

Early Adolescent Political Tribalism: Peer Network Homophily in Political Attitudes and Values

Benjamin Oosterhoff, Ashleigh Poppler, & Cara A. Palmer

Department of Psychology, Montana State University, P.O. Box 173440 Bozeman, MT 59717

Address correspondence to:

Benjamin Oosterhoff

Department of Psychology

Montana State University

P.O. Box 173440

Bozeman, MT 59717-3440

USA

E-mail: Benjamin.oosterhoff@montana.edu

Phone: 517-897-4160

Abstract

Political homophily represents the tendency for people to affiliate and engage with others who share similar political viewpoints, which can enhance attitude intensity and increase polarization. Little research has examined political homophily during early adolescence, a developmental period when political attitudes are first beginning to form and friendship choices become more autonomous. We examined political homophily using a social network approach with middle school students ($N=213$; $M_{age}=12.5$; 57% female) from a remote US community. Pre-registered analyses indicate that rural early adolescents were more likely to spend time with those who had greater similarities in their political attitudes and values. These effects were most consistent for right-wing authoritarianism, patriotism, and anti-immigration attitudes. Our results show that political homophily is evident at an early age when young people are forming their political beliefs and making decisions about their friendships, suggesting that political tribalism may emerge early in life.

Keywords: network analysis; politics; tribalism; early adolescence; political development

Statement of Relevance

Political homophily—or the tendency for people to affiliate with others who share their own political beliefs—can enhance political tribalism and polarization by limiting exposure to diverse viewpoints. Exposure to diverse viewpoints provides opportunities to consider multiple perspectives when making political decisions and thus is essential for healthy democracies. Little is known about the developmental roots of political homophily and whether this tendency is present early in life. Integrating research on political science and developmental psychology, this study used a network-based approach to examine political homophily during early adolescence when youth are both forming their political attitudes and making lasting decisions about friendships. Findings indicate that early adolescents are more likely to spend time with peers who share similar political attitudes and values. These results highlight the importance of considering early life experiences when seeking to understand the origins of political attitudes and polarization.

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Political homophily represents the tendency for people to affiliate with others who share similar political beliefs. Homophily contributes to political tribalism and produces “echo chambers” where people are disproportionately exposed to information and perspectives from like-minded others (Bakshy et al., 2015). Healthy democracies rely on political discourse among citizens with diverse viewpoints (Dey et al., 2010), which provides opportunities to consider multiple perspectives when making political decisions. Thus, political homophily poses a threat to the health of democracies and has the potential to increase polarization (Whitt et al., 2020). Political homophily has been traditionally studied within the context of social media (Bakshy et al., 2015), a context that is often used as a source of political information and where decisions about social ties are frequent. However, social media behavior represents only one specific component of social life that may not generalize to friendship decisions made offline, which often provide more potent socialization experiences (Eder & Nenga, 2006). Additionally, research on political homophily has almost exclusively focused on adulthood, a time when friendships and political attitudes are relatively stable (Krosnick, 1991). Political homophily may be more salient earlier in life during adolescence when youth are making decisions about friendships and beginning to form attitudes about political issues (Hooghe & Wilkenfeld, 2008). Ideological division has been steadily increasing in the US over the past 25 years, producing a unique political climate characterized by high degrees of polarization (Brown & Enos, 2021; Dimock et al., 2014). Thus, it is necessary to understand the factors that impact polarization in youth while political attitudes are first developing

Early adolescence represents an ideal time to examine the emergence of political homophily. Early adolescence is the developmental period between 10 and 15 years of age and is marked substantial increases in abstract reasoning and perspective taking (Van der Graaff et al., 2014), both of which contribute to the emergence of political attitudes and values (Mooijman & Stern, 2016). Expanding autonomy during early adolescence further leads youth to prioritize, evaluate, and reassess peer relationships (Steinberg & Monahan, 2007), while also relying on peers for social support and social information (Stewart & Suldo, 2011). The coalescence of youths' emerging political attitudes along with the propensity to form new peer relationships creates an important developmental time to test whether political homophily is present among early adolescents.

Social network methodologies (Luke, 2009) may be particularly useful for examining political homophily among early adolescents. Social network methodology models social ties among peers and is capable of directly examining political homophily by testing whether similarities in political attitudes predict the likelihood that a tie exists between two people. Social network analysis among middle school students has primarily examined homophily in the context of problem behaviors to examine peer socialization processes. These studies have demonstrated that friends tend to be more similar than non-friends in levels of delinquency (Xie et al., 2006), motivation and achievement (Ryan, 2001), depression (Van Zalk et al., 2010), personality (Ilmarinen et al., 2017), and illegal political behavior (e.g., painting political graffiti on walls; Dahl & Van Zalk, 2014). Youth also tend to be friends with peers who share similar demographic characteristics such as age, gender, and race/ethnicity (McPherson et al., 2001). These studies provide strong evidence for the propensity of peer homophily in a variety of attitudes and behavior in early adolescence. However, it is unknown whether early adolescent

peers are similar in their emerging political attitudes and values, which could inform how political attitudes and polarization develop overtime.

Examining political homophily in early adolescent peer networks requires certain methodological considerations. Social network research often uses either an ego-centric network or whole-network approach. Ego-centric network techniques have youth report on their own personal qualities and the qualities of their peers. A limitation of ego-centric approaches is that youth reports of their peers' attitudes and behavior are often inaccurate. In contrast, whole-network approaches assess all youth within a network (e.g., school) and ties between youth (e.g., contact, friendships). Whole-network approaches require that the majority of peers within a network complete the same assessment, which is logistically challenging given that the size and location of an entire peer network is typically unknown. However, these approaches have greater internal validity because they do not rely on adolescents' knowledge of their peers' qualities. Examining peer networks among adolescents within schools in more remote geographical regions provides an important methodological advantage for social network analysis. Similar-aged youth within remote rural communities often attend the same school, increasing researchers' ability to confidently assess the majority of youths' peer network. The current study used a community-based participatory research approach to examine adolescents' social network within the only available public middle school centrally located in the >5,000 square mile county. Partnering with this community increased confidence that the vast majority of youths' social network would be accessed within the local school.

The purpose of this research is to integrate research on developmental and political psychology to test political homophily during early adolescence, when peer social ties are changing and political attitudes are emerging. Our pre-registered hypotheses were that early

adolescents would demonstrate peer homophily in political values and attitudes, and that similarities in political values and attitudes would predict a greater likelihood that early adolescents would have a peer nomination tie.

Method

Participants

Participants were recruited through a local middle school in the Northwest United States in the Fall of 2019. The middle school served $N = 250$ students. An a-priori minimum sample size of 200 was selected given that this threshold represents 80% of the student body and is capable of detecting a small to medium effect size ($\beta = .15 - .20$) at 80% power assuming an $\alpha = .05$. The initial survey was completed by 216 middle school students in grades 6 through 8 (ages 11-15 years). Three students were removed due to missing data on peer nominations, making the final analytic sample $N = 213$. Thus, the sample size of $N = 213$ participants represented 85% of eligible participants. Participants self-selected into the study and were asked to complete a 45-minute survey during a class period.

Consistent with past research collecting social network data with middle school students in the US (Andrews et al., 2016; Kornienko et al., 2016), an opt-out consent procedure with active student assent was used for this study. This strategy was chosen because missing data on friendship ties renders social network data unusable (Burt, 1987). Consent letters were sent to parents who were given the option of opting out of participation in the study. Students provided active assent. During data collection, students were reminded that they could skip any questions they did not want to answer and refuse to participate at any time without penalty. The study protocol, procedure, and questionnaire were reviewed and approved by the CAB composed of students, community members, parents, and school administrators from the local area including

teachers, the superintendent, and the principal of the middle school. This study protocol received approval and by the Institutional Review Board at (removed for masked review).

Measures

Peer Network Characterization. Participants were provided with the option to identify up to 7 people within the school that they spend the most time with by selecting names from an electronic pre-populated list. To capture school-level networks, participants were allowed to nominate any student within the school regardless of classroom or age. If students did not spend time with up to 7 other students, they were instructed to leave remaining spaces blank. Any nominations made of non-participating students were converted to a missing code and these data were not used. Only connections in which nominations were reciprocated (i.e., both adolescents nominated each other) were retained for the analysis.

Political Attitudes and Values Selection. The process of homophily is thought to occur through socialization, which assumes that the specific attitudes and values tested are relevant to the population studied. To help meet this assumption, a community advisory board (CAB) composed of students, community members, parents, and school administrators was formed to identify political issues relevant to their community. Based on meetings with the CAB, six political attitudes were identified as being relevant to individuals in the community: environmentalism, immigration, personal and structural attributions for poverty, and support for Obama and Trump. Discussions from the CAB also resulted in identifying three sociopolitical values that they felt were relevant for their community, including right-wing authoritarianism (RWA), patriotism, and social dominance orientation (SDO). Thus, the focus of this study concerned peer homophily in sociopolitical values (RWA, patriotism, SDO) and specific

political attitudes (environmentalism, immigration, personal and structural attributions for poverty, and support for Obama and Trump).

Right-Wing Authoritarianism (RWA). RWA was measured with 6-items adapted from prior research (Bizumic & Duckitt, 2018). These items were selected based on their suitability for early adolescent samples (Metzger et al., 2014) and included 2-items from the conservatism subscale (i.e., “It’s great that many young people today are prepared to follow authority.” and “What our country needs most is discipline, with everyone following our leaders.”), 2-items from the traditionalism subscale (i.e., “The old-fashioned ways and old-fashioned values still show the best way to live.” and “It is important that we keep our traditional values”), and 2-items from the authoritarianism subscale (i.e., “We need tougher government and stricter laws.” and “We have to crack down harder on troublemakers if we are going to preserve law and order.”). A total mean score was calculated across items ($\omega = .64$) with higher values indicating greater right-wing authoritarianism.

Social Dominance Orientation (SDO). SDO was measured with 8-items adapted from prior research (Ho et al., 2015). Similar to RWA, these items were selected based on their suitability for early adolescent samples (Metzger et al., 2014) and included 5-items from the dominance subscale (i.e., “Some groups of people are simply not as good as other groups”, “No one group of people should lead in society”, “In a good society, some groups to be on top and others to be on the bottom, groups at the bottom are just as deserving as groups at the top”, “We should try to make all groups equal”) and 3-items from the anti-egalitarianism subscale (i.e., “Group equality should be our primary goal”, “It is not right to try to make groups equal”, “We should work to give all groups of people an equal chance in life”). Reverse-scored items were

recoded and a total mean score was calculated across items ($\omega = .78$) with higher values indicating greater social dominance orientation.

Patriotism. Patriotism was measured with 4-items adapted from prior research on adolescents (Metzger et al., 2014). These items included: “America is a better country than most others”, “I am proud to be an American”, “The fact that I am an American is an important part of who I am”, and “Although at times I may disagree with the government, my commitment to America remains strong”. Items were rated on a 6-point scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Means scores were calculated ($\omega = .86$) with higher values indicating greater patriotism.

Environmentalism. Environmentalism was measured with 2-items including “This country has gone too far in its efforts to protect the environment” and “Stricter environmental laws and regulations are worth the cost.” These items were rated on a 6-point scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Means scores were calculated ($r = .35$) with higher values indicating greater environmentalism.

Anti-Immigration Attitudes. Anti-immigration attitudes were measured with 2-items including “The growing number of newcomers from other countries threaten traditional American customs and values” and “Immigrants today strengthen our country because of their hard work and talents”. These items were rated on a 6-point scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Means scores were calculated ($r = .44$) with higher values indicating greater anti-immigration attitudes.

Personal Attributions for Poverty. Personal attributions for poverty was measured with 2-items including “People are poor because they are lazy and don’t want to work hard” and “People are poor because they do not have the ambition.” These items were rated on a 6-point

scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Means scores were calculated ($r = .57$) with higher values indicating greater personal attributions of poverty.

Structural Attributions for Poverty. Structural attributions for poverty were measured with 2-items including “People are poor because there is no work.” and “People are poor because not everyone receives the same skills or training when they are young.” These items were rated on a 6-point scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Means scores were calculated ($r = .32$) with higher values indicating greater structural attributions of poverty.

Attitudes about Obama and Trump. Attitudes about Obama and Trump were measured using two separate items (“In general, how do you feel about president Donald Trump?” and “In general, how do you feel about former president Barack Obama?”). Item responses were given on 5-point scale from 1 (*very bad*) to 5 (*very good*) with an “I don’t know” option provided and treated as missing data. Items were modeled separately.

Demographic Characteristics. Participants reported on their grade, gender, parental education, and race/ethnicity. Parents’ education was recoded on a 3-point scale with 1 (*neither parent completed high school*), 2 (*at least one parent complete high school*), and 3 (*at least one parent completed college*). Youth also reported on whether their families had difficulty buying things they wanted or needed as a proxy for family financial status (Galinsky, 1999), with higher values indicating greater financial status.

Analytic Technique

Pre-Registered Analyses. Our analysis plan was pre-registered at https://osf.io/jdtvs/?view_only=cb573147a7fd4062ac143204078e158a and was similar to that used for cross-sectional analyses in Schaefer et al. (2011). Exponential Random Graph Modeling (ERGM) was used to examine political value and attitude homophily among adolescent peer

networks using the *statnet* package in R (Goodreau et al., 2008). An undirected network was estimated using the ‘strong’ network edge rule where only reciprocal nominations were modeled. Two primary models were used to answer the study questions. For the first model, political values (RWA, SDO, Patriotism) were entered using the *absdiff* function following the covariates. The *absdiff* function calculates the absolute difference between peers on a given quality (e.g., RWA) and tests whether this difference is associated with likelihood of a tie between peers. Lower absolute difference values indicate greater similarities on that quality. Political homophily is therefore indicated by a significant negative association between the absolute difference on a specific value or attitude and the likelihood of a tie between peers. The second model will be similar to the first, only with political attitudes (environmentalism, immigration, personal/structural attributions of poverty, attitudes about Trump and Obama) entered using the *absdiff* function after adjusting for political values and covariates.

All models adjusted for the following covariates: grade, gender, parent education, financial status, and race/ethnicity. One advantage of ERGMs is ability to model and control for network structural properties that have a strong effect on whether a tie exists between two individuals in the network, including connection probability, connection skew, closed triangles, and open triangles (see Luke, 2015). Estimation of these characteristics depend on the network itself and if misspecified, can produce a degenerated model in MCMC estimation. Consistent with Luke (2015) and Goodreau et al., (2008), these parameters were used to improve the model until a good fitting model is identified which was determined by the graphical inspection of the goodness-of-fit (GOF) function. A technical description of the ERGM network properties specification process along with the resulting GOF plots are available in the Supplemental File.

Non-Registered Analyses. Two sets of non-registered analyses were performed as robustness checks and to help contextualize effect sizes from the pre-registered analyses. First, both RWA and SDO have validated subscales and thus examining these constructs beyond their unidimensional total scores may provide greater conceptual specificity. We therefore conducted supplemental analyses in which we estimated similar models to our primary hypotheses, only with subscales for RWA (authoritarianism, traditionalism, conservatism) and SDO (anti-egalitarianism, dominance) estimated as separate predictors. Second, ERGMs are the gold-standard method for examining peer homophily using social network methodology due to their ability to directly model network characteristics that alter the likelihood of a peer connection. The estimates provided by ERGMs can be interpreted as the change in odds of a network connection existing at varying levels of differences between peers on a specified independent variable. These estimates are robust and informative, but can also be unintuitive. Thus, supplemental analyses were performed to provide an alternative contextualization of peer similarities for the significant effects found in the primary models. Specifically, we used repeated-measures *t*-tests to compare youths' average deviation from their peers' attitudes (peer-mean centered) to their average deviation from the overall mean (grand-mean centered) for significant effects found in the ERGMs.

Missing Data. Low levels of missing data on demographic characteristics or covariates (<5%; parents' education: 14%) were estimated using multiple imputation and the MICE package. No network data was imputed.

Open Research Statement. All data, analysis scripts, and materials needed to computationally reproduce or conduct a direct replication of this study are available on the Open Science Framework (https://osf.io/4tgxy/?view_only=5e550480709141bf898dfcf5a3064e02).

Results

Adolescents' undirected reciprocated peer network was characterized by 213 nodes (early adolescents) and 782 edges or ties between nodes (ties). The density of the network was .034 indicating that roughly 3.4% of all possible ties were selected. On average, youth nominated about 5 (out of a possible 7) peers and were nominated by an average of 5 others. Youth had an average of about 3 reciprocated ties. Table 1 displays the descriptive statistics and bivariate correlations among the political values and attitude. Adolescents' sociopolitical values were generally positively correlated with one another (r s range from .15 to .36) and political attitudes were generally positively correlated with one another (r s range from .11 to .53). Further, most sociopolitical values were positively correlated with sociopolitical attitudes (r s range from .02 to .39).

Pre-Registered Tests of Early Adolescent Peer Network Homophily

Two ERGM models were estimated to test our pre-registered analyses. Consistent with past research (Schaefer et al., 2011), iterative specifications of the network properties indicate that inclusion of connection probability, connection skew, and edgewise-shared partnerships that account for no connections, one shared partnership, open triangles, and closed triangles, allow MCMC estimates to provide a goodness-of-fit that represents the observed data (see Supplemental File). Thus, these network structural properties were included as covariates in all subsequent analyses. Table 2 displays estimates from these models. The first model examined early adolescent peer homophily in sociopolitical values (RWA, SDO, patriotism). Adolescents with similar genders, those who were in the same grade, those with similar levels of financial status, and those with similar levels of parents' education were more likely to have reciprocated nominations relative to those who differed in these qualities. After accounting for gender, grade, financial status, parents' education, race/ethnicity, and network structural properties, lower

absolute differences in RWA and patriotism were significantly associated with a greater likelihood of having a peer nomination tie (Figure 1). In other words, with each unit of similarity in RWA, early adolescent peers had a 14% greater likelihood of having a shared nomination. With each unit of similarity in patriotism, early adolescent peers had an 18% greater likelihood of having a shared nomination.

A second ERGM examined early adolescent peer homophily in sociopolitical attitudes (environmentalism, anti-immigration attitudes, personal attributions for poverty, structural attributions for poverty, support for Trump and Obama) after accounting for network structural properties, demographic covariates, and sociopolitical values. Table 2 displays the model estimates. Adolescents with similar genders, those who were in the same grade, those with similar levels of financial status, and those with similar levels of parents' education were more likely to have reciprocated nominations relative to those who differed in these qualities. Consistent with our first model, lower absolute differences in RWA and patriotism were significantly associated with a greater likelihood of having a peer nomination tie. Additionally, a lower absolute difference in anti-immigration attitudes was significantly associated with a greater likelihood of having a peer nomination tie (Figure 1). With each unit of similarity in anti-immigration attitudes, early adolescent peers had a 9% greater likelihood of having a shared nomination.

Non-Registered Analyses

Modeling Subscales. A second series of ERGMs were conducted where subscales for RWA and SDO were estimated separately. Bivariate correlations indicate that subscales of RWA ($r_s = 0.13$ to 0.40) and SDO ($r = 0.57$) were moderately correlated. Model statistics are presented in Table 2. When estimated separately and after accounting for network properties and demographic characteristics, lower absolute differences in RWA authoritarianism and

traditionalism were significantly associated with a greater likelihood of having a peer nomination tie. With each unit of similarity in RWA authoritarianism, early adolescent peers had a 9% greater likelihood of having a shared nomination and with each unit of similarity in RWA traditionalism, early adolescent peers had a 10% greater likelihood of having a shared nomination. The absolute difference of both subscales of SDO were non-significant. These findings were similar when examining values and attitudes simultaneously (Table 2), although the effect for RWA authoritarianism became non-significant ($p = 0.06$).

Additional Contextualization of Effect Sizes. Repeated-measures *t*-tests comparing youths' average deviation from their peers' attitudes (peer-mean centered) to their average deviation from the overall mean (grand-mean centered) were estimated among significant effects found in the ERGMs (RWA, patriotism, and anti-immigration attitudes) to further contextualize these results. Figure 2 displays the estimates from these models. The average grand-mean deviation for RWA was 0.56, compared to an average peer-mean deviation of 0.29. When examining the authoritarianism and traditionalism subscale separately, the average grand-mean deviation for RWA-authoritarianism was 0.78 and RWA-traditionalism was 0.78, compared to an average peer-mean deviation of 0.38 and 0.38, respectively. The average grand-mean deviation for patriotism was 0.72, compared to an average peer-mean deviation of 0.42. The average grand-mean deviation for anti-immigration attitudes was 0.88, compared to an average peer-mean deviation of 0.46. All mean comparisons were statistically significant ($p < .001$). These findings indicate that on average, youths' RWA, patriotism, and anti-immigration attitudes are roughly twice as similar to their nominated peer relative to their school-wide average.

Discussion

The purpose of this pre-registered study was to examine political homophily using a near-complete social network of early adolescents, a developmental period characterized by the

emergence of political attitudes, the prioritization of personal friendships, and expanding autonomy over time spent with peers. Findings from the current study demonstrate evidence of peer political homophily early in life, with early adolescents demonstrating peer similarities in political attitudes and values. Results were consistent after accounting for network and demographic characteristics known to contribute to peer homophily.

Consistent with our pre-registered hypotheses, early adolescents were more likely to spend time with others who had similar sociopolitical values, including RWA and patriotism. Patriotism has been demonstrated among young children (Helwig & Prencipe, 1999) and although contentious, it is often taught in public schools in the United States (e.g., reciting the national anthem; Westheimer, 2006). Patriotism may be highly salient among early adolescents in middle school, and it is possible that the contention surrounding patriotism among young people may make it a salient issue when spending time with peers or when considering their peers' viewpoints. Similarly, early adolescence is a developmental period characterized by increased abstract reasoning abilities, which allow youth to form attitudes about the legitimacy of laws and how to respond to rule violations (Oosterhoff et al., 2017). Thus, early adolescence may be a developmental period where greater heterogeneity in RWA begins to emerge, and youth may draw on their experiences with their peers when evaluating their stances towards laws and punishment or vice versa. Exploratory supplemental analyses indicate that political homophily appeared specific to the authoritarianism and traditionalism but not conservatism domains of RWA. It is possible that youth are more drawn to similarities in beliefs about laws and broader perspectives about life principles than concepts of obedience.

Early adolescent peers were also more likely to spend time with others who shared similar views toward immigration. Issues concerning immigration are highly salient and often

discussed in rural areas within the context of unemployment, crime, and acculturation (Garcia & Davidson, 2013). Immigration was an especially contentious issue during the time of data collection, when misleading information about ‘migrant caravans’ threatening the US was being propagated and policy directing the separation of migrant children from their parents was being enforced (Kunst et al., 2019). The ongoing current events may have led to greater discussions of immigration among peers, and thus provided greater opportunities for socialization and peer selection. Further, attitudes about immigration may also become more contentious among youth as they enter the adolescent years and begin to recognize social inequalities (Diemer et al., 2016).

The effect sizes of political homophily in early adolescents is notable. Being one unit closer in your RWA, patriotism, or immigration attitudes results in a 9% to 14% greater likelihood of spending time with a given peer. These effects are considerable given that models adjusted for a variety of demographic characteristics and structural network properties. Additional analyses further emphasize the size of the effect with early adolescents being approximately twice as similar to their nominated peers in RWA, patriotism, and anti-immigration attitudes relative to the average of the entire school. The strength of similarities between early adolescent peers calls further attention to the need to understand political development within a peer context.

Findings from this study have theoretical implications. Demonstrating political homophily in early adolescence extends our knowledge of political and developmental psychology by suggesting that: (1) peers may socialize political attitudes early in life and thus represent an important source of emerging individual differences in political ideology, (2) adolescents’ political ideas may play an important role in shaping their developmental experiences through peer selection, and/or (3) other shared experiences (e.g., participating in the

same extracurricular activities) or sorting processes (e.g., parents allowing children to spend time with similar minded peers) may lead youth to adopt similar political attitudes. Results from this study serve as a necessary first step is establishing the presence of political homophily in youth. The processes explaining homophily are not mutually exclusive and likely happen simultaneously to varying degrees (Sijtsema et al., 2010). Understanding these processes early in life can provide valuable insight into the developmental mechanisms that undergird political polarization and provide opportunities to develop interventions within a school setting that may help reduce political homophily.

Limitations and Constraints on Generalizability

Findings should be interpreted in the context of certain limitations. The research design was cross-sectional and causal claims or temporal sequencing cannot be established. It is unclear whether peers socialize specific political attitudes and values or whether youth select peers based on their political attitudes and values. Past research and theory suggest that peer selection and homophily are bi-directional (Neal, 2020) and future research is needed to examine these questions longitudinally. Findings from this study also have at least two important constraints on generalizability. Although representative of the region from which it was drawn, the sample was mostly White and from a mid-sized rural town. Using this sample had the methodological advantage of accessing a relatively confined peer network, increasing the internal validity of the study design by ensuring that the majority of youths' peer network was assessed. However, these findings should be replicated among youth from more diverse geographical and socio-demographic backgrounds. It is expected that political homophily would also be present among youth from different contexts, however the specific attitudes or values that demonstrate homophily may differ and be specific to the population studied. Our approach was to consult with a CAB to identify the political issues most relevant for the specific community that we

sampled. This approach may be especially useful for future studies seeking to examine political homophily in other contexts. Findings should also be interpreted in the context of the specific sociopolitical climate from which the study occurred. Data was collected in the Fall 2019, a time when political division was relatively high compared to other points in US history. Some research suggests that political conflict can lead to important disruptions among friends (Smith et al., 2019) and that the sociopolitical context changes over historical time (Oosterhoff et al., 2019). Future research should continue to examine these processes overtime to understand how period and cohort effects impact these results.

Conclusions

Political homophily is thought to be a basic social and psychological process that exacerbates political polarization and undermines democratic health. Little is known about whether polarization exists or emerges early in life. In the current study, we demonstrate that early adolescents are similar to their peers in a variety of sociopolitical attitudes and values using a social network approach. These findings call for greater investigation of how political attitudes and peer relationships co-develop overtime. Such efforts will provide valuable insight into the emergence and developmental consequences of political attitudes and values.

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Table 1

Means, standard deviations, and correlations for all study variables.

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Gender	1.54	0.50														
2. Grade	2.04	0.81	.08													
3. Race:W	0.86	0.35	.22**	.02												
4. Ethnicity	1.09	0.29	.02	.00	-.20**											
5. Fin St.	2.76	0.75	.10	-.16*	.07	.03										
6. P Edu	2.61	0.70	-.03	-.10	.20**	-.11	.39**									
7. RWA	3.90	0.70	-.10	-.09	.08	-.13	.17*	.06								
8. SDO	2.83	1.00	-.20**	.09	-.08	.03	.05	.01	.25**							
9. Patriot.	4.81	0.96	.03	.03	.26**	-.16*	.26**	.27**	.36**	.15*						
10. Env.	4.39	1.09	.15*	-.03	.04	-.02	.14*	.18**	.06	-.13	.02					
11. Anti-Im	4.03	1.12	.07	.00	-.06	.08	-.12	-.08	-.26**	-.38**	-.29**	.17*				
12. PAP	3.10	1.32	-.08	-.03	.07	-.05	.23**	.11	.30**	.27**	.35**	-.13	-.39**			
13. SAP	3.47	1.05	.05	.07	-.06	.01	.00	.18**	-.15*	-.25**	-.08	.15*	.11	-.26**		
14. Trump	3.01	1.35	-.09	-.00	.09	-.04	.06	.08	.24**	.22**	.39**	-.13	-.40**	.43**	-.20**	
15. Obama	3.42	1.24	-.04	-.13*	-.01	.08	-.15*	-.02	-.13	-.29**	-.32**	.17*	.27**	-.37**	.23**	-.53**

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. * indicates $p < .05$. ** indicates $p < .01$. Race:W = Race:White. Fin. St. = Financial Status. P. Edu = Parents' Education. RWA = Right-Wing Authoritarianism. SDO = Social Dominance Orientation. Patriot. = Patriotism. Env. = Environmentalism. Anti-Im. = Anti-Immigration attitudes. PAP = Personal Attribution for Poverty. SAP = Social Attributions for Poverty.

Table 2

Pre-Registered ERGM Models for Sociopolitical Values and Attitudes.

	Values Only					Values and Attitudes				
	<i>OR</i>	<i>SE</i>	<i>p</i>	95% CI Low	95% CI High	<i>OR</i>	<i>SE</i>	<i>p</i>	95% CI Low	95% CI High
Network Properties										
Connection probability	0.00	0.26	0.00	0.00	0.01	0.00	0.26	0.00	0.00	0.01
No ESP	0.08	0.11	0.00	0.06	0.10	0.08	0.11	0.00	0.06	0.10
One ESP	0.17	0.08	0.00	0.15	0.20	0.17	0.08	0.00	0.15	0.20
Open Triangles	0.33	0.07	0.00	0.29	0.38	0.33	0.07	0.00	0.29	0.38
Closed Triangles	0.51	0.08	0.00	0.43	0.60	0.51	0.08	0.00	0.43	0.60
Connection Skew	72.92	0.32	0.00	39.14	135.83	79.47	0.32	0.00	42.69	147.94
Demographic Covariates										
Gender	1.94	0.05	0.00	1.74	2.16	1.94	0.05	0.00	1.74	2.16
Grade	7.23	0.17	0.00	5.15	10.16	7.24	0.17	0.00	5.16	10.16
Race: White	1.08	0.09	0.42	0.90	1.30	1.09	0.09	0.36	0.91	1.31
Ethnicity	1.11	0.11	0.34	0.90	1.37	1.14	0.11	0.24	0.92	1.41
Financial Status	0.81	0.05	0.00	0.73	0.89	0.81	0.05	0.00	0.74	0.89
Parent Education	0.84	0.05	0.00	0.76	0.93	0.83	0.05	0.00	0.75	0.91
Sociopolitical Values										
RWA	0.86	0.06	0.02	0.75	0.97	0.87	0.07	0.04	0.77	0.99
SDO	1.04	0.05	0.36	0.95	1.14	1.07	0.05	0.17	0.97	1.17
Patriotism	0.82	0.05	0.00	0.75	0.90	0.84	0.05	0.00	0.77	0.93
Political Attitudes										
Environmentalism	-	-	-	-	-	0.97	0.04	0.47	0.90	1.05
Immigration	-	-	-	-	-	0.91	0.04	0.02	0.85	0.99
Personal Att. Poverty	-	-	-	-	-	0.97	0.04	0.42	0.91	1.04
Structural Att. Poverty	-	-	-	-	-	1.05	0.04	0.26	0.96	1.15
Support Trump	-	-	-	-	-	0.95	0.03	0.16	0.89	1.02
Support Obama	-	-	-	-	-	0.95	0.04	0.17	0.88	1.02

Notes: ESP = Edgewise-Shared Partners. Bolded values are primary effects that are significant at $p < .05$.

Table 3

Non-Registered ERGM Models for Sociopolitical Values and Attitudes by Subscales.

	Values Only					Values and Attitudes				
	<i>OR</i>	<i>SE</i>	<i>p</i>	95% CI Low	95% CI High	<i>OR</i>	<i>SE</i>	<i>p</i>	95% CI Low	95% CI High
Network Properties										
Number of Edges	0.00	0.26	0.00	0.00	0.01	0.00	0.27	0.00	0.00	0.01
No ESP	0.08	0.11	0.00	0.06	0.10	0.08	0.11	0.00	0.06	0.10
One ESP	0.17	0.08	0.00	0.15	0.20	0.17	0.08	0.00	0.15	0.20
Open Triangles	0.33	0.07	0.00	0.29	0.38	0.33	0.07	0.00	0.29	0.38
Closed Triangles	0.51	0.08	0.00	0.43	0.60	0.51	0.08	0.00	0.43	0.60
Friendship Skew	75.14	0.32	0.00	40.36	139.89	81.58	0.32	0.00	43.94	151.47
Demographic Covariates										
Gender	1.94	0.05	0.00	1.74	2.16	1.94	0.05	0.00	1.74	2.16
Grade	7.24	0.17	0.00	5.16	10.17	7.24	0.17	0.00	5.15	10.18
Race	1.08	0.09	0.40	0.90	1.30	1.09	0.09	0.37	0.90	1.31
Ethnicity	1.12	0.11	0.31	0.90	1.38	1.14	0.11	0.24	0.92	1.40
Financial Status	0.81	0.05	0.00	0.74	0.90	0.82	0.05	0.00	0.74	0.90
Parent Edu	0.83	0.05	0.00	0.75	0.92	0.82	0.05	0.00	0.74	0.91
Sociopolitical Values										
RWA Authoritarianism	0.91	0.05	0.03	0.83	0.99	0.92	0.05	0.06	0.84	1.00
RWA Conservatism	1.03	0.05	0.60	0.92	1.15	1.03	0.05	0.64	0.92	1.14
RWA Traditionalism	0.90	0.04	0.02	0.82	0.98	0.91	0.05	0.04	0.83	0.99
SDO Anti-Egalitarianism	0.97	0.04	0.52	0.90	1.05	0.99	0.04	0.73	0.91	1.07
SDO Dominance	1.04	0.04	0.43	0.95	1.13	1.05	0.04	0.30	0.96	1.14
Patriotism	0.82	0.05	0.00	0.75	0.90	0.84	0.05	0.00	0.77	0.92
Political Attitudes										
Environmentalism	-	-	-	-	-	0.97	0.04	0.49	0.90	1.05
Immigration	-	-	-	-	-	0.92	0.04	0.04	0.85	1.00
Personal Att. Poverty	-	-	-	-	-	0.97	0.04	0.43	0.91	1.04
Structural Att. Poverty	-	-	-	-	-	1.05	0.04	0.25	0.96	1.15
Support Trump	-	-	-	-	-	0.96	0.03	0.17	0.90	1.02
Support Obama	-	-	-	-	-	0.96	0.04	0.26	0.89	1.03

Notes: ESP = Edgewise-Shared Partners. Bolded values are primary analyses that are significant at $p < .05$.

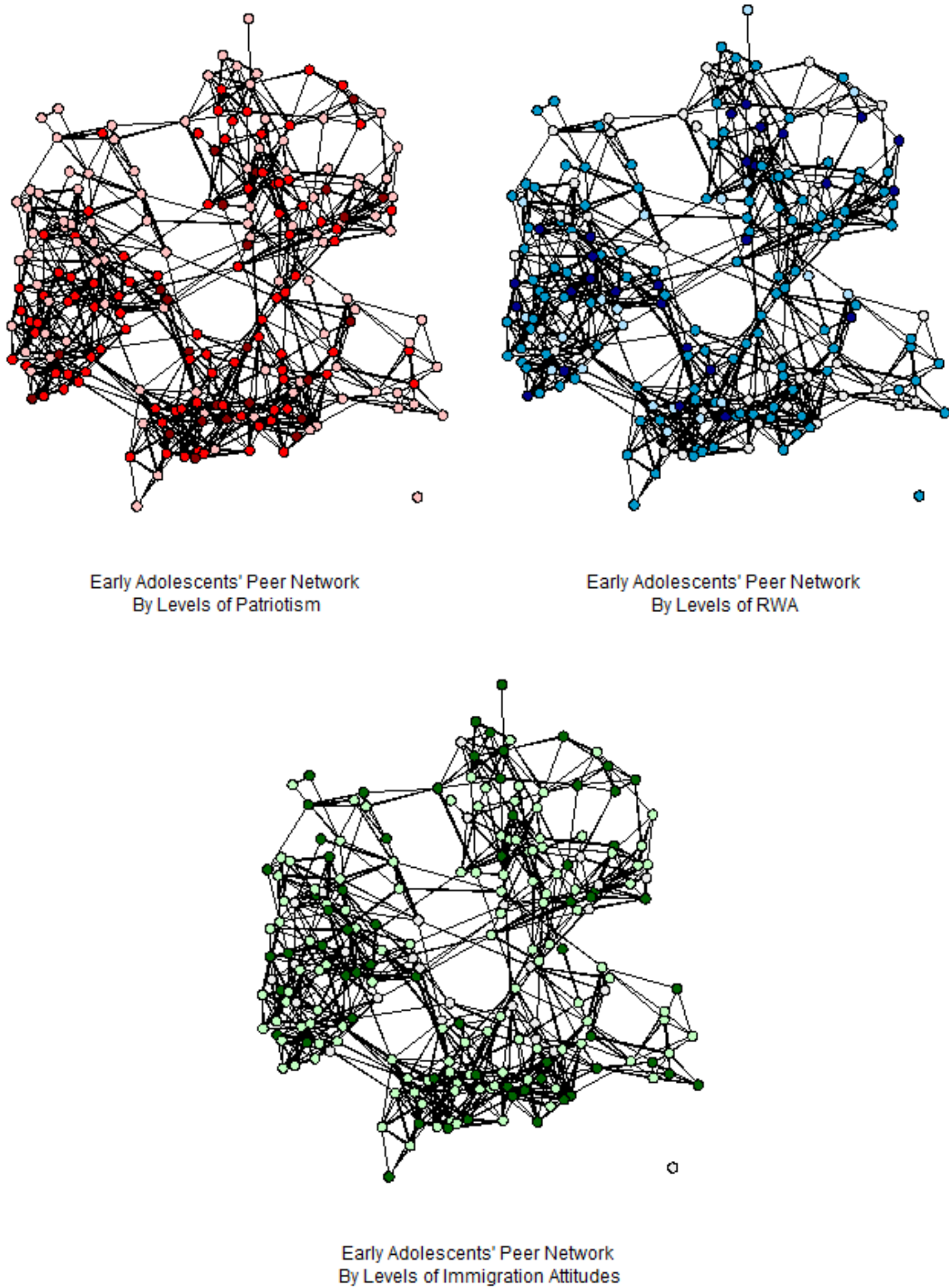


Figure 1. Early adolescent peer network estimated in the pre-registered analyses by significant effects.

Notes: Darker colors represent higher values in the respective attitude or value.

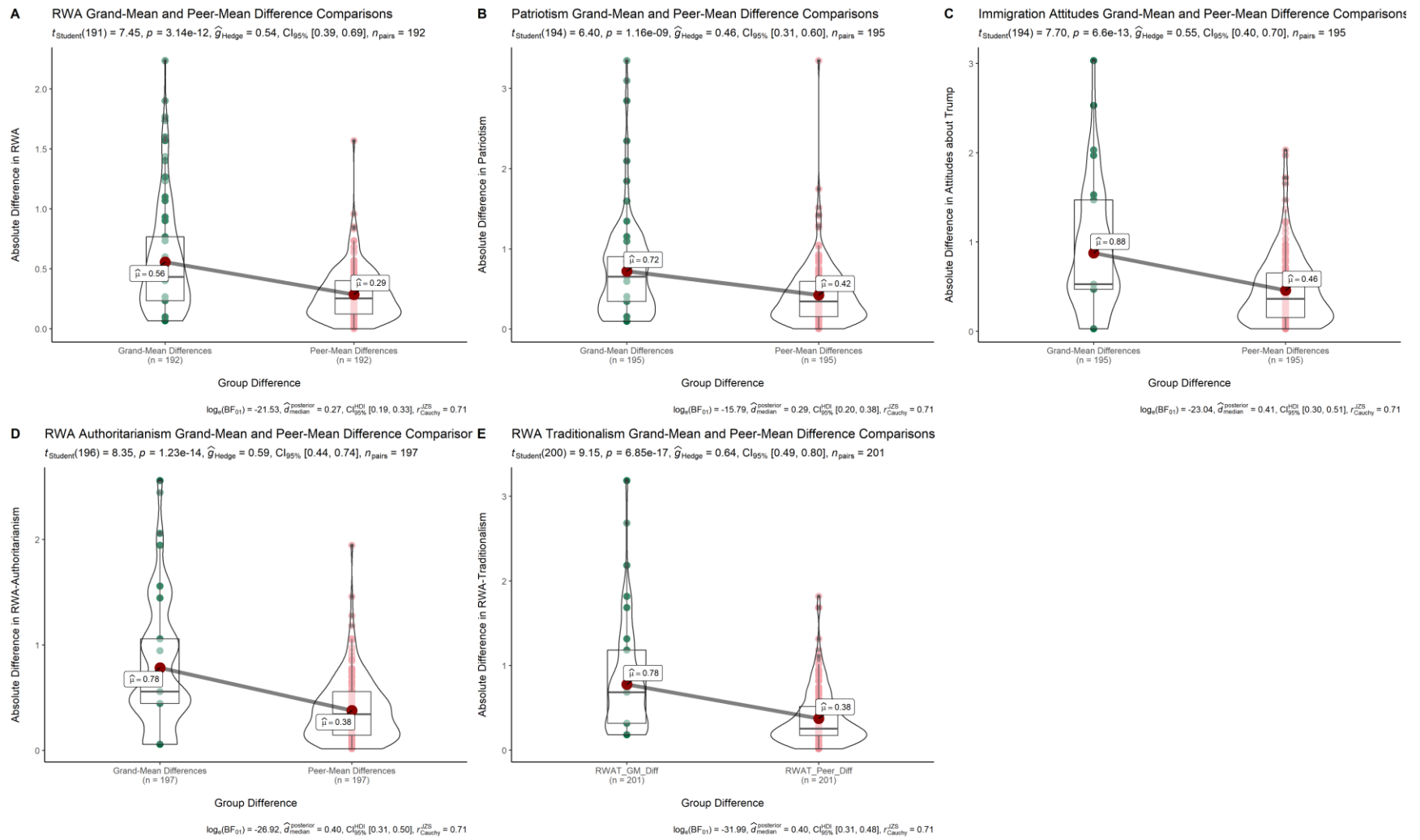


Figure 2. Mean differences in adolescents grand-mean centered and peer-mean centered political attitudes. Figure 2a: Right-wing authoritarianism, Figure 2b: Patriotism, Figure 2c: Anti-immigration attitudes. Figure 1d: RWA Authoritarianism attitudes. Figure 1e: RWA Traditionalism attitudes.

Supplemental File

- 1. ERGM Technical Specifications**
- 2. Figure S1: Goodness of Fit for Model 1**
- 3. Figure S2: Goodness of Fit for Model 2**
- 4. Figure S3: Goodness of Fit for Model 3**
- 5. Figure S3: Goodness of Fit for Model 4**

ERGM Technical Specifications

ERGMs for this study were estimated using statnet and the following specifications. For the pre-registered analyses, the “edges” term was used to model friendship probability by accounting for the total number of possible edges in the model. Our pre-registered analysis plan was to use geometrically-weighted edgewise shared partnerships (GWESP) to account for the presence of triangles in the model. However, estimation of GWESP always produced a poor model fit and degenerate model diagnosis at all tested levels of alpha (0-2 increasing by .1). Thus, triangles were estimated using four increasing edgewise shared partnership (esp) terms, including esp(0), esp(1), esp(2), and esp(3). Esp(0) accounted for the proportion of observed cases that did not have any edgewise shared partners, Esp(1) accounted for those with one edgewise shared partner (open triangle), esp(2) accounted for those that had two edgewise shared partners (closed triangles), and esp(3) accounted for those with three edgewise shared partners. This configuration provided a goodness of fit that adequately approximated the observed data in edgewise shared partnerships reflected by the goodness-of-fit (GOF) plots. Geometrically weighted degrees (GWDEGREE) was used to estimate friendship probability. GOF plots indicated that an alpha value 1.5 provided a good fit to the observed data. MCMC diagnostics revealed that all models provided acceptable lagged auto-correlations (between 0.30-0.60) and Geweke statistics, with joint-p values generally over .40.

Figure S1: Goodness of Fit for Model 1

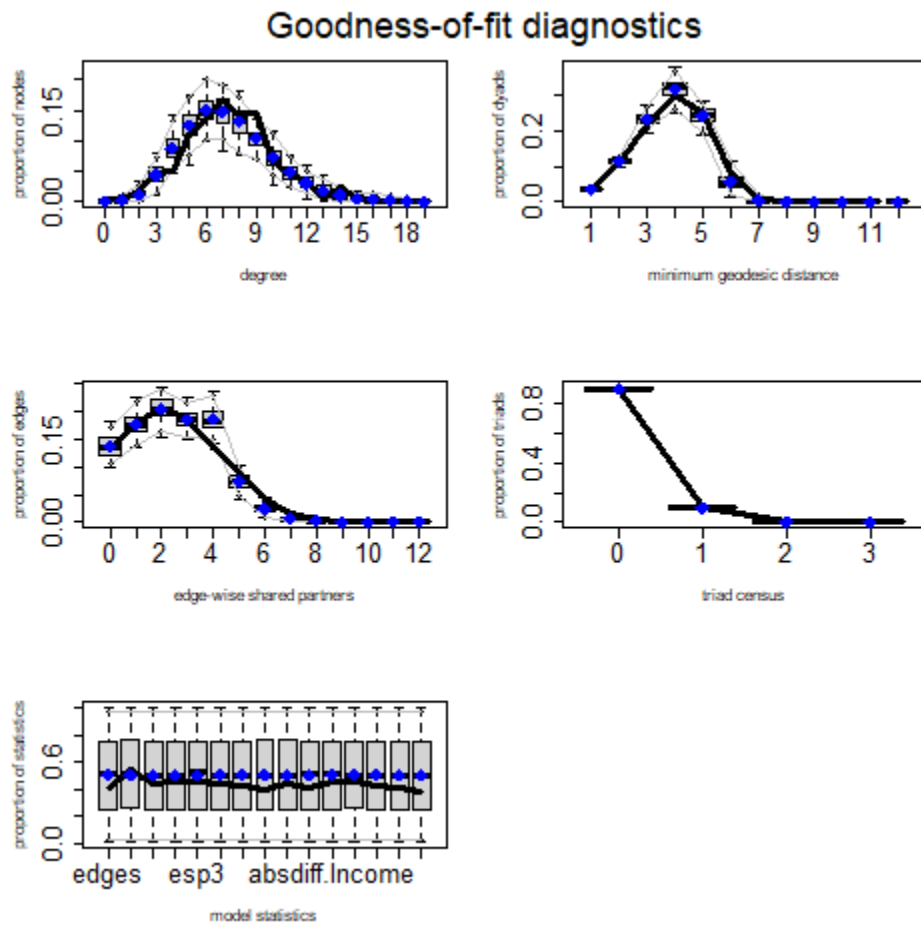


Figure S2: Goodness of Fit for Model 2

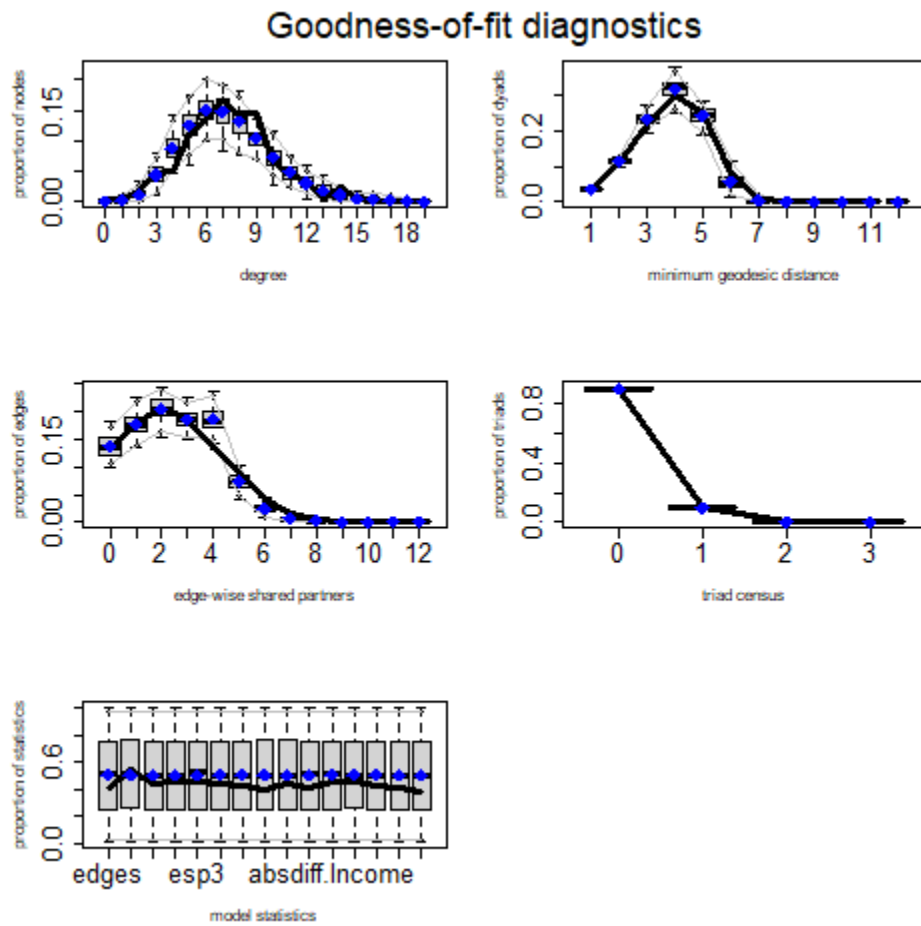


Figure S3: Goodness of Fit for Model 3

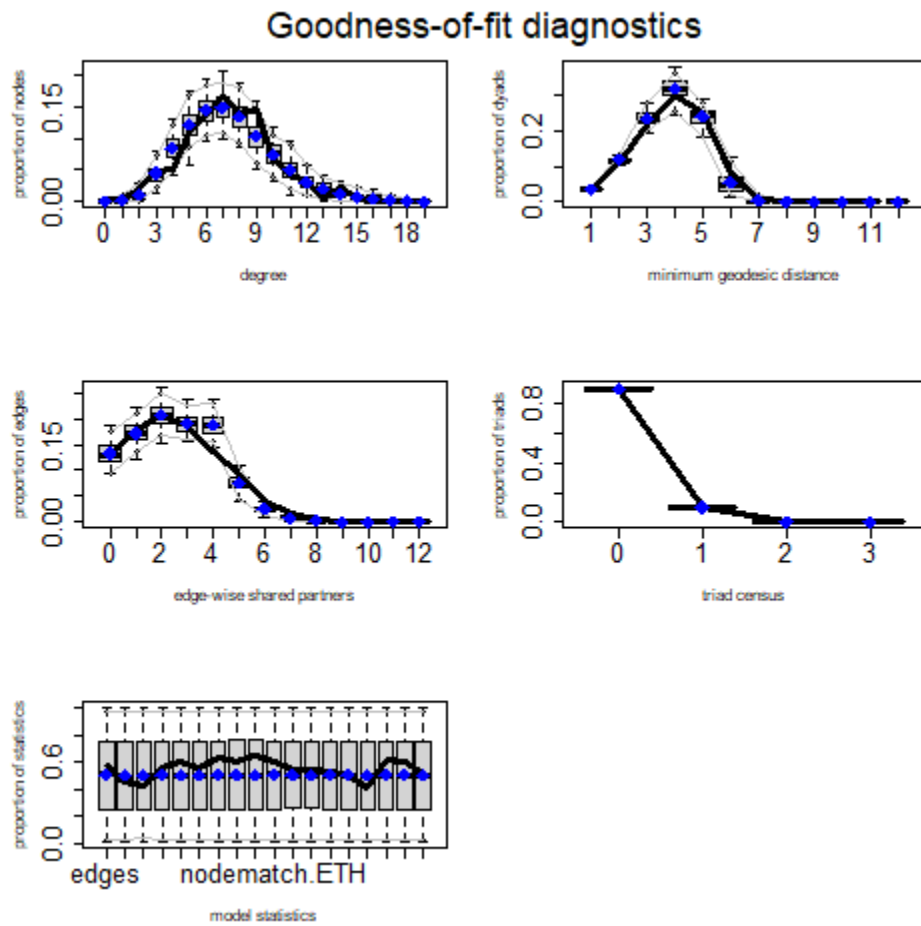


Figure S4: Goodness of Fit for Model 4

