

Norman Schofield · Gonzalo Caballero · Daniel Kselman *Editors*

Advances in Political Economy

Institutions, Modelling and Empirical Analysis

This book presents latest research in the field of Political Economy, dealing with the integration of economics and politics and the way institutions affect social decisions. The focus is on innovative topics such as an institutional analysis based on case studies; the influence of activists on political decisions; new techniques for analyzing elections, involving game theory and empirical methods.

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EDITOR'S PROOF

Quandaries of Gridlock and Leadership in US Electoral Politics

Evan Schnidman and Norman Schofield

1 Introduction

The United States currently faces a number of severe political economic quandaries. First is the economic quandary of debt. From 1993 to 2001, the US public debt to GDP ratio fell from 49 % to 33 % but has since risen to about 100 %. Entitlements, due to the aging “baby boom generation” will, in all likelihood, increase this ratio even more. The transformation to the global economy coupled with the internet revolution has changed the international structure of comparative advantage and has had a dramatic effect on employment possibilities and on income and wealth distribution. China, India and Brazil are growing rapidly, and China’s propensity to save, coupled with its manipulated currency has contributed to the US current account deficit, as well as facilitated the level of US public debt. The resulting uncertainties have induced violent swings in global stock markets. In the background is the fear of the effects of global warming or “weirding” and concerns about how to deal with the US appetite for oil.¹

Many people now fear that we face a repetition of the 1930’s. While the “Great Depression” may have started with the market collapse of 1929, it was the failure of the largest Austrian bank, Kreditanstalt, in 1931 that triggered the sequence of bank

¹Too many books to name have addressed these quandaries, but we can mention Galbraith (2008), Reich (2010), Milanovic (2010), Friedman and Mandelbaum (2011), Harvey (2011), Lessig (2011), Rachman (2011), Sachs (2011), Steyn (2011), Buchanan (2011), Noah (2012), Stiglitz (2012), Smith (2012).

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failures in Europe and the US, coupled with the Smoot-Hawley Tariff Act earlier in June 1930, that led to the enormous contraction of world trade and deepening of the crisis.²

As Keynes (1936: 380) made clear

at the cost of the enlargement of the functions of government [to involve] the task of adjusting to one another, the propensity to consume, and the inducement to invest

the liberty and efficiency of the world economy could be preserved and enhanced.

From Roosevelt's inauguration on March 3 until June 16, 1933, he pushed through the beginnings of the New Deal, including the Emergency Banking Act, the Economy and Beer-Wine Revenue Act (finishing Prohibition, and providing much needed government revenue), the Agricultural Adjustment Act (to deal with over production, but also with an amendment that essentially took the dollar off the gold standard), and the National Industrial Recovery Act (although Title I of the Act was deemed unconstitutional by the Supreme Court on May 27, 1935). The CCC (Civilian Conservation Corps), the FERA (Federal Emergency Authority), the TVA (Tennessee Valley Authority), the NIRA (National Industrial Recovery Administration), the PWA (Public Works Administration) and the AAA (Agricultural Adjustment Administration) were all created to attempt to deal with unemployment, partly through public works. In June 16, 1933, the Glass-Steagall Act had established the Federal Deposit Insurance Corporation (FDIC) in the United States and introduced banking reforms, some of which were designed to control speculation. Regulation Q allowed the Federal Reserve to regulate interest rates in savings accounts. Although these policy moves predated Keynes's book, they were consistent with some of Keynes's earlier ideas (Keynes 1930a,b, 1933). Keynes himself had written to the President in 1933 to praise him as a "trustee of the social system" and met with him later in May 1934. Keynes later wrote to Roosevelt in 1938 recommending public ownership of the utilities, nationalization of the railroads and subsidies for housing.

The severe economic downturn in 1937, caused partly by attempts to balance the budget, led to a Republican gain of 81 seats in the House and 6 seats in the Senate in the 1938 election. The Fair Labor Standards Act (FLSA) of June 25, 1938, just prior to the election, was the last of the New Deal legislation. In a presentiment of the 1960's, Roosevelt also faced opposition from southern Democrats and had to give way on an anti-lynching bill. As Kennedy (1999: 343) notes,

Roosevelt judged and the six week filibuster confirmed [that a frontal assault on the South's racial system] would irretrievably alienate the white southern establishment beyond repair and indefinitely deadlock the Congress.

However, the various efforts, prior to 1938, to regulate the economy eventually paid off in a significant increase in real US GDP as well developments in new

²See also the work by Fisher (1933) on debt deflation as a fundamental cause of the depression.

93 technologies and large increases in factor productivity (Field 2003; Allen 1994).
94 These productivity increases may have been due to the ability of large corpora-
95 tions to increase output even when reducing labor input. Livingston (2011) provides
96 a good argument that the New Deal had reversed the earlier pattern of increasing
97 income inequality and reanimated consumer led growth. (If this argument is cor-
98 rect, then it suggests a way out of the consequences of the current Great Reces-
99 sion.)

100 The period from the collapse of democracy in Europe in the 1930's to the end
101 of World War II led to major works of political economy by Von Mises (1940),
102 Schumpeter (1942), Von Hayek (1944) and Popper (1945) that are still being de-
103 bated today.

104 Fearful of another collapse, by the close of World War II, Keynes was arguing for
105 a clearing Union, with assets of the order of \$500 billion in current terms. After the
106 death of Roosevelt in April 1945, however, the US pursued a strategy that might be
107 termed "hegemonic internationalism," triggering European recovery by providing
108 liquidity through the Marshall Plan.

109 By 1960, however, it had become obvious that there was an imbalance in the
110 demand and supply of international liquidity.³ Efforts were made in 1964–1968 to
111 maintain stability through the creation of special drawing rights but by the Smith-
112 sonian agreement of December 1971, the post war Bretton Woods system was dis-
113 mantled. In 1977, the McCracken report suggested that inflation was gathering pace
114 in the OECD countries because of the so-called "political business cycle" and the
115 continuing US payments deficit.⁴ The commodity boom that followed led to the
116 formation of OPEC and a price rise from about \$1.80/barrel to \$11.65 in January
117 1974. The chaos of the 1970's forms the background to the dramatic changes imple-
118 mented after the presidential election of Reagan in November 1980 and the election
119 of the Conservative Party in the UK under Margaret Thatcher in 1979. For these
120 two leaders, government was the problem. Inflation was eventually stripped from
121 the US and UK and economic growth began. From 1982 to 1988, and the election
122 of G. Bush, US GDP grew at about 3 %/annum, but the trade deficit also grew, to
123 about \$115 billion. With the collapse of the Soviet Union in 1989, the US became
124 the world hegemon. Globalization, coupled with democratization and capitalization
125 gathered speed. From Clinton's election in 1992 to 2000, US GDP/capita grew at
126 about 3.5 % while the trade deficit grew to \$376 billion.

127 During Clinton's second administration, the provisions of the Glass Steagall Act
128 (prohibiting a bank holding company from owning other financial companies) were
129 repealed on November 12, 1999, by the Financial Services Modernization Act,
130 also called the Gramm–Leach–Bliley Act, named after its co-sponsors Phil Gramm
131 (R, Texas), Jim Leach (R, Iowa), and Thomas J. Bliley, Jr. (R, Virginia).⁵ This ended
132 the regulatory regime that had been put in place during the New Deal.

133
134 ³See Triffin (1960).

135 ⁴In 1970 the US had a trade surplus of \$2.2 billion but by 1977 this was a deficit of \$27 billion.

136 ⁵See Morgenson and Rosner (2011) for discussion, as well as the account by Clinton (2011) of
137 these events.

Globalization has meant that 2 billion people have joined the world's labor force since 1989. It is no surprise that this labor shock has meant that global inequality has decreased but that income inequality in all developed economies has increased. Deregulation in the US has contributed to the expansion of global trade and investment, but has also meant that the global market became unstable. In 2006 the US balance of payments deficit reached \$750 billion, while its trade deficit with China reached \$130 billion for the first six months of 2011. As a result, China currently has foreign exchange reserves of \$3.2 trillion and holds about \$1 trillion in US Treasury and government agency bonds.⁶ Japan also has about \$800 billion. Cheap money led to a significant increase in household debt in the US, rising from about 65 % of GDP in 1995 to 100 % of GDP in 2009.

In a deregulated world, and in a context of moral hazard, financial institutions competed for profits, speculating in risky assets, particularly derivatives based on the housing market. The presumption that the market could regulate itself proved unfounded, just as Minsky (1986) has argued. This imbalance can lead to the kind of instability that Keynes feared.

If I may be allowed to appropriate the term speculation for the activity of forecasting the psychology of the market, and the term enterprise for the activity of forecasting the prospective yield of assets over their whole life, it is by no means always the case that speculation predominates over enterprise. As the organization of investment markets improves, the risk of the predominance of speculation does, however, increase. . . . Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes the bubble on a whirlpool of speculation. (Keynes 1936: 158–159)

Lehman Brothers did file for bankruptcy on September 15, 2008, and the bubble burst. The market crash has left the US with a public debt of about \$15 trillion. US household net worth fell from about \$70 trillion in 2007 to about \$50 trillion in 2009.⁷ Even in the year from June 2010 to 2011 house values fell by \$1 trillion, and about 15 million homeowners find themselves owing more than their homes are worth.

The contagion spread to Europe, where the debt overhang meant that many states found themselves at risk of default. The EU was forced to put together the European Financial Stability Fund (EFSF) rescue package of € 750 billion, able to issue bonds for up to € 440 billion for support to Euro member states in difficulty, including Greece, Italy, Ireland, Greece, Spain and Portugal.⁸ European banks were also at risk, holding over \$2 trillion in risky sovereign debt.

⁶Alpert et al. (2011) note that China saves about 50 % of GDP, invests about 15 % and consumes only about 35 %.

⁷Alpert et al. (2011).

⁸The European levels of total public debt/GDP currently are: Greece 166 %, Italy 121 %, Ireland 109 %, Portugal 106 %, Belgium 96 %, Germany 83 %, France 87 %, Britain 80 %, Spain 56 %.

185 A number of EU governments have fallen because of opposition to the austerity
186 measures imposed by the European Union, in order to deal with the debt crisis.
187 First, the Irish Parliament was dissolved on February 1, 2011, and an election held
188 on February 26. From 78 seats in 2007, the governing party, Fianna Fail, only took
189 25, and Enda Kenny of the opposition party, Fine Gael, became Taoiseach (Prime
190 Minister) of Ireland on 9 March.

191 In the 2011 general election in Finland, the Center Party, led by Prime Min-
192 ister, Mari Kiviniemi, lost 16 of the 51 seats that they had held, while the True
193 Finns party gained 34 seats. The center-right National Coalition Party, under
194 Jyrki Katainen, became the largest party for the first time. After long and dif-
195 ficult negotiations, Katainen was elected Prime Minister by the Finnish Parlia-
196 ment on 22 June 2011, leading a coalition of six parties (National Coalition,
197 Social Democrats, Left Alliance, Greens, Swedish People's Party and Christian
198 Democrats).

199 Then the Prime Minister of Portugal, Jose Socrates, of the Socialist Party, re-
200 signed on March 23, and the caretaker government obtained a bailout of \$116 billion
201 on May 3, 2011. In the election of June 5, the center right Social Democrats, under
202 Pedro Passos Coelho, took 39 % of the vote to 28 % for Socialists and 12 % for
203 the Popular Party. Coelho will lead a coalition with the Popular Party, and promised
204 further austerity measures to deal with the crisis.

205 Lars Løkke Rasmussen, leader of the center-right liberal party, Venstre, lost his
206 position as Prime Minister of Denmark in the September 2011 parliamentary elec-
207 tion. He remained in office as head of a caretaker government until his successor,
208 Helle Thorning-Schmidt, was appointed on 3 October 2011.

209 Iveta Radičová was the leader of the Slovak Democratic and Christian Union—
210 Democratic Party, and Prime Minister of Slovakia from 8 July 2010 as the head of a
211 four-party center-right coalition government. Radičová lost a vote of confidence in
212 the parliament on 11–12 October, 2011, leading to the fall of her government. An
213 early election will be held on 10 March, 2012.

214 On November 5, 2011, the Greek Prime Minister, George Papandreou, agreed
215 to step down to make way for a unity government, and on November 10, Lucas
216 Papademos became interim prime minister. In the election of May 6 2012, both
217 major parties, PASOK, the center left party, only won 41 seats with 14 % of the
218 vote, while the center right, New Democracy took 108 seats with 18 % of the vote.
219 These reverses were seen as a rejection of the austerity measures, imposed by the
220 EU. Of greater importance was the defeat of Nicolas Sarkozy in the second round of
221 the French Presidential election, also on May 6 by the socialist candidate Francois
222 Hollande.

223 On November 12, 2011 the Italian Prime Minister, Silvio Berlusconi, had re-
224 signed after Parliament approved a number of measures to reduce the deficit. Italy's
225 president then asked Mario Monti, a former European Commissioner, to form a
226 government.

227 José Luis Rodríguez Zapatero, the leader of the Spanish Socialist Workers'
228 Party (PSOE), was elected for terms as Prime Minister of Spain in the 2004
229 and 2008 general elections. In the election of November 20, 2011, the conser-
230

231 vative People's party (PP) led by Mariano Rajoy won 186 of the 350 seats in
232 parliament, with a 44 % vote and a mandate to carry out further austerity mea-
233 sures.

234 Even Belgium found itself in difficulty, with a debt to GDP ratio of 96 %, No
235 coalition government had been able to form after the election of June 2010, because
236 of conflicts between Flanders and Wallonia. Eventually on December 1, 2011, the
237 downgrading of Belgium's sovereign debt forced a coalition of six parties to reach
238 a tentative agreement to form a government under the Socialist Party leader, Elio Di
239 Rupo.

240 In fact the first political effects of the debt crisis were the fall of the Labor gov-
241 ernment in the United Kingdom in May 2010 and the defeat of the Republican
242 administration in the US in November 2008. The Conservative government in the
243 UK dealt with its debt problem by an intervention of the order of 13 % of GDP by
244 the Bank of England. In the US the intervention by the Federal Reserve has been
245 of order 11 % of GDP. In contrast the EU intervention has been limited to about
246 2 % of EU GDP, which is why the euro debt crisis continues to destabilize bond
247 markets.

248 The complex web of the global economic crisis has created a great deal of un-
249 certainty in the market as well as in the political systems of both Europe and the
250 United States. In Europe there is much debate whether the eurozone can be sus-
251 tained, though on December 9, 2011, twenty-six of the twenty-seven member states
252 (all but the UK) agreed to a deepening of the EU. However, the election defeats in
253 Greece and France in May may have changed the emphasis on the fiscal austerity
254 strategy of German Chancellor Angela Merkel. Muddling matters further is the ris-
255 ing debt default threat in Italy and Spain which has created continued market unrest
256 and political ambivalence.

257 In the United States, this uncertainty coupled with decades of rising income and
258 wealth inequality has resulted in increased political volatility and partisan strife. The
259 indebted EU polities have electoral systems based on proportional representation,
260 and as a result, government requires coalition agreement. Indeed the formal model
261 (Schofield 2007) underlying this paper suggests that, under proportional represen-
262 tation, small parties will generally adopt positions far from the center. This political
263 polarization sustains fragmentation and governmental instability. In contrast the the-
264 ory we use here suggests that "first past the post" or plurality electoral system of the
265 US generates a strong convergent electoral effect on political candidates, similar to
266 the *Downsian median voter result* (Downs 1957). We discuss recent events since
267 the 2008 presidential election, and argue that candidates do not adopt centrist poli-
268 cies. Instead, money has played an increasingly important role in recent elections.
269 Because of the two dimensionality of the policy space, activists have been able to
270 exert a *centrifugal* force on the policy positions of the parties. As a result US politics
271 is now characterized by legislative *gridlock*. Indeed the increase in partisan rancor
272 resulting from the need to deal with federal debt of over \$14 trillion has highlighted
273 the extreme lack of convergence in US partisan politics. The remainder of this paper
274 seeks to explain this centrifugal tendency in the 2008 and 2010 election cycles in
275 the United States.
276

2 Activist Politics

2.1 *The Logic of the Argument*

Wise government should be able to address the quandaries described above. Madison's logic in Federalist X (Madison [1787] 1999) was that a Republic could exhibit a "probability of a fit choice", suggesting that voters would make their choices on the basis of judgements rather than simply interests.

In this paper we argue that the US polity is currently unable to make wise decisions due to a structural defect that Jefferson feared could occur in the US. Jefferson followed the arguments of Henry St. John, Viscount Bolingbroke, that the noble constitution of England had been destroyed by the crass commercialization and corruption of the Whig ascendancy in the 1720s. Jefferson believed that the opening of Hamilton's First Bank of America in 1791 would also allow capital to corrupt. He fought and won the election of 1800 to preserve the "Empire of Liberty".⁹ We can put this conflict in the more general context of rival philosophical systems of belief, as suggested by Israel (2012), who has pointed out that the modern period since 1700 witnessed a conflict between a "Radical" Enlightenment espoused by Bolingbroke, Condorcet, Jefferson and Paine, in support of reason and equality and opposed to monarchy and hierarchical hegemony, and the compromising "Moderate" Enlightenment of Hamilton and Burke. The importance of the social dimension in US politics, as discussed below, suggests that this conflict is as important as ever.¹⁰

In the early 20th century both Teddy Roosevelt and Woodrow Wilson had contested the 1912 presidential election as Progressives, opposed to the power of commercial interests and the increasing economic inequality that had resulted (Gould 2008). Indeed Chace (2004) suggests that the difference between Roosevelt and Wilson was that Wilson espoused a Jeffersonian belief in liberty and competition (through free trade etc.) while Roosevelt believed in a Hamiltonian acceptance, but regulation, of industrial capitalism.

The thesis of this paper is that just as in 1800, in 1912 and in 1932, the US faces a quandary that is essentially constitutional and involves the interrelationship between the polity and the economy. There are a number of components to the current quandary:

(i) The election of L.B. Johnson in 1964 was the beginnings of a new "political realignment" that involved the social dimension of civil rights as well as the usual economic dimension involving taxes and the like.¹¹ We use factor analysis to

⁹Kramnick (1990, 1992). See also Lind (2012) for the continuing conflict between the Jeffersonian and Hamiltonian visions of the development of the USA political economy. Lind gives a detailed account of the logic of using resources generated by tariff protection to induce infrastructural improvements such as railways and canals, facilitating the industrial development of the Northern states.

¹⁰See also the recent books by Crick (1995), Hitchens (2007), Dawkins (2011).

¹¹See Caro (2012) for a discussion of how LBJ was able to force through the civil rights legislation in 1964 against Southern Democrat opposition in Congress. The gridlock in Congress in 1964

323 construct these two dimensions. The social axis involves attitudes to African Amer-
 324 icans, abortion, civil right for gays, traditional values and equality. The economic
 325 axis involves government services, size of government, health care, a preference
 326 for the market over government and a belief that welfare expenditure should be de-
 327 creased. As Putnam and Campbell (2010) have shown, religiosity of voters is related
 328 to many of the beliefs that characterize the social axis. The second axis has become
 329 more important over time, and we use the term *social activists* for activists on this
 330 axis. The principal consequence of this realignment has been the gain of the South
 331 by the Republican Party. Indeed, Reagan won the 1980 Presidential election as a re-
 332 sult. The Republicans also gained both Houses of Congress in 1994.¹² The change
 333 in the regulatory regime that has occurred in the last 30 years is a consequence of
 334 this realignment.

335 (ii) Although the social axis has become electorally more important, economic
 336 growth before the bursting of the balloon has increased the ability of those with
 337 economic assets to influence elections. We term these *economic activists*. Increas-
 338 ing income and wealth inequality has contributed to the enhanced power of these
 339 activists. Indeed, an arms race between the parties has also increased activist power.
 340 At the same time, the significant benefits that have accrued to economic activists
 341 have led to a radicalization of economic activist preferences. By this we mean that
 342 their preferences, in comparison to the distribution of electoral preferences, have
 343 become more extreme.¹³

344 The Supreme Court decision, *Citizens United v. Federal Election Commission*,
 345 on January 21, 2010, removed many restrictions on the money that could raised for
 346 political campaign and in essence deregulated elections. This means that activists
 347 previous constrained to providing small amounts of cash and/or volunteer time are
 348 now able to provide large sums of money to pay for large media buys and thousands
 349 of man-hours of electoral activism.

350 (iii) The existence of two political dimensions has meant that it is possible for
 351 winning coalitions to be constructed that combine both axes. In particular, the Re-
 352 publicans have benefited from a coalition of conservative economic and conservative
 353 social activists. This has led to dramatic differences in the pattern of voter charac-
 354 teristics in states that tend to vote Democrat in contrast to those who tend to vote
 355 Republican.¹⁴

356 (iv) Models of elections are typically based on voter preferences alone. Recent
 357 studies of US elections (Clarke et al. 2009, 2011) have emphasized the electoral
 358 perception of the character traits of candidates. Such perceptions can be influenced

360 over this issue combined with partisan conflict over the budget has some similarity to the current
 361 gridlock in Congress, discussed in this paper.

362 ¹²See Schofield et al. (2003), Miller and Schofield (2003), Schofield (2007) and Schofield and
 363 Miller (2007) for a discussion of this realignment. See also Micklethwaite and Wooldridge (2004)
 364 for a discussion of the changes in ideology and electoral support for the Republican party in this
 365 period.

366 ¹³See Abramowitz and Saunders (2005) and Abramowitz (2010).

367 ¹⁴Abramowitz and Saunders (2005), Gelman (2009).

368

369 by the media, and in turn therefore by the money that candidates spend. We suggest
370 this provides the logic for the arms race between candidates.

371 (v) Acemoglu and Robinson (2008) have discussed the ability of elites to exert
372 de facto power in order to collect economic rents thus inducing inefficiencies in
373 the political economy. Earlier work by Olson (1982) also focused on the ability of
374 interest groups, such as labor, to exert undue influence because of the nature of the
375 democratic machinery. The model that we propose suggests that the de facto elite
376 power is a result of a kind of rent seeking that occurs in the context of a political
377 prisoners' dilemma.

378 (vi) The influence of money and the polarization within Congress suggests that
379 at the heart of the political quandary is a need to reconsider the constitutional separa-
380 tion of powers in the US.¹⁵

381 In the rest of the paper we consider models of US Presidential elections for
382 2000 to 2008, and then discuss the details of the contest between Obama and
383 Congress over the last three years in order to gauge the validity of the above argu-
384 ment.

385 386 387 **2.2 Modeling Elections** 388 389

390 As we have noted, the formal literature on electoral competition has tended to fo-
391 cus on preferences rather than judgements. Models of two-party competition have
392 typically been based on the assumption that parties or candidates adopt positions
393 in order to win, and has inferred that parties will converge to the electoral *median*,
394 under deterministic voting in one dimension (Downs 1957; Hotelling 1929), or to
395 the electoral mean in stochastic models.¹⁶ These models of political convergence
396 at least imply that political choice lead to a moderate or centrist outcome. On the
397 contrary, there is extensive evidence that politics has become *polarized* with the two
398 major parties far removed from one another.¹⁷

399 In this paper we consider a theory of political choice which accounts for pol-
400 arization in terms of activist influence. To do this, we first offer evidence that the
401 political space is at least two dimensional. The nature of this policy space can be
402 inferred for recent elections from voter surveys. For example, Fig. 1 presents an
403 estimate of the distribution of voter preferences (or preferred positions) in the US
404 presidential election of 2004.¹⁸ The first-left right dimension represents preferences
405

406 ¹⁵Posner and Vermeule (2011).

407 ¹⁶See the earlier work by Enelow and Hinich (1989), Erikson and Romero (1990) and more recent
408 work by Duggan (2006), and Patty et al. (2009).

409 ¹⁷See the works by Fiorina et al. (2005), Fiorina and Abrams (2009) and McCarty et al. (2006) on
410 polarization in the electorate and Layman et al. (2010) on polarization among activists.

411 ¹⁸This figure is based on factor analysis of the American National Election Study (ANES) for
412 2004. In the next section we give more details on the factor model that we used for the 2004 and
413 2008 Presidential elections.

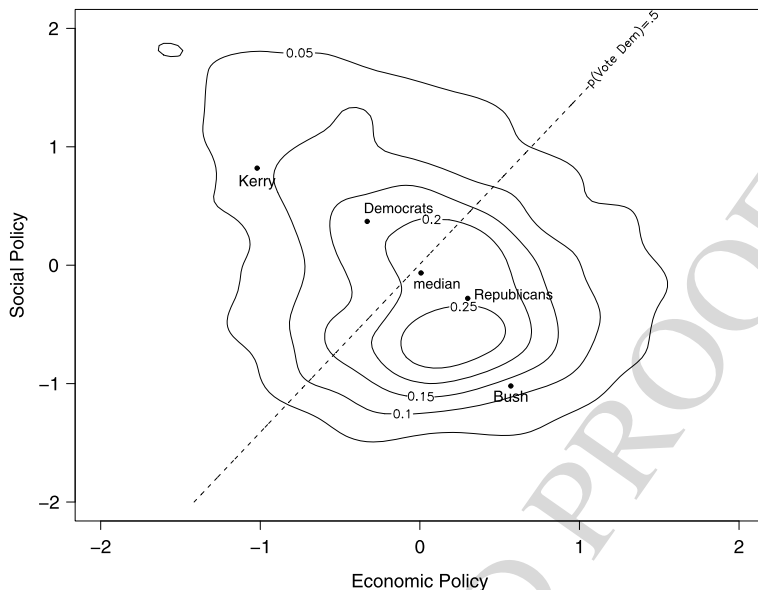


Fig. 1 Electoral distribution and candidate positions in the United States in 2004

(or attitudes) towards government expenditure and taxes and can be interpreted as a *economic* axis.¹⁹ The second north-south or *social* dimension reflects attitudes on social policy, particularly civil rights, as well as voter opinions about abortion etc.²⁰ Figure 1 also shows estimates of the positions of the two presidential candidates.

Because the political space is two-dimensional, parties in the United States must be coalitions of opposed interests. Figure 1 also shows a *partisan cleavage line* obtained from a simple logit model of the 2004 Presidential election. This cleavage line joins the preferred points of voters who, according to the logit model, would choose the candidates with equal probability of one half. The logit model gives

$$\rho_{dem} = \frac{\exp(a + bx_i + cy_i)}{1 + \exp(a + bx_i + cy_i)} \quad (1)$$

with $(a, b, c) = (-0.2, 1.34, -0.93)$. Setting $\rho_{dem} = \frac{1}{2}$ we obtain the equation

$$y = 1.44x - 0.21. \quad (2)$$

This equation almost passes through the point $(0, -0.21)$ and suggests that the Democrat candidate, Kerry, had a slight advantage over the Republican candidate,

¹⁹The economic axis is defined so that voters who believe in the free market and that spending on welfare programs should be decreased are located on the right of this x -axis.

²⁰The social axis is defined so that voters who support civil rights for gays and believe that abortion should be readily available are located to the north of this y -axis.