A Supply and Demand Model of Political Party Growth

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Abstract

In this paper, we extend an existing model of the growth of political party growth by including concepts suggested by current research. In the original model, party recruitment was modelled by analogy with the spread of an infection, describing the demand-led requirements of party leaders. We include a second mode of recruitment, the supply mechanism, where people join because of the popularity of the party. We model popularity using soft variables to capture the concepts of political legitimacy and the personal political benefits of party membership. The model is developed using a modular structure that helps elucidate the feedback structure between the population variables and the soft variables and enables the effects of the soft variables to be separated from their potential measures. We apply the model to two data sets to demonstrate improvements over the original model in both data fitting and the explanatory narrative.

Key Words: Social diffusion, political parties, epidemics, soft variables, modules, political legitimacy

1 Introduction

Most countries rely on political parties to form governments, select leaders, determine a legitimate political identity and form policy. In democratic countries, parties depend on members to help them attain power, providing the finance to campaign, and the legitimacy required to convince an electorate to vote for them. Thus, large party memberships can be advantageous, and party leaders take membership growth seriously. As such, there is an increasing body of research on why parties grow and decline (Gauja, 2015; Norris, 2002; Scarrow, 2014; Vittori, 2019; Whiteley and Seyd, 2002).

Theories concerning political party growth can be grouped into three broad areas: limits-to-growth, incentives that increase the *supply* of party members, and the party's need for political legitimacy resulting in its *demand* for members. Michels (1966) and Tan (1998) argue that as party size increases, specialisation increases and individual members are less able to find a meaningful role in the party. More members free-ride, benefitting from party membership without contributing, which places limits on party size, as is common in many organisations (Olson, 2009). Tan (1998) demonstrated these effects from the survey data of Janda (1980), showing that size can indirectly increase participation through increased party complexity. Thus, while free-riding limits party growth, its effects can be alleviated through wise party management.

Whiteley and Seyd (2002) assert that parties grow by offering incentives and benefits for party members. Such benefits may involve the hope of political influence, the choice of party leaders and candidates, electoral success for the party or favourable referenda outcomes (Achury, Scarrow, Kosiara-Pedersen, and Van Haute, 2020; Paddock, 2007). Thus, potential members find the party attractive and choose to join – the supply of new members. In more recent times, parties have increased benefits

to members to attract new members and thereby improve party legitimacy (Dalton and Weldon, 2005; Scarrow, 2005; Scarrow and Gezgor, 2010). The new members are encouraged to be active and help build the party's political legitimacy to the electorate through activities such as canvassing in the local community (Poguntke and Scarrow, 1996; Whiteley and Seyd, 2002).

As well as the supply of new members, Whiteley and Seyd (2002) also discuss the importance of the parties' demand for new members as a larger party carries more political legitimacy. This demand often takes the form of deliberate recruitment campaigns, involving party members and publicity. Campaigns may be scaled back or stopped entirely if the party leaders feel they have achieved a reasonable level of legitimacy, or if some electoral goal has been achieved. Activists become involved in personal recruitment, and thus parties need to ensure there is a healthy balance of activists to free-riders (Norris, 2002). Additionally, the activists' work in building legitimacy can increase the effectiveness of direct recruitment. Sometimes, however, it is sufficient to build legitimacy through party size, making the role of activists is less critical (Whiteley and Seyd, 2002).

Although all the theories mentioned above are supported by quantitative evidence, none involve dynamic modelling. Using some of these theories, Jeffs, Hayward, Roach, and Wyburn (2015) proposed a population model to explain party growth by analogy with the spread of a disease, referred to as the Limited Activist Model. Activists were viewed as operating in a way analogous to infectives, recruiting people from a susceptible population. The free-riders in the party were treated as a separate category, and their presence relative to activists influenced the ability of the party to make new members active. The model restricted growth to the demand-side and assumed members left at a constant rate. The model explained historic data favourably, but there were several instances in the data where growth patterns changed due to changes in political legitimacy, which were not included in the model. Although reasonable narratives were produced, the absence of supply-side growth, changes to political incentives, benefits, and legitimacy limits the explanatory power of the model.

In this paper, we extend the Limited Activist model of Jeffs et al. (2015) to include recruitment by supply, and the influence of benefits and political legitimacy on recruitment and retention. Our aim is to produce a richer political narrative that can help explain historic party data and inform choices for political leaders who wish to grow parties and increase their influence. Firstly, we will express the Limited Activist Model in system dynamics, linking the model assumptions to feedback loops. Secondly, we will extend the model using modules to capture properties of political legitimacy and personal political benefits and their connection with the population variables. This approach will enable the concepts of *legitimacy* and *benefits* to be modelled as encapsulated soft variables whose interaction with other model elements is independent of their potential measures (Hayward, Jeffs, Howells, and Evans, 2014). Thirdly, we apply the extended model to two data sets used by Jeffs et al. (2015), and examine improvements in data fitting and the resulting narrative of growth and decline.

2 Population Model

The Limited Activist model of Jeffs et al. (2015) was constructed by analogy with the spread of a disease using the following assumptions:

1. The population is disaggregated into party members and non-party members. Party members are divided into activists and inactive members. This latter group are free-riders. There are two types of activists: those that actively recruit by word-of-mouth and those who do not.

2. The recruiting activists take on the role of the infectives in the spread of a disease through a susceptible population, feedback loops `Rp1` and `Bp2`, Figure 1, and become non-recruiting activists after a given duration, loop `Bp3`.

3. All new recruits may become either type of activist, or inactive members. This creates other feedback loops, not shown in Figure 1.

4. All activists contribute to the parties activities, here represented as an influence on how many recruits become active.

5. Inactive members leave the party at a fixed rate, loop Bp5.

Jeffs et al. (2015) applied the model to four different growth and decline scenarios with varying degrees of success. The most successful application of the model was to the post-war growth in the UK Labour party resulting from a deliberate campaign to make every Labour voter a party member (Jefferys, 2007). Starting from 1947, two years after the general election of 1945, the model produces an excellent fit of the data, including the decline period during the 1950s, Figure 2, top curve.
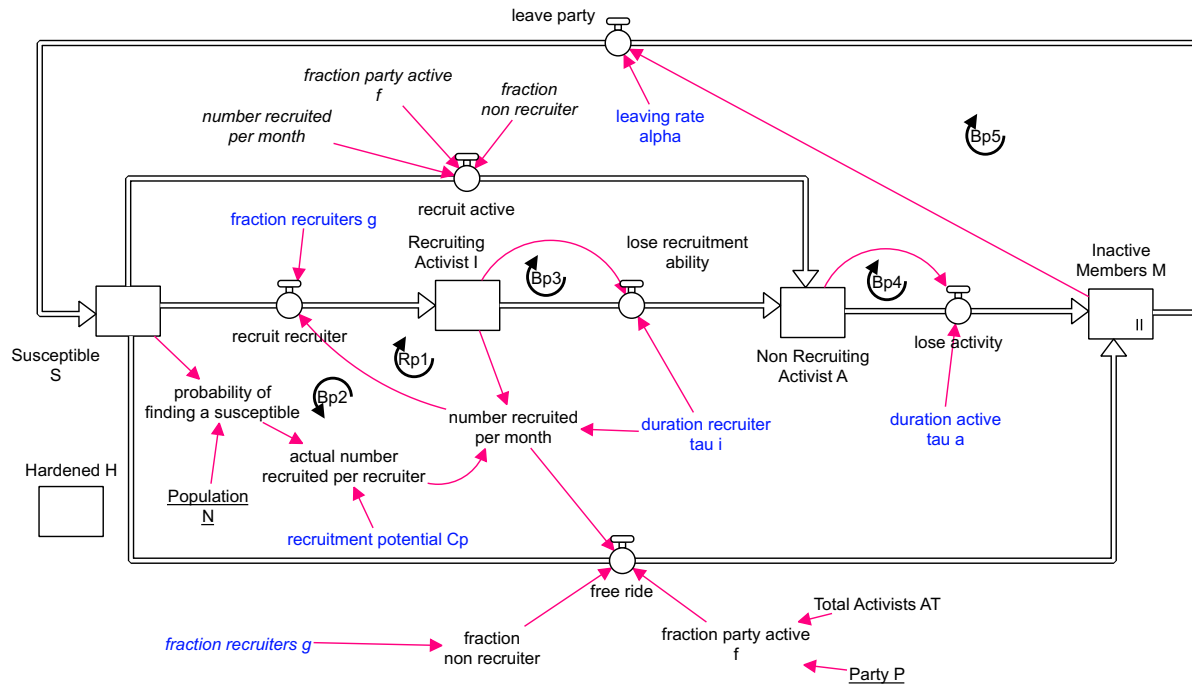

Figure 1: Limited Activist Model of political party growth.

However, applying the model to the rise and fall in Labour party membership during the tenure of Tony Blair failed to replicate the post-election fall in membership, Figure 3. Jeffs et al. (2015) noted that the post-1998 data could only be reproduced by a fall in recruitment rate, coupled with a rise in leaving rate. In the new model, we explain these changes exogenously using the concepts of political legitimacy and membership benefits as defined in the political literature (Dalton and Weldon, 2005; Paddock, 2007; Scarrow, 2005; Whiteley and Seyd, 2002). To make full use of these concepts, we will add to the model the supply mechanism for the recruitment of members as noted by Tan (1998) and Whiteley and Seyd (2002) in addition to the existing demand mechanism described by the epidemiological contact.
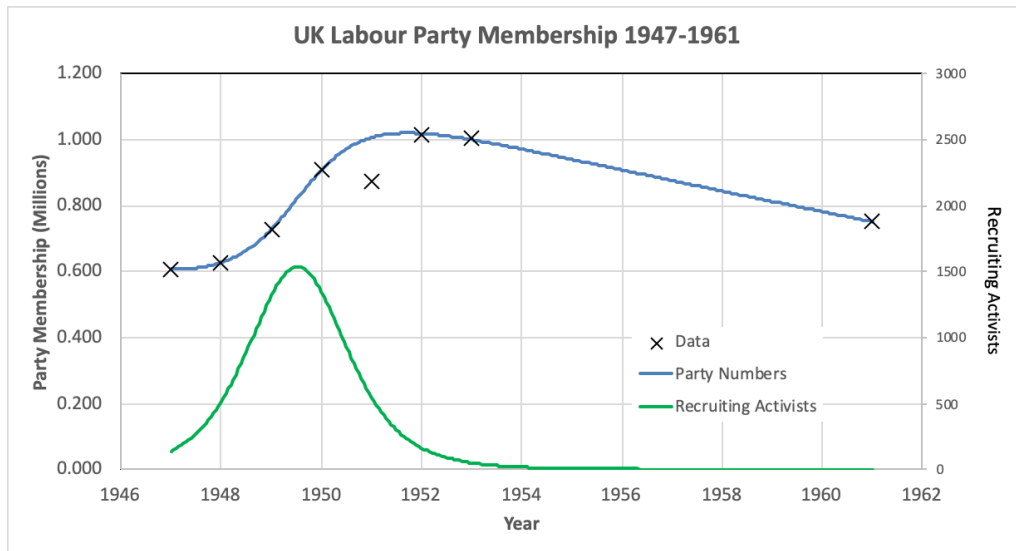
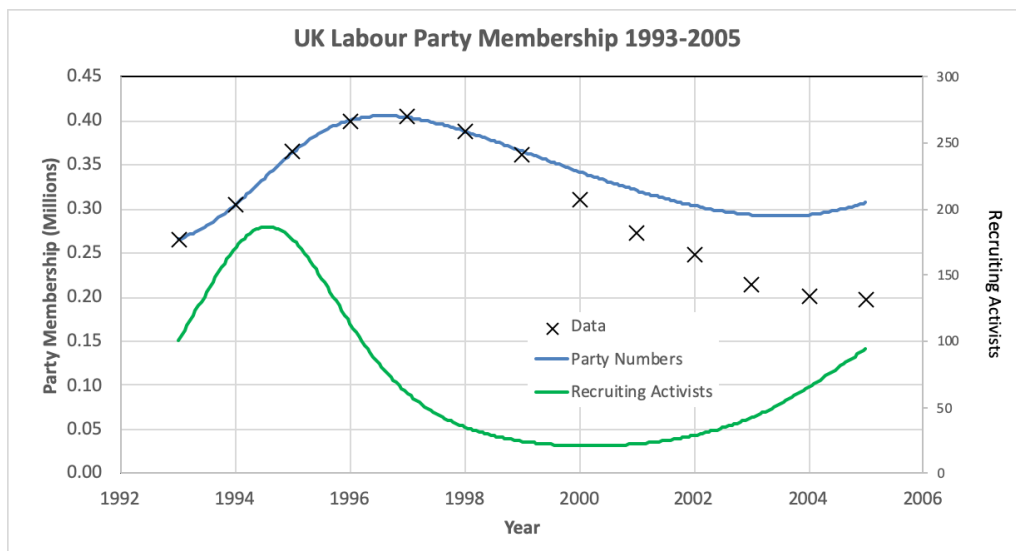*Figure 2: Limited Activist Model applied to the UK Labour Party 1947–1961.*

Figure 3: Limited Activist Model applied to the UK Labour Party 1993–2004. .

3 Supply and Demand Model of Political Party Growth

To extend the Limited Activist model, Figure 1, to include the supply of members, political legitimacy and the benefits of party membership, we use modules. Modularity enables the population model and the two new concepts introduced to be understood and tested independently of each other, (Hayward et al., 2014).

The classic definition of political legitimacy is given by Lipset (1959): "the capacity of the system to engender and maintain the belief that the existing political institutions are the most appropriate ones for the society." In democratic societies, legitimacy is primarily granted by the people (Dogan, 1985). It can be measured by the opinions of voters, their voting behaviour in elections and the performance of the party as perceived by the people and other agencies, such as the media (Von Haldenwang, 2016).

There are many social benefits to political party membership, such as a source of friendships and a sense of purpose in life. However, we limit ourselves to *political* benefits for membership, as given in the introduction. We will use a single stock for *personal political benefits*.

There are two ways of generating political legitimacy, the size of the party (Whiteley and Seyd, 2002), and the work of party activists (Scarrow, 2005). Both party size and party activists are combinations of populations stocks. Thus, there are causal links from the population module to political legitimacy. By contrast, personal political benefits are set by party leaders and political events; thus set exogenously.

The supply of members to the party is influenced by the party's legitimacy and its benefits to members (Paddock, 2007; Whiteley and Seyd, 2002). We call the combination of legitimacy and benefits the *political attractiveness* of the party. Demand will also be influenced by this attractiveness, which serves to make the efforts of the recruiting activist more effective. However, demand will also decrease as political legitimacy increases towards a target set by the leaders (Whiteley and Seyd, 2002).

We propose the following hypotheses linking the Limited Activist population model to political legitimacy and personal political benefits (see Figure 4):

1. The party seeks to increase the party membership to gain a target political legitimacy (demand), loop, B1.
2. The party builds political legitimacy through the work of activists in constituencies, loop B2.
3. Political legitimacy is built through activists and by party size, increasing the attractiveness of the party. Thus, demand for members is more effective, loop R3.
4. The building of legitimacy and party's political attractiveness, described in hypothesis 3, increases the supply of new members, loop R4.
5. Growth in the party can increase the proportion of members who free-ride, which reduces the political legitimacy due to the adverse action of free-riders in the party, loop B5.
6. An increase in personal political benefits, such as achieving a successful election result, or providing a leadership election, increases the attractiveness of the party, making demand more effective, and increases supply.
7. An increase in personal political benefits helps increase member retention.

The population module, Figure 4, contains the Limited Activist module, extended with flows representing supply. The feedback loops of the Limited Activist model, Figure 1, are replicated in the population module.

The Political Legitimacy module contains the single stock that represents the soft variable political legitimacy. We have chosen to limit its scale, with a party having a maximum legitimacy corresponding to every voter believing that they are acceptable. The limited scale is achieved using a goal-seeking pattern pioneered by Levine (2000) and Levine and Doyle (2002), and developed by Hayward et al. (2014). Political legitimacy is scaled by its possible maximum, to provide output from the module.
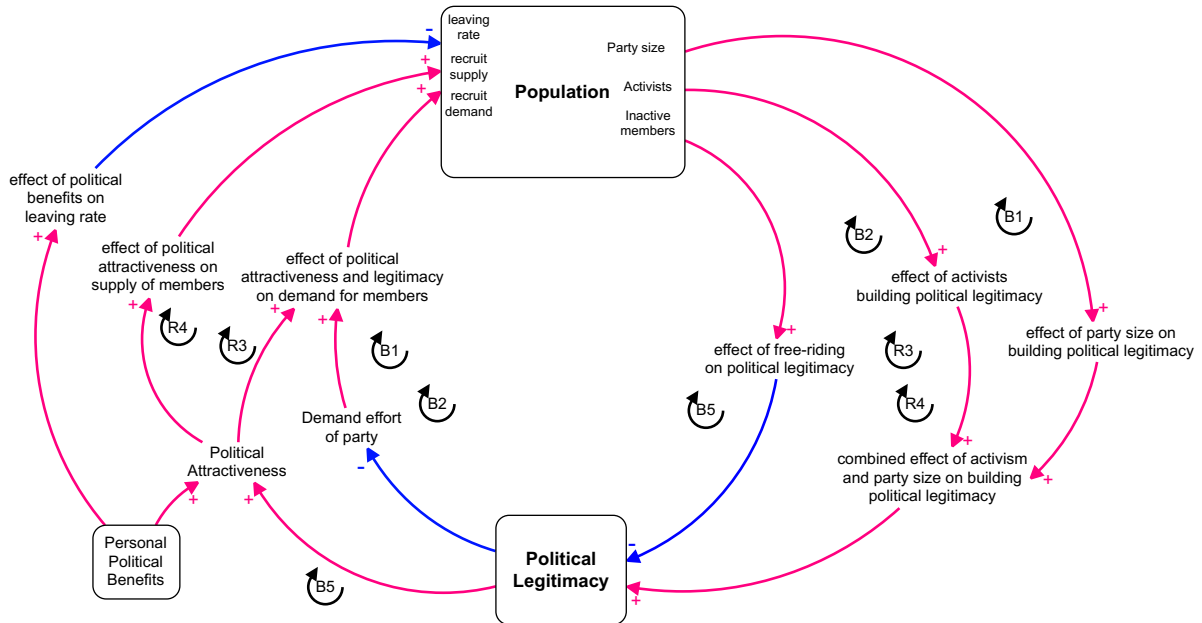
Figure 4: Modular structure of supply and demand model. Modules, indicated by rounded rectangles, contain one or more stocks. Other elements, indicated by name only, are modules that contain no stocks.

Personal political benefits is a single stock adjusted according to a target that represents the exogenous effects of membership as set by the party leaders. We restrict this target to a unitary scale to ensure the stock is also unitary and can be compared with political legitimacy.

The population module has three inputs, the demand and supply sectors and the leaving rate. The recruitment potential is now enhanced with the influence of the attractiveness of the party and the political legitimacy demanded by the party.

We use modules to contain the effect of political legitimacy and personal political benefits on the population, and the effect of the population on political legitimacy. These modules are indicated by name only in Figure 4. Where there are two inputs we use logical algebra: multiply where both inputs are required for output, and logical "or" addition where the two inputs enhance each other (Hayward et al., 2014).

4 Results

We applied the model to the membership data of the UK Labour party 1993-2009. The Labour party's strategy of raising its legitimacy ceased as soon as their target of winning the 1997 general election was achieved (Whiteley and Seyd, 2002). We represent this change of strategy by the drop of political legitimacy target from that year. Likewise, we set a simultaneous reduction in benefits to members, as the party's measures to engage with the opinions of members also ceased due in part to the party turning its attention from campaigning to exercising power. We place a further reduction in benefits in 2003, the year of the Iraq war, when there were many temporary membership resignations. The momentary rise in benefits in the following year represents the re-joining of those members who left. We obtained an excellent fit to the membership data from 1993–2005, Figure 5. This represents a significant improvement over the Limited Activist model, Figure 3, where the post-election fall in membership has been replicated
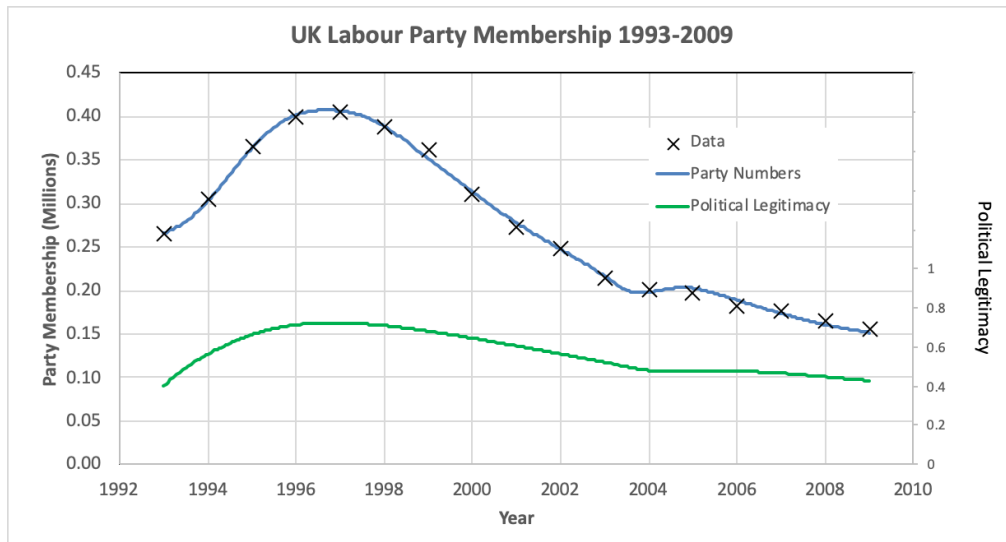
Figure 5: Supply and Demand Model applied to the UK Labour Party 1993–2009.
Parameter values given in appendix 2.

Replicating the much smaller decline in party membership after 2005 was not possible with the 1993–2005 optimisation. Instead, we conjecture that the party launched a brief recruitment campaign in 2003–2004 to help secure the 2005 election and undo the damage to the party from the Iraq war. The party's recruitment campaign was insufficient to raise political legitimacy as it was much weaker than the 1993–97 one.

5 Conclusion

In this paper, we have extended an existing model of political party growth – the Limited Activist model – and applied it to two test data sets. The new model – the Supply and Demand model – included two soft variables representing political legitimacy and personal political benefits. These variables enabled us to add recruitment by supply to the model, as well as improving the demand form of recruitment in the Limited Activists model by incorporating target legitimacy set by party leaders.

Comparing the data fits for the two models, the Supply and Demand model provided a significantly improved data fit for the one data set that had previously given problems. It was clear that demand-led recruitment was insufficient to explain party growth and that some level of supply always exists even when recruitment campaigns have ended.

The new model demonstrates the need to include relevant soft variables in the modelling process. Although both soft concepts, political legitimacy and personal political benefits, are hard to measure quantitatively, the new model demonstrates how informal estimates of target levels of these variables can produce a realistic narrative of historical events and can assist in model calibration.

The primary contribution of this paper is to present a model of political party growth that possesses sufficient explanatory power to be of assistance to party leaders and activists in understanding past behaviour and to inform future strategy.

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