions by betweenness centrality includes only 4 enterprises (the National Bank of Ukraine [B30], and other enterprises [B43, B38, B42]; for details, please see the table of codes in Appendix 1). To some extent, the importance of the parliamentary committees and one regional council could be interpreted as 'bridging' between large businesses of various economic sectors in the network.

Additionally, a brief analysis of the positions in legislative and executive state power among the 79 political elite members affiliated with business¹⁶ revealed the following: A total of 10 of them were in the Committee on Fuel and Energy Complex, Nuclear Policy and Nuclear Safety; a total of 8 persons were in the Committee on Economic Policy; the Committee on Industrial and Regulatory Policy and Entrepreneurship attracted 7 of the former businessmen; and the Committee on Transport and Communications, the Committee on Finance and Banking, and the Committee on Budget were the places of affiliation for 6 actors each.

Even more important is the finding that approximately 50% of those 'businessmen-politicians' were not regular members of the committees but were committee chairmen, 1st deputy chairmen, deputy chairmen, or chairmen of subcommittees that focus on particular issues within a single committee. The difference between being a regular member and a committee or subcommittee chairman is reflected not only in the salary. The chairmen of different levels can usually influence, or even compose, the daily agenda of committee discussions, enabling them to focus on obtaining support for those legislative initiatives that they consider to be important. Hence, there is a duality of causal interdependence: either these former businessmen became chairmen/deputy chairmen of parliamentary committees because of their experience in the economic sphere, or they used their legal status in state institutions to gain more legal power and opportunities to influence legislative initiatives and to improve their positioning for business success.

The next step of the analysis was to define cohesive subgroups within the interorganisational network to determine which clusters could be found due to the relations between businesses and political institutions and, therefore, which ties should be removed to split the network into parts. Various clustering methods and algorithms have been developed in network analysis, based on top-down and bottom-up approaches. I have applied the Girvan-Newman partitioning method, which is grounded on the concept of edge betweenness. Its main purpose is to define those denser subgroups within the network that could form separate clusters to remove 'bridges', or links that connect them into one complete network. In our network, those 'bridges' refer to interlocking persons affiliated with both institutions in the dyad. As Tang and Liu have pointed out,

Edge betweenness is a measure to count how many of the shortest paths between pairs of nodes pass along the edge, and this number is expected to be large for those between-group edges. Hence, progressively removing

16 The analysis of positions was conducted in the end of 2009; after the presidential elections, some actors changed their statuses moving from the Parliament to the Cabinet of Ministers, or vice versa. Most of them remained in power.

*those edges with high betweenness can gradually disconnect the communities, which leads, naturally, to a hierarchical community structure.*¹⁷

Thus, the following procedure represents one possible scenario for how to conduct block modelling in the complete network to define different subgraphs. This is exactly what is needed to understand which set of nodes would appear in one cluster when separating them one from the other. The results of the Girvan-Newman algorithm application in NetDraw are displayed in **Picture 4** below.

The best solution for the interorganisational dataset appeared to contain the following 5 groups, with three isolates in the top-left corner (see Picture 4) that were not counted as a subset.

1. The subgroup with blue-coloured nodes around the SCM (System Capital Management) contains a number of leading Ukrainian enterprises in the metal industry, energy production, coal mining, and machinery, most of which are located in the Donbas region, together with the Donetsk regional administration and the Committee on Economic Policy of the 5th term of Verkhovna Rada.
2. The second subgroup (black-coloured nodes) includes other enterprises of the Donbas region (i.e., “Embrol Ltd.” or the “Interregional Industrial Union” corporation, both associated with Anton Pryhodskyi [code 62 in Table 3 in Appendix 1], the ‘grey cardinal’ close to the current President Yanukovich), along with the Donetsk regional council and the Parliamentary Committee on Regional Policy of the 5th term.
3. Cluster 3 (green-coloured nodes) mostly joined deputies from the ‘Block of Yulia Tymoshenko’ faction. Their business affiliations, therefore (i.e., ‘UkrAVTO’ or ‘Finansy ta Kredyt’), appeared in the same group with a number of parliamentary committees from previous terms, including committees on foreign affairs (3rd term), budget (4th term), judicial policy (4th term), and finance and banking (4th term).
4. Subgroup 4 (grey-coloured nodes) contained several state-owned enterprises where current MPs were top managers or members of advisory boards (i.e., ‘Naftogaz Ukrainy’ or ‘Ukrtelecom’), as well as the joint-stock company ‘Ukrpidshipnik’, which is affiliated with brothers Andriy and Serhiy Kliuevy from the Party of Regions (nodes coded as 39 and 40, Table 3 in Appendix 1). It is no wonder that the Committee on Fuel and Energy Complex (4th term) and the Ministry on Fuel and Energy appeared in this cluster, along with the Committee on Budget (5th term) and the Committee on Industrial Policy and Entrepreneurship (5th term).
5. Cluster 5, finally, having purple-coloured nodes, merged the Committee on Economic Policy (both 4th & 5th terms), two big industrial enterprises (the “NORD Group”, a producer of durables, and “Concern Stirol”, a huge chemical production) with, surprisingly, the organiser of the annual festival of “Tavriiski Igry”, the National Television Company (the only budget-funded TV channel), and the Committee on Freedom of Speech and Information.

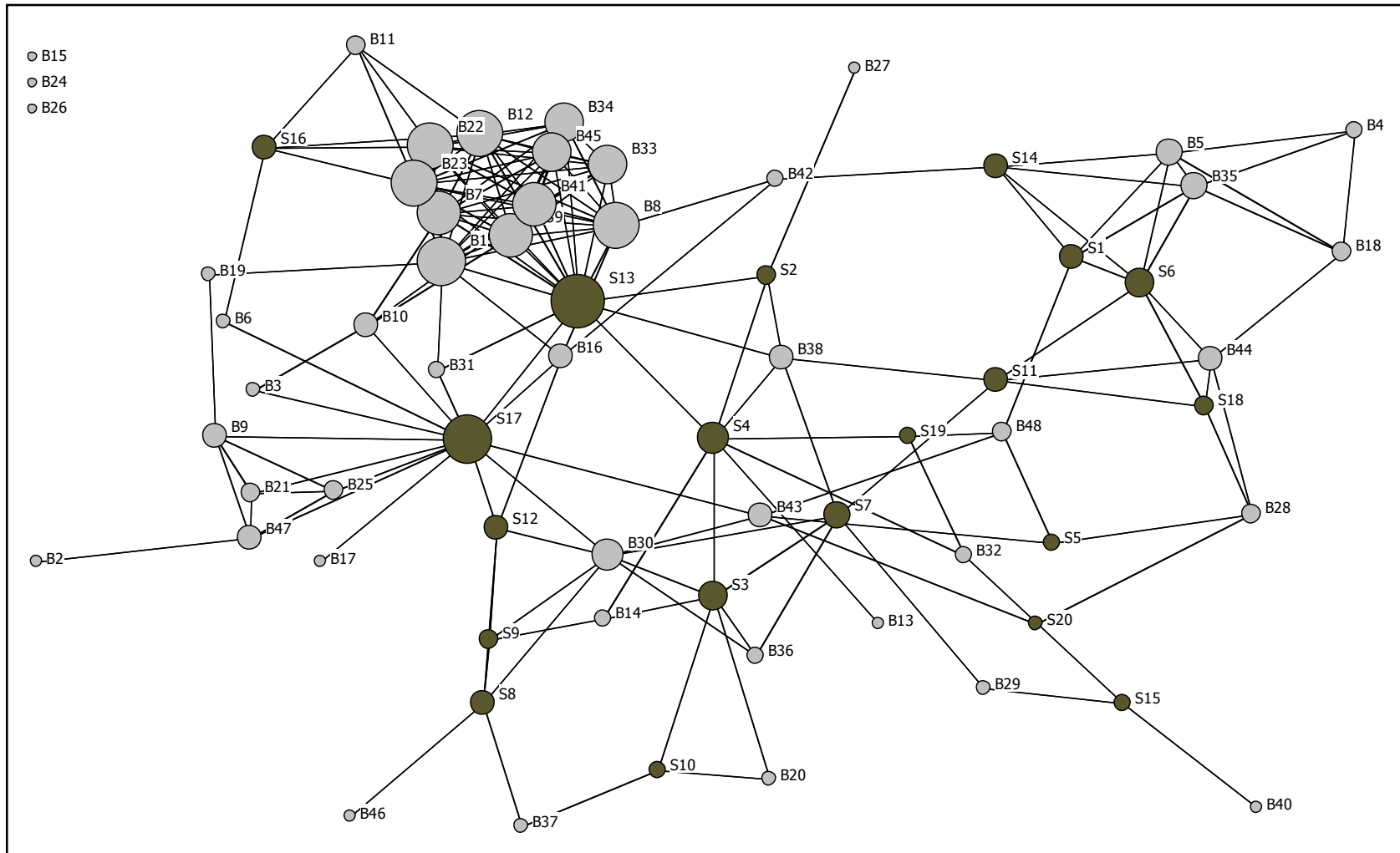
The detailed cluster membership of coded actors is displayed in Table 2 below. These subgroups differ with the number of nodes in them, varying from 10 to 18. Some clusters are more homogeneous in terms of containing mostly business enterprises (clusters 1 and 2), while the others include both economic and political institutions (clusters 3 and 4).

17 Lei Tang and Huan Liu (2010) „Graph Mining Applications to Social Network Analysis”, Chapter 18 in “Managing and Mining Graph Data”, C.C. Aggarwal and H. Wang (eds.), Springer. - p. 504 (mode of access http://www.public.asu.edu/~ltang9/papers/graph_mining.pdf)

TABLE 2 – Clusters of organisations (according to the Girvan-Newman algorithm)

| Cluster | Cluster | Cluster | Cluster | Cluster | Isolates |
|----------------|----------------|----------------|----------------|----------------|-----------------|
| 1 | 2 | 3 | 4 | 5 | |
| B2 | B1 | B14 | B4 | B13 | B15 |
| B3 | B7 | B20 | B5 | B27 | B24 |
| B6 | B8 | B30 | B18 | B29 | B26 |
| B9 | B10 | B36 | B28 | B32 | |
| B17 | B11 | B37 | B35 | B38 | |
| B19 | B12 | B46 | B43 | B40 | |
| B21 | B16 | S3 | B44 | S2 | |
| B25 | B22 | S7 | B48 | S4 | |
| B47 | B23 | S8 | S1 | S15 | |
| S17 | B31 | S9 | S5 | S19 | |
| S12 | B33 | S10 | S6 | | |
| | B34 | | S11 | | |
| | B39 | | S14 | | |
| | B41 | | S18 | | |
| | B42 | | S20 | | |
| | B45 | | | | |
| | S13 | | | | |
| | S16 | | | | |

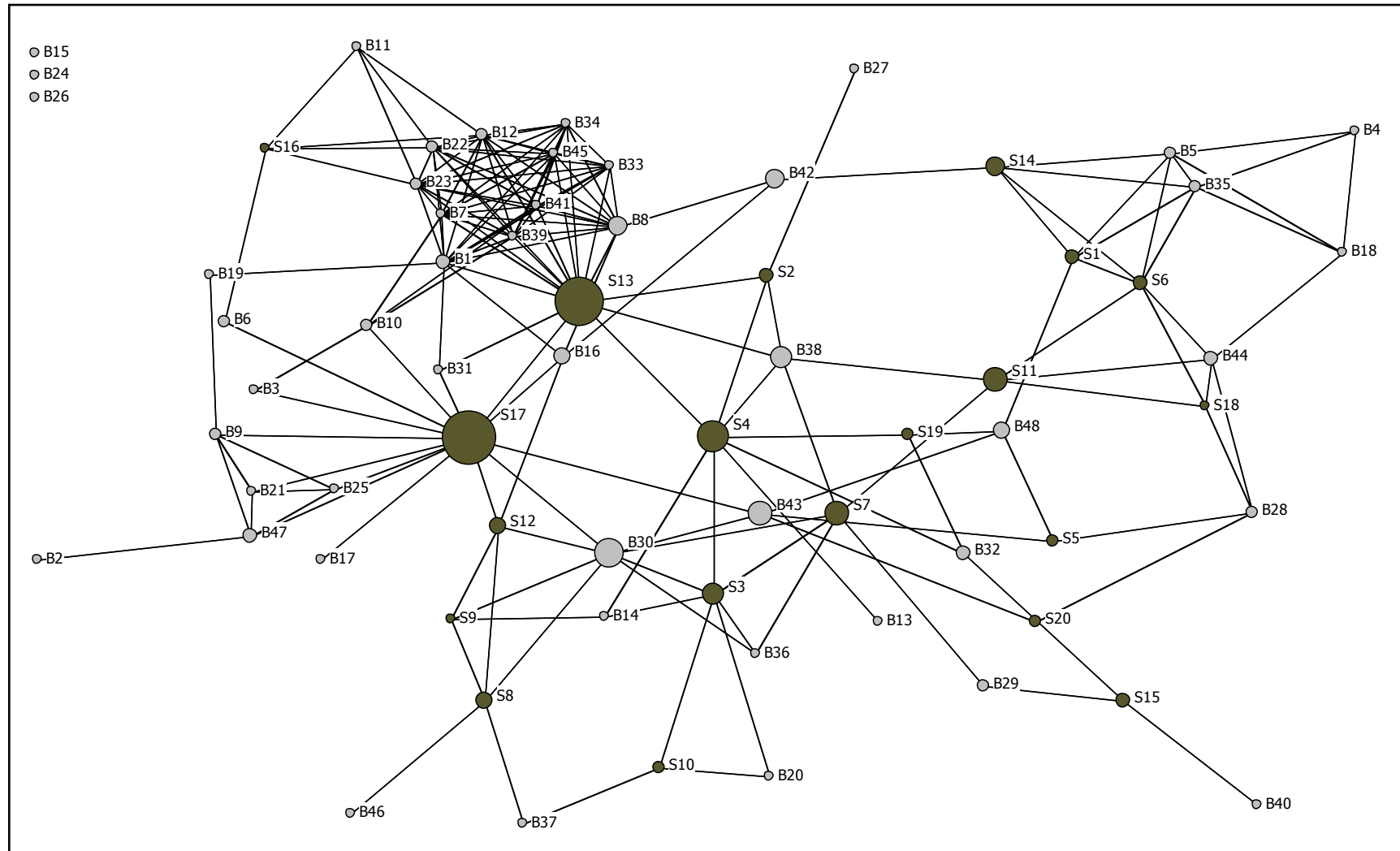
Picture 2 – Interorganisational network of political and business institutions: degree centrality



* Type of institution is set as the node attribute (colour): grey circles, business; dark-green circles, state; nodes are sized according to the degree centrality.

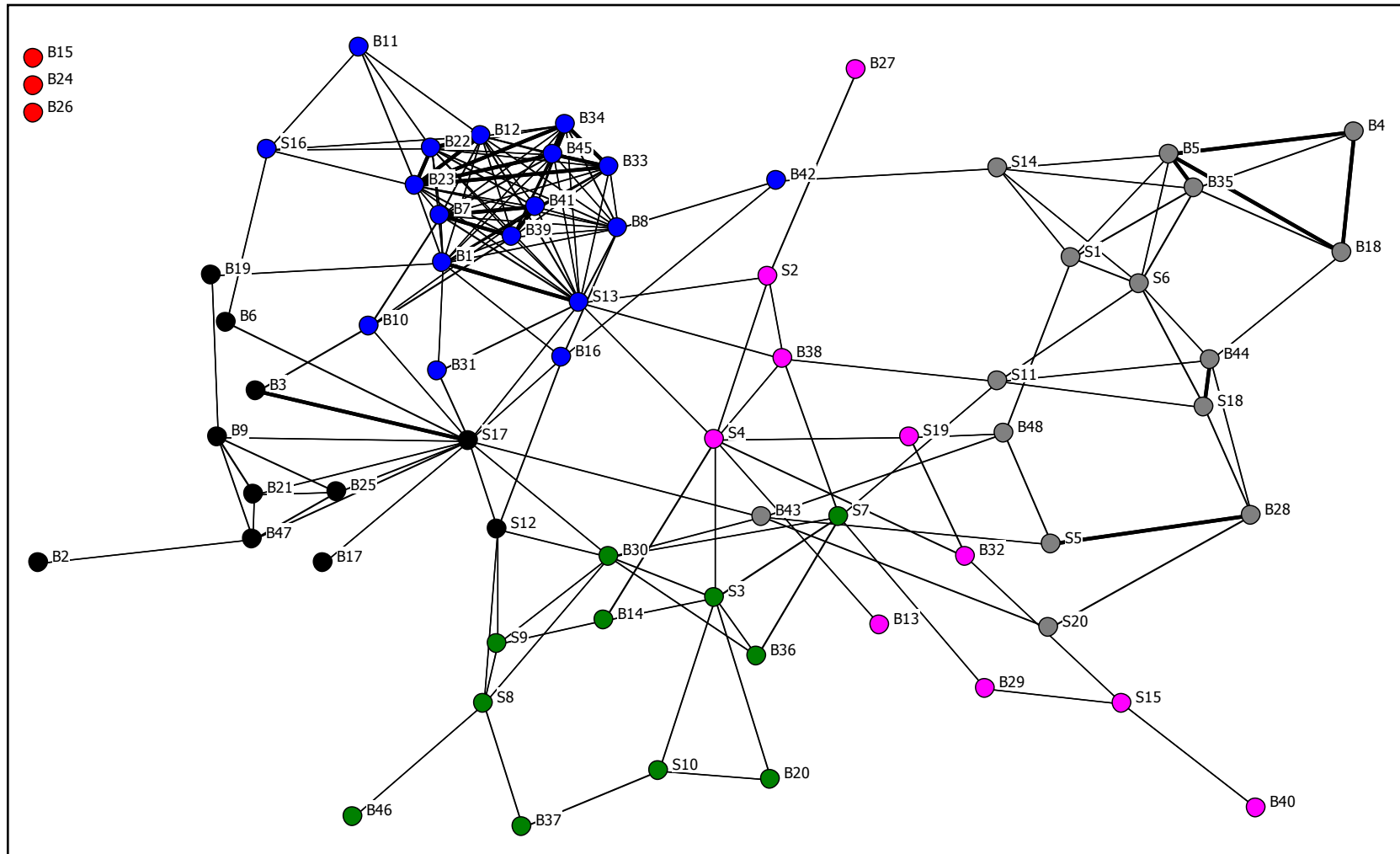
** Visualisation was conducted in NetDraw, with a spring-embedding layout applied (with Gower scaling).

Picture 3 – Interorganisational network of political and business institutions: betweenness centrality



* Type of institution is set as node attribute (colour): grey circles, business; dark-green circles, state; nodes are sized according to the betweenness centrality.
** Visualisation was conducted in NetDraw, with a spring-embedding layout applied (with Gower scaling).

Picture 4 –Interorganisational network of political and business institutions: clustering the network



* Hierarchical clustering is performed with the Girvan-Newman partition method; nodes are coloured according to the clusters defined by the algorithm. The result with 5 clusters has the highest quality among all partitioning results, from 2 to 10 clusters (model fit for 5 clusters: $Q=0.557$).

** Visualisation was conducted in NetDraw, with a spring-embedding layout applied (with Gower scaling).

5. Discussion

The map of network interlocks based on the analysis of elite member biographies has led to the identification of “central players” within the Ukraine’s political elite network. Research results show clusters inside the political and business interorganisational network, and they indicate the extent to which the concepts of social capital and interpersonal trust explain the formation of institutional lobby groups and joint legislative initiatives. The embeddedness of political and economic sectors has been explored to define spatial structures and the impact of local networks in the development of different sectors of economy. It should also be mentioned that business and political ties do not overlap in the vast majority of pairs of political actors

One should consider that reliable and up-to-date information about real, informal interconnections between political and business elite members is obtainable only after precise participant observation of, for example, parliamentary sessions or meetings of committees. These observations have been made by other scholars, one of the most recent observations having been conducted by the French-Belarusian researcher Ioulia Shukan, who spent two weeks in committees in Verkhovna Rada observing in-house interactions between Ukrainian MPs, comparing data with narratives collected during in-depth interviews. In my paper, I did not aim to track all existing informal practices and connections used by members of business groups to benefit from higher positions in state power for their joint economic activities.

In conclusion, this research has some limitations due to the methodology and methods applied for data collection and analysis. Network ties based on biographical and interview data could not be verified for their efficiency and continuity for the present era following the presidential elections in 2010. In addition, the analysis of retrospective network data would greatly assist in the understanding of circulation within political and business circles when power elite members move from the economic sphere to the executive or legislative power and vice versa, thus forming denser and more cohesive structures of overlapping positions. These aspects of this research in elite interlocks will be developed further as a continuation of my dissertation research.

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APPENDIX 1

TABLE 3 – Legend for the codes of nodes in actor-by-affiliation 2-mode dataset

Individuals

| | | | | | | | |
|----|-------------|----|----------------|----|--------------|----|-------------|
| 1 | Abdullin | 21 | Hlazunov | 41 | Kozak | 61 | Prasolov |
| 2 | Ariev | 22 | Hlushchenko | 42 | Kolesnikov | 62 | Pryhodskiy |
| 3 | Akhmetov | 23 | Horoshkevych | 43 | KoliesnikovD | 63 | Safiullin |
| 4 | Babaev | 24 | Hryvkovskyi | 44 | KorzhPP | 64 | Selivarov |
| 5 | Baburin | 25 | Hryniv | 45 | KravchenkoMV | 65 | Skudar |
| 6 | Bahraev | 26 | Hudyma | 46 | Krainii | 66 | Sobolev |
| 7 | Bevzenko | 27 | HumeniukIM | 47 | Labunska | 67 | Stetskiv |
| 8 | Belousova | 28 | HumeniukOI | 48 | Landyk | 68 | Sukhyi |
| 9 | Bilyi | 29 | Deich | 49 | Landik | 69 | Titenko |
| 10 | Bilorus | 30 | Demianko | 50 | Lytvynov | 70 | Tretiakov |
| 11 | Bohdan | 31 | Dzharty | 51 | Lisin | 71 | Tryndiuk |
| 12 | Bohuslaev | 32 | Dovhyi | 52 | Lukianov | 72 | Fedun |
| 13 | Boiko | 33 | Zhevahov | 53 | Malyshev | 73 | Khmelnyskyi |
| 14 | Buriakov | 34 | Zviahlyskyi | 54 | Maltsev | 74 | Chechetov |
| 15 | Vasadze | 35 | Zlochevskyi | 55 | MelnykSA | 75 | Sharov |
| 16 | Vilkul | 36 | Zozulia | 56 | Moroko | 76 | Shevchenko |
| 17 | Vlasenko | 37 | Ivaniushchenko | 57 | Osyka | 77 | Shmidt |
| 18 | Voropaiev | 38 | Kaliuzhnyi | 58 | PavlenkoVV | 78 | Yankovskyi |
| 19 | Herasymchuk | 39 | KliuevAP | 59 | PavlenkoSG | 79 | Yatsenyuk |
| 20 | Heller | 40 | KliuevSP | 60 | Poluneiev | | |

Businesses/companies

| | | | |
|-----|--|-----|--|
| B1 | "SCM", CJSC | B25 | "Monolit" |
| B2 | "ARS", group | B26 | "Motor Sich", JSC |
| B3 | "Viktoriya", PE | B27 | "Multi-Audyt" |
| B4 | "Dalens", CJSC | B28 | "Naftogaz Ukrainy", NJSC |
| B5 | "Danapris", Ltd. | B29 | "National Television Company of Ukraine" |
| B6 | "Dobropilvugillya", SE | B30 | "National Bank of Ukraine" |
| B7 | "Donbasenergo" SJSEC | B31 | "Novokramatorsk Machinery Plant", JSC |
| B8 | "Druzhkivske Mining Company" JSC | B32 | "NORD Group", CJSC |
| B9 | "Embrol Ukraina", Ltd. | B33 | "Pivdennyi GOK", JSC |
| B10 | "Energy Company of Ukraine", NJSC | B34 | "Pivnichnyi GOK", JSC (Metinvest Holding, LLC) |
| B11 | "Yenakiyev Coke and Chemical Plant", JSC | B35 | "Real-group" |
| B12 | "Yenakiyev Metal Plant" (Metinvest Holding, LLC) | B36 | "Respublika Corporation" |
| B13 | "Zagrava Expo", LLC | B37 | "Serednioevropeiska Agenciya", Ltd. |
| B14 | "UkrAVTO Corporation" | B38 | "Concern Strol", JSC |

| | | | |
|-----|--|-----|--|
| B15 | "Infoks", Ltd. | B39 | "Skhidenergo", DTEK |
| B16 | "Keramet", CJSC | B40 | "Tavria games"(Tavriyski Igry), company |
| B17 | "Kyiv-Konti", CJSC | B41 | "Tekhrempostavka", LLC |
| B18 | "Lisichanskiy Glass Factory "Proletariy" | B42 | "Ukrvognetryv", LLC |
| B19 | "Lux", PE | B43 | "Ukrpidshipnik", JSC |
| B20 | "International Institute of Management" (MIM) | B44 | "Ukrtelekom", JSC |
| B21 | "Interregional Industrial Union", Corporation | B45 | "Centralnyi GOK", JSC (Metinvest Holding, LLC) |
| B22 | " Steel Plant «Azovstal»", JSC | B46 | "Finansy i Kredyt" (group) |
| B23 | "Metinvest Holding", LLC (<i>SCM is 75% shareholder</i>) | B47 | "Coal mine «Almazna»" (in SE "Dobropilvugillya") |
| B24 | "STB", TV channel | B48 | "Zasyadko Mine", JSC |

State institutions

| | |
|-----|--|
| S1 | VR AR Crimea |
| S2 | VR III, Committee on Economic Policy |
| S3 | VR III, Committee on Foreign Affairs |
| S4 | VR IV, Committee on Economic Policy |
| S5 | VR IV, Committee on Fuel and Energy Complex |
| S6 | VR IV, Committee on Construction, Transport, Housing and Communal Services |
| S7 | VR IV, Committee on Budget |
| S8 | VR IV, Committee on Judicial Policy |
| S9 | VR IV, Committee on Finance and Banking |
| S10 | VR IV, Committee on Foreign Affairs |
| S11 | VR V, Committee on Budget |
| S12 | VR V, Committee on Regional Policy |
| S13 | VR V, Committee on Economic Policy |
| S14 | VR V, Committee on Industrial Policy and Entrepreneurship |
| S15 | VR V, Committee on Freedom of Speech and Information |
| S16 | Donetsk regional administration (<i>Donetska oblasna derzhavna administratsia</i>) |
| S17 | Donetsk regional council (<i>Donetska oblasna rada</i>) |
| S18 | Cabinet of Ministers (1998-1999) |
| S19 | Cabinet of Ministers (1993-1995) |
| S20 | Ministry on Fuel and Energy Complex (2003-2004) |

APPENDIX 2

TABLE 4 – Degree & Betweenness Centralities

| | Degree | NrmDegree | Betweenness | NrmBetweenness |
|-----|--------|-----------|-------------|----------------|
| B1 | 14 | 20,90 | 73,58 | 3,33 |
| B2 | 1 | 1,49 | 0,00 | 0,00 |
| B3 | 2 | 2,99 | 0,00 | 0,00 |
| B4 | 3 | 4,48 | 0,00 | 0,00 |
| B5 | 6 | 8,96 | 37,68 | 1,70 |
| B6 | 2 | 2,99 | 25,61 | 1,16 |
| B7 | 12 | 17,91 | 10,10 | 0,46 |
| B8 | 13 | 19,40 | 127,41 | 5,76 |
| B9 | 5 | 7,46 | 22,25 | 1,01 |
| B10 | 5 | 7,46 | 33,11 | 1,50 |
| B11 | 4 | 5,97 | 0,00 | 0,00 |
| B12 | 13 | 19,40 | 32,51 | 1,47 |
| B13 | 1 | 1,49 | 0,00 | 0,00 |
| B14 | 3 | 4,48 | 16,64 | 0,75 |
| B15 | 0 | 0,00 | 0,00 | 0,00 |
| B16 | 5 | 7,46 | 118,58 | 5,36 |
| B17 | 1 | 1,49 | 0,00 | 0,00 |
| B18 | 4 | 5,97 | 11,32 | 0,51 |
| B19 | 2 | 2,99 | 6,76 | 0,31 |
| B20 | 2 | 2,99 | 0,00 | 0,00 |
| B21 | 4 | 5,97 | 0,00 | 0,00 |
| B22 | 13 | 19,40 | 32,51 | 1,47 |
| B23 | 13 | 19,40 | 32,51 | 1,47 |
| B24 | 0 | 0,00 | 0,00 | 0,00 |
| B25 | 4 | 5,97 | 0,00 | 0,00 |
| B26 | 0 | 0,00 | 0,00 | 0,00 |
| B27 | 1 | 1,49 | 0,00 | 0,00 |
| B28 | 4 | 5,97 | 30,67 | 1,39 |
| B29 | 2 | 2,99 | 46,40 | 2,10 |
| B30 | 8 | 11,94 | 278,92 | 12,61 |
| B31 | 3 | 4,48 | 3,92 | 0,18 |
| B32 | 3 | 4,48 | 78,10 | 3,53 |
| B33 | 11 | 16,42 | 0,00 | 0,00 |
| B34 | 11 | 16,42 | 0,00 | 0,00 |
| B35 | 6 | 8,96 | 37,68 | 1,70 |
| B36 | 3 | 4,48 | 0,00 | 0,00 |
| B37 | 2 | 2,99 | 4,42 | 0,20 |
| B38 | 5 | 7,46 | 171,91 | 7,78 |
| B39 | 12 | 17,91 | 10,10 | 0,46 |

| | | | | |
|-----|----|-------|--------|-------|
| B40 | 1 | 1,49 | 0,00 | 0,00 |
| B41 | 12 | 17,91 | 10,10 | 0,46 |
| B42 | 3 | 4,48 | 150,34 | 6,80 |
| B43 | 5 | 7,46 | 217,46 | 9,84 |
| B44 | 5 | 7,46 | 59,81 | 2,71 |
| B45 | 11 | 16,42 | 0,00 | 0,00 |
| B46 | 1 | 1,49 | 0,00 | 0,00 |
| B47 | 5 | 7,46 | 63,00 | 2,85 |
| B48 | 4 | 5,97 | 113,14 | 5,12 |
| S1 | 5 | 7,46 | 65,31 | 2,95 |
| S2 | 4 | 5,97 | 63,00 | 2,85 |
| S3 | 7 | 10,45 | 166,85 | 7,55 |
| S4 | 8 | 11,94 | 316,84 | 14,33 |
| S5 | 3 | 4,48 | 29,05 | 1,31 |
| S6 | 7 | 10,45 | 82,63 | 3,74 |
| S7 | 6 | 8,96 | 209,62 | 9,48 |
| S8 | 5 | 7,46 | 107,98 | 4,88 |
| S9 | 4 | 5,97 | 17,71 | 0,80 |
| S10 | 3 | 4,48 | 18,44 | 0,83 |
| S11 | 5 | 7,46 | 222,68 | 10,07 |
| S12 | 5 | 7,46 | 91,12 | 4,12 |
| S13 | 16 | 23,88 | 561,65 | 25,40 |
| S14 | 5 | 7,46 | 128,28 | 5,80 |
| S15 | 3 | 4,48 | 66,50 | 3,01 |
| S16 | 5 | 7,46 | 12,88 | 0,58 |
| S17 | 14 | 20,90 | 639,78 | 28,94 |
| S18 | 4 | 5,97 | 14,01 | 0,63 |
| S19 | 3 | 4,48 | 52,54 | 2,38 |
| S20 | 2 | 2,99 | 22,60 | 1,02 |

* Network Centralization Index by Degree Centrality = 16.37%

** Network Centralization Index by Betweenness Centrality = 26.16%