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MATH 89S: Game Theory and Democracy

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The game theory of mass media and its effect on the two-party system

American politics are no doubt complex and full of mystery especially because majority of studies explore how to play the game of American politics instead of attempting to understand why the game is played the way it is. The study of political science seems this way because the science is governed by the given rules of the system not the ideal rules. In the expectation that the democratic system of the United States will one day change, this paper focuses on mass media's effect on a given party system through the lens of the current political state: the two-party system. Understanding the interaction between the two-party system and mass media makes future studies of more complex systems much simpler as the two-party system is the most primitive of political systems, and at the same time, the most organized.

Background

When mass media began, it wasn't quite as massive. A small collection of news networks began broadcasting at the dawn of television, but not until later did it become politicized. In 1949, the Fairness Doctrine was enacted by the Federal Communications Committee (FCC). The goal of this policy was to ensure that both sides of political issues were covered by media networks equally. The idea was that mass media networks should not be polarized, but instead they should each cover the opinions of the left and right. This may seem reasonable, but the social implication of this policy was immense. The policy gave the FCC the power to close media networks that they perceived as biased. This led to news networks marginalizing minority populations. Of course, when this policy was revoked in 1987, it came at a cost. Mass

media could express bias and attract niche populations rather than attempt to cover both sides of issues equally, so information from mass media became tinted by the network's opinions. This paper aims to explore the mass media networks free market governed only by the rules of economics (Mancini 44).

Framework

Before discussing the mass media market, it is important to establish a framework for the paper, a set of rules under which arguments can operate. This is not to say that the framework is never escaped for illustration purposes, but unless otherwise specified, the following conditions apply: (1) the mass media market is unregulated, (2) political parties attain votes only by establishing their party position, (3) plurality voting is used, (4) agent-based and game-theoretical models are used, and (5) there are third party candidates in elections but (6) two parties are dominant. Conditions 1-3 are only for simplicity sake. Condition 4 exists to mock the behavior of normal elections and understand a broader sense of where the system is heading. A game theoretical model assumes that every player knows how the other players will play the game, but it shows where the system is heading in the long-term. In an agent-based model, the players (and in this case the voters) are not omniscient. Instead, they are limited to the information given to them by other agents (voters), and thus, it studies more directly the actions and reactions of players in a system. Condition 5 and 6 are established to assume that the political system is close to the equilibrium state (a pure two-party system) because this is where the majority of democracies that use plurality voting eventually operate.¹

Use of the plurality framework

¹ This framework was adapted from all of my sources.

In this paper, plurality voting will be used to understand how mass media and the party system interact. This choice is mainly attributed to plurality's simplicity and its wide availability in research. Nonetheless, other voting methods are becoming increasingly popular (but not as quickly used) as people discover that plurality voting is not as representative of the opinion of the population as other methods. For those who wish to understand mass media's effects on party systems in other voting method frameworks, this paper can be viewed as a stepping stone. Because the two-party system and plurality are understood much better than other methods and more research is available on this topic, it is first important to understand mass media's effects on it.²

Mass media market structure

Understanding the mass media market alone, specifically its polarity, is important before understanding it in terms of the two-party system. In an apt discussion of media fragmentation, Paulo Mancini argues that "in a fragmented media market, each new (and old) media outlet is forced to find its own target/audience to distinguish its own product from others (46)." The reasoning can be easily understood through the use of a model. For the sake of simplicity, analysis can be done with the unit interval model where consumers are equally distributed along the unit interval. These values can also be viewed as percentiles (such that the unit interval value .99 correlates to the 99th percentile). Additionally, I would like to clarify that this model assumes game theoretical properties (media outlets know where they lie on the unit interval model and they know where other companies lie). We will assume that outlets A and B already lie on the unit interval at points A_p and B_p , respectively. We can define A_p and B_p as 0.4 and 0.9 respectively. The tendency of A and B is to find the points such that their profits are equal (they

² Plurality was chosen because all supporting sources assume plurality.

are equidistant from the point .50). In the current scenario, A and B make profits 0.65 and 0.35 respectively. Outlet B understands that if it moves towards A it will gain profits, so $B_p = 0.6$. At this point, A and B each make 0.5 in profit. At this set of points for A_p and B_p , no change in position will result in an increase in profit because the other company will react by moving to an equidistant position.

This also occurs on a larger scale. When there are many companies and many dimensions, the same logic holds. Companies attempt to be equidistant from each other, but this may only work in experimental conditions. In the real market, things become more complicated. One such complication is that tools and resources to attract more customers are not evenly spread through the competitors in the market. As a result, more companies can be sustained at closer points along the political spectrum because the marketing spectrum allows more differentiation. In the model above, this would be indicated by additional dimensions.

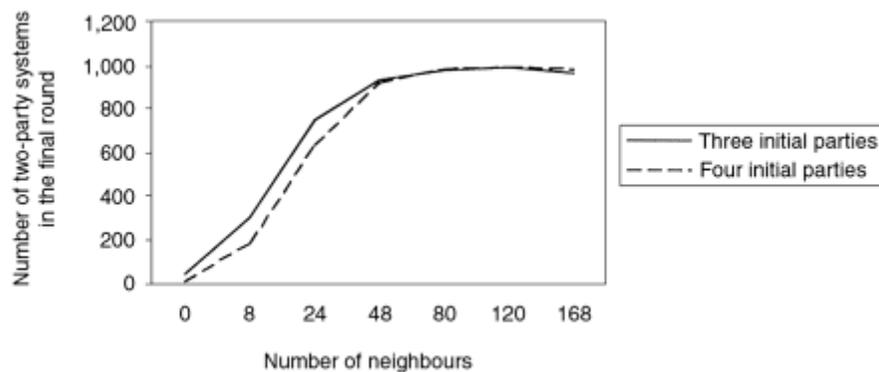
Mass media polarization is not very relevant to mass media's effect on the two-party system because the market structure does not affect the population in maintaining the two-party structure. Regardless of the market structure, mass media will provide the same information to the population regarding the existence of two parties. To clarify, mass media networks can portray their opinions on issues as long as they operate in the framework of the two-party system, relating all issues back to the ultimate choice that voters will make between the two parties. This argument is torn to shreds if mass media began supporting third party candidates, yet this would not be advantageous to mass media networks that wish to remain relevant. However, even if mass media networks began promoting third party candidates, the two-party system would remain unless mass media convinced voters that a specific third-party candidate had a chance of winning an election through faulty poll data. Under these circumstances, a third-

party could possibly develop because the information given to voters about the system is untrue. Eventually, the system would develop a third-party (given the mass media networks were not debunked for their bias), yet competition in mass media would not allow a network to last long enough to develop a third party. Mass media networks would in turn criticize the third-party network until it went back to normal behavior: advocating for the two-party system. From the previous argument, readers should gather that the only way to escape a two-party system in a plurality framework is to give false information to voters. This is mainly because strategic voting when given proper information always ends in the two-party system (after enough elections take place) (Clough 324-325).

The two-party system organizes voters in such a way that specialization is possible. In the above model, the unit interval is distributed as percentile of the population. This means that certain areas of the political spectrum could be particularly clustered whereas other areas are virtually excluded from the unit interval because there are so few voters in the position. In this case, the word political spectrum refers to an ideological spread of a group such that at any two points that are equidistant (where a point represents a person's opinions in n dimensions), the two people associated should disagree as much as any other two people associated with two equidistant points. Even though media networks may seem too close to one another on the political spectrum, along the unit interval (where people are distributed evenly), media networks spread out significantly. Ideally, networks should be distributed evenly through the unit interval. Additionally, I would like to emphasize an implication of the previous argument. The distribution of people along the political spectrum is arbitrary to media networks, but crucial along the unit interval because specialization occurs as an effect of dispersed opinions in a free market.

A conclusion that mass media polarization does not affect the two-party system would not be illogical at this point, especially in regard to the research in such an opinion's favor. In an empirical study of viewing habits and political opinions, Markus Prior finds that even though people are given the choice between polarized news networks, it seems that people remain steadfast to their opinions. A large amount of the population watches small amounts of news from several networks instead of devoting to the network closest to their political position. This may seem to disrupt the model stated near the beginning of this section, but even if the model was adjusted to this behavior, it would result in equidistant mass media networks. However, in the voter market, voters must be devoted to one candidate at least enough to give them full vote. Voters are able to collect information from a variety of sources to determine how to best use their vote. Prior concludes that such behaviors suggest that the polarization of mass media does not cause partisanship, but selective exposure to mass media opinions is only one contributor to mass media's total effect on the two-party system. In total, mass media polarization, a product of market behaviors, does not affect the two-party system (Prior 119-120).

Exchange of information



Number of two-party systems as a function of information (Clough 326)

When framing voters as strategic, focusing on gathering information rather than picking a side, the previous conclusion seems to change. Voters must decide how to make their vote based on how they can raise their utility best with the information they are given. Of course, to know how to use their vote, it is best to gather as much information as possible especially in a single member plurality election. Emily Clough shows in her study that voters react to how they expect the election to go. Clough uses a computer model to demonstrate that in a plurality election the natural state as people gain more true information about the voting system is the two-party system. In the figure above, the results of her tests are shown. One can see that as the number of neighbors (which represents voter information in her agent-based model) increases, elections tend to end in two-parties. Although she used a system based on voters communicating with one another about their votes, this can be applied to mass media because it conveys the same principle; it allows large numbers of people to know how the election is probably going to proceed. Showing that certain candidates have a considerable chance of winning the election encourages voters to turn out for the election (Clough 326-329; Strömberg 265).

Such is a result of strategic voting in her computer-based simulations, but in real elections, not only is there strategic voting, but the bandwagon effect has a substantial effect on the population. The bandwagon effect happens when a voter uses their vote on a candidate because they are perceived to be winning an election. This can be confused with strategic voting because strategic voting requires voters to vote for a more likely candidate (a two-party candidate) that shares more of their views than their counterpart. Of course, both of these are attributed to mass media because mass media provides information about the status of the election. Previously in the paper, only strategic voting has been viewed as the cause of the two-party system, but the bandwagon effect also makes contribution to the formation and

continuation of the two-party system. Going into elections in America, voters already know that it is extremely likely that either a Democrat or Republican will win the election. This in itself is enough bandwagon effect to perpetuate the two-party system. This indicates that it takes convincing for voters (in general) to vote for a third-party candidate. Given all of this information, exchange of information seems to be the way mass media affects the two-party system (Evrenk et al. 421).

Flexible elements of the two-party system

Other findings which used substantial amounts of data from Danish elections found similar results. In 2012, Bækgaard et al. found that mass media affects polarization of political parties. This result is interesting because of its similarities to contrary evidence. As presented earlier, mass media does not polarize populations, but when operating in a system where there are only two options, it can seem that it does. This is because mass media affects the political parties' positions. To develop an optimal vote-seeking strategy, political parties must ensure that voters understand where each party stands on issues, especially in a system where mass media is available to express opinions. Political parties adopt increasingly polar opinions to show voters how different they are from their counterparts. Earlier in the paper, the equidistance of mass media networks in an ideal market was discussed. This behavior also exists in the political party market. Political parties must be equidistant from the center of the unit interval, but the distance from the center is not defined. Parties can be as close or as far away from one another. Bækgaard et al's findings say that as mass media has become available, political parties become more distant from the center of the unit interval. This is a dangerous pattern because the goal of democracy is to represent the population. As political parties become more organized, they become less centrist. This can be attributed to mass media's role in both strategic voting and the

bandwagon effect. Voters can use their votes in a two-party system in four ways: (1) honest voting for a two-party candidate, (2) honest voting for a third-party candidate, (3) strategic voting, or (4) bandwagon voting. As a political party, it is important to maximize honest voting for your party, strategic voting in your favor, and bandwagon voting in your favor. Of course, it is also important to minimize honest voting for other parties, strategic voting for your two-party opponent, and bandwagon voting for your two-party opponent. To do this, a political party should use mass media which affects in strategic voting and bandwagon voting. Political parties polarize their opinion to the opposite of that of their opponent to encourage strategic voting in the third-party population nearest to them on the political spectrum. This strategy will subsequently discourage bandwagon voting of the same third-party population. This behavior results in the results discussed above, that political parties become more polarized due to the effects of mass media (Bækgaard et al).

Conclusion

For opponents of the two-party system, polarized politics, or even political extremism, Duverger's Law is a frightening realization, and by including the effects of mass media on the two-party system, these fears become even more exaggerated. Thanks to mass media's way of making large amounts of information widely available, Duverger's Law becomes more of a dictatorial degree; it must happen, at least in the framework of this paper. Of course, asking questions about how mass media affects the two-party system was a natural first step, but this was meant to be extended to further research: (1) understanding plurality systems that sustain multiple parties, (2) understanding non-plurality systems, and (3) understanding how to reduce the polar effects of mass media. The most urgent of these is definitely understanding how to reduce the polar effects of mass media because in the current system, parties are continually

becoming more polarized. Of course, this is not in the interest of a mainly centrist population. In fact, it diminishes the success of democracy which is a tragic pattern that must stop as soon as possible if we are to remain under the rule of plurality. In addition, the mass media market structure does not manipulate the opinions of the population, but frames them. Due to Duverger's Law, mass media widely affects the two-party system because it allows strategic voting. Hopefully, readers will be able to walk away from this paper with a new understanding of mass media and its relationship to voter information.

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