

Linking Birth Order to Political Leadership: The Impact of Parents or Sibling Interaction?

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Despite mounting evidence that first-born children are overrepresented among incumbents in political office, there is no consensus about the cause of this overrepresentation. Some stress the impact of differential parenting, arguing that the first-born receive a larger share of parental resources and have a greater need to live up to parental expectations. Others emphasize the interaction among siblings, arguing that first-born children are better prepared for power struggles, having experience both as followers and as leaders within the family. This study, using birth-order data for nearly 1,200 incumbents in various offices in local and national politics in the Netherlands, found more support for the parental impact perspective. Singletons were also overrepresented among incumbents, whereas middle-born children were underrepresented. The data suggest that this birth-order effect is weaker among younger generations and is more pronounced among women.

KEY WORDS: birth order, political leadership, parent-child interactions, sibling interactions

Ever since Adler (1928), scholars have put forward hypotheses linking an individual's birth-order position to a range of personal characteristics, including politically relevant traits such as intellectual development, a need for power, liberalism, and rebelliousness. There is now substantial and growing support for one such proposition—that birth order, and in particular being a first-born child, affects the likelihood of attaining public office. First-born children—those with one or more younger siblings—have been found to be overrepresented among U.S. presidents, British and Australian prime ministers, leaders of countries in all parts of the world, members of the U.S. Congress, U.S. state governors, etc. (e.g., Hudson, 1990, 1992; Newman & Taylor, 1994; Steinberg, 2001; Stewart, 1977, 1992).

Little is known about the causes of the overrepresentation of the first-born in political office. It seems implausible that birth order itself has a direct effect on whether a person becomes a political leader. More likely, a particular birth-order

position results in a distinct set of childhood experiences, and these experiences increase or decrease a child's later political capabilities and ambitions. Such an indirect effect of birth order on the adult personality is bound to attenuate the correlations between birth order and any dependent variable, and this may well contribute to the ongoing controversies about some birth-order effects. Recent examples of such debates concern Zajonc's (2001) hypothesis about birth order and intellectual development (Downey, 2001; Rodgers, 2001) and Sulloway's (1996) theory about birth order and rebelliousness (Harris, 1998; Townsend, 1997; Zweigenhaft, 2002).

Somit, Arwine, and Peterson (1994) illustrated, perhaps unwittingly, the importance of looking for indirect effects of birth order. In their study of birth order and British prime ministers, they decided not to bother with explanations:

We will hold in abeyance, at least for the moment, a discussion of the various theories which have been advanced to explain (and sometimes literally to insist) why birth order—and especially being a first-born—might (or must) have a bearing upon behaviour. We need only deal with that marvelously murky topic, we decided, if and when our data show relationships which cannot be satisfactorily explained in terms of normal statistical probability or by the context in which they appear. (p. 122)

Somit et al. did find an overrepresentation of first-born among British prime ministers, which is significant if compared to the birth-order distribution in the families from which these politicians came, but they dismissed this birth-order effect because "the 33% incidence of first-borns derives less from the unique personal qualities often attributed to that birth position but, rather, from the advantage of being an oldest son . . . in an era when that fortunate sibling held an especially privileged familial position" (pp. 123–124). In other words, a statistically significant birth-order effect was declared to be meaningless because the effect was presumed to be indirect (birth-order position giving differential access to family resources). Here, we do not assume birth order to have other than indirect effects; our goal is to shed some light on "that marvelously murky topic" of the dynamics underlying the link between birth order and attaining positions of political leadership.

The Impact of Parents or Sibling Interaction?

If we backtrack through the recruitment and selection process for office-holders, it seems highly improbable that an overrepresentation of first-born children in politics can be the result of voter discrimination against later-born children. If anything, an electoral effect of birth order is more likely to favor the later-born: There is some evidence that later-born children compensate for their lack of power by developing their social skills and that they are actually perceived to be more popular than first-borns (Miller & Maruyama, 1976)—a potential elec-

toral asset. It is also unlikely that the “selectorates” nominating candidates for elective office, or selecting candidates for appointive positions, are biased with regard to birth order: One searches in vain for any mention of birth order in analyses of political recruitment (e.g., Norris, 1997). We must search further upstream for the source of the birth-order bias, in the decision of the candidates themselves to seek and/or accept political office. The “explanations” suggested in the literature for the overrepresentation of the first-born in political office also focus on the prospective leader him- or herself, but there is no consensus, let alone empirical evidence.

Roughly speaking, the literature offers two different perspectives linking birth order to political leadership. Both perspectives view birth order as a determinant of a child’s position within the family system. Embedded within the family system, however, are two subsystems: one made up of the interactions between parents and offspring, and the other comprising the interactions among siblings (a third family subsystem, consisting of parent-parent interactions, is not directly relevant to our discussion of birth order); the two different perspectives on birth order each emphasize one of these two subsystems.

Parent-child interactions. Explanations of the overrepresentation of the first-born that focus on the parents (e.g., Renshon, 1974, pp. 142–146; Schachter, 1959; Steinberg, 2001) argue that differential parenting with regard to first-born and later-born children predisposes the first-born to become political leaders. The simplest line of reasoning suggests that parents favor their first-born child. In patriarchal societies, culture demands that they do so with their first-born son. This is the (indirect) explanation that led Somit et al. (1994) to dismiss a (direct) birth-order effect in the U.K. A more general version of this explanation is the “resource dilution model” (e.g., Downey, 2001). Not all parental resources (time to spend with the child, money to invest in the child’s education, etc.) are infinite, and as the family expands, each child receives a smaller share. One might also think of the family system as an intellectual environment (in terms of language and culture) that is originally determined by the intellectual level of the parents but deteriorates with the addition of each newborn (intellectually immature) child (Zajonc, 2001; Zajonc & Markus, 1975). Assuming that parents distribute family resources fairly, such dilution also affects the first-born, but having enjoyed a bigger share of parental resources and a richer intellectual environment before younger sibling(s) were born still provides a lasting advantage to the first-born. Moreover, it is not only the quantity but also the quality of parental resources that is affected by the growth of the family: “Birth order showed a significant effect . . . on maternal sensitivity. . . . Mothers were less sensitive in their interactions with their younger child relative to their older child” (Van IJzendoorn et al., 2000, p. 1093). For these reasons, first-born children are more likely to be endowed with the intellectual and verbal skills that are necessary in any political career.

In addition to fostering such politically relevant capabilities in their first-born child, parents may also instill political ambition in him or her: “The hopes, desires,

and dreams of parents, as well as those of multiple generations of the family, are carried by the first child" (Hoopes & Harper, 1987, p. 35). At the same time, the parents are also inexperienced: "Joy, pride, concern, anxiety, and fulfillment dominate parents' dispositions, and all reactions to first infants' behaviors carry an element of uncertainty and require constant adaptation. On the birth of a second child, experience makes caregiving easier and allows parents to be a lot calmer" (Zajonc, 2001, p. 490). Compared to younger siblings, the first-born child is thus the object of its parents' high expectations and anxious concern, and it is this combination that, according to Lasswell, leads to seeking power as a compensation for resulting low estimates of the self. [Lasswell (1948, pp. 39–58) did not mention being first-born, but he referred to having middle-class (ambitious) parents, or a mother who has married "beneath" her social class, as examples.]

Sibling interactions. The second perspective on the relation between birth order and political leadership emphasizes the interaction among siblings (e.g., Stewart, 1977, 1992). In this perspective, parents are also important, but primarily as the providers of resources, such as attention, for which the children in the family compete. Like the parental perspective, the sibling perspective also predicts first-born children to have more politically relevant capabilities and to seek power as compensation. The capabilities are developed because first-born children often assume a tutoring role toward younger brothers and sisters. In Zajonc's "confluence model" of birth-order effects on intellectual development, the beneficial effects for the first-born of this teaching function may even outweigh the deterioration of the first-born's intellectual environment caused by the arrival of a new sibling (Zajonc, 2001; Zajonc & Markus, 1975).

In addition to these benefits, sibling rivalry provides a "training ground" (Newman & Taylor, 1994) for power struggles later in life. The difference between the first-born and the later-born is that first-born children receive a more complete training in this respect: Within the family they are on the receiving end of power (exercised by the parents), but they are also wielding power (over younger siblings). Last-born children are denied any leadership experience within the family and are expected to feel uncomfortable in leadership roles later in life (Hudson, 1990, pp. 588–589; Hudson, 1992, pp. 138–139), except as rebels or champions of other underdogs (Sulloway, 1996, but see Rejai, 1979, pp. 70–71). While such early tutoring and leadership experiences hone the first-borns' political skills, sibling interactions may also fuel their political ambition. In what is probably the oldest birth-order theory, Adler (1928) suggested that the birth of their first sibling and the subsequent loss of their monopoly on parental affection is a traumatic event for many first-born children. This "dethronement" may also constitute the kind of deprivation that leads to a Lasswellian need to seek power as a compensation (Lasswell, 1948).

The fact that these two perspectives linking birth order to political leadership lead to the same overrepresentation of first-borns in political office makes them hard to disentangle; they are sometimes even thought to jointly produce this result

(e.g., Newman & Taylor, 1994, pp. 439–440). Theoretically, however, these models diverge in some respects. The most crucial differential hypothesis regards the relation between birth-order position and attaining political office itself. Both perspectives lead us to expect first-born children to be overrepresented and last-born children to be underrepresented, and most birth-order studies ignore the other birth-order positions—only children (singletons) and children with both older and younger brothers or sisters (middle-born children). From the parental impact perspective, we should expect singletons to be as overrepresented in political office as first-borns with younger siblings, or perhaps even more so, because singletons remain the sole object of parental concern and the sole recipient of parental resources throughout their formative years. In contrast, from the sibling interaction perspective, we should expect singletons to be as shy of power as the last-born, because the former are as unlikely as the latter to have had any experience of exercising authority over other family members.

The two perspectives also lead to different expectations with regard to middle-born children. From the perspective of parental impact, we expect the middle-born to be (nearly) as underrepresented in politics as the last-born because the most important dilution of parental resources and parental anxiety takes place when the second child is born. Contrariwise, the sibling interaction perspective leads us to expect little difference between the first-born and children with both older and younger siblings; the middle-born too have had first-hand experience with both sides of power (Hudson, 1990, pp. 588–589), although they may have suffered less from being “dethroned” by the arrival of a younger sibling.

Additional hypotheses, if tested, may also provide circumstantial evidence about the validity of the two perspectives outlined above. For example, it follows from the sibling interaction perspective that we should find few or no gender differences. Younger boys are not automatically higher in the sibship power hierarchy than their older sisters. In fact, older sisters are probably more often expected to adopt a supervisory role with regard to younger brothers than vice versa. The parental impact perspective, however, leads us to expect that (at least in patriarchal cultures) parents focus their attention and expectations on the first-born son, regardless of whether he is the first-born child overall. From this perspective, we should find significant differences when we control the birth order–political office association for gender.

The two perspectives also differ in their expectations with regard to changes in the birth-order effect over time. From the parental impact perspective, we should expect a gradual attenuation of the birth-order effect in most Western industrialized societies: Resource dilution is probably of less consequence now that average family income has increased and average family size has decreased (Downey, 2001, p. 503). This does not mean that we should expect a smaller proportion of first-born children in politics: A trend toward smaller families actually increases the probability of any child being first-born, and thus also of a politician being first-born, but we should expect the first-born to be less overrepre-

sented among politicians of more recent generations as the resource dilution effect wears off. The sibling interaction perspective, on the other hand, does not suggest an erosion of the birth-order effect. If anything, we may even expect the opposite: "The impact of siblings on one another may grow in future given changing family patterns. Although current predictions are that future families will have fewer children, the number of single-parent families is increasing. Siblings will increase in importance in families where no second parent exists" (Cicirelli, 1995, pp. 10–11). It is doubtful, however, whether the trend toward more single-parent families has already affected the generations into which most politicians in our study were born. The two perspectives produce the hypotheses shown in Table 1.

We do not exclude the possibility that parents and siblings have a simultaneous impact, but testing the rival hypotheses should enable us to tell which of the two family subsystems has the stronger impact. We are also aware that some children may be primed for a political career because of differential parenting, and others because of interactions with their siblings. It has been suggested, for example, that first-borns are formed more by their relationship with their parents, whereas later-born children are influenced more by their relationships with siblings (e.g., Newman & Taylor, 1994, pp. 440–441). In that case, only the very last-born will be underrepresented in politics, and our hypotheses with regard to gender and generation will produce inconclusive results. We realize that many other variables may intervene in the relationship between birth order and attaining political office. Testing these hypotheses is therefore only a tentative attempt at uncovering the family dynamics that result in birth-order effects on political leadership.

Table 1. Rival Hypotheses Linking Birth Order to Political Leadership

Parental impact	Sibling interaction
P1: Both singletons and first-born children are overrepresented, and both middle- and last-born children are underrepresented in political office.	S1: Both first- and middle-born children are overrepresented, and both singletons and last-born children are underrepresented in political office.
P2: (in more patriarchal cultures) The overrepresentation of the first-born is more marked among male politicians than among female politicians, and first-born males with an older sister are also overrepresented.	S2: First- and middle-born children are overrepresented among politicians of both sexes.
P3: (in Western industrialized societies) The overrepresentation of singletons and first-born children in political office is more pronounced in older generations.	S3: (in Western industrialized societies) First- and middle-born children are overrepresented among politicians of all generations. If anything, the overrepresentation of first- and middle-born children is more pronounced in younger generations.

The Study

We tested these hypotheses with data on the birth-order position of Dutch politicians. Although an earlier study of birth-order effects on intellectual performance used Dutch data (Belmont & Marolla, 1973), this is the first such study using evidence on birth order and political leadership from the Netherlands, and it is also the first study that allows a systematic comparison of the birth-order effect across different types of political positions within a single political system: legislative and executive, elected and appointed, local and national. We collected data on the birth order, age, and sex of local councilors, part-time and full-time aldermen (i.e., members of the local executive board), members of the Lower House (Second Chamber) of Parliament (the more powerful of the two Houses), and junior and cabinet ministers.

The data on local councilors were collected through a mail questionnaire that was sent to a random sample of 1,350 councilors (drawn at our request from a total of 25,000 names of councilors by VNG, the Association of Dutch Municipalities). It is assumed that this sample also contains a random subsample of aldermen, as all aldermen were still local councilors at the time of our study (1999; since 2002 it is possible for non-councilors to be selected as aldermen). The response rate was 73% (983 questionnaires returned by 755 "ordinary" councilors, 76 part-time and 141 full-time aldermen, and 11 respondents who failed to mention their local office). The data on national MPs were obtained by sending a similar questionnaire, also in 1999, to all 150 incumbent members of the Lower House. The response rate was 83% (109 questionnaires returned). For government ministers we have neither a sample nor the population: We mailed our questionnaire in 2000 to all incumbent ministers and to all former ministers (including several former prime ministers) having held office in the 1980s and 1990s for whom we could trace an address (72 of 110). The response rate was 92% (66 questionnaires returned), and we were able to add the birth-order data of three more ministers from published sources. The relatively high response rates (achieved without sending reminders!) are probably largely accounted for by the brevity of the questionnaire.

Apart from questions about age, sex, and political office, the questionnaire contained only four questions: "Do you have an older brother?", "Do you have an older sister?", "Do you have a younger brother?", and "Do you have a younger sister?" We realize that this simple design ignores methodological caveats about the spacing of siblings (if, for example, the second child is born 10 years after the first, should the first-born not be treated as a singleton, and the second child as a first-born?), about stepfamilies, or about siblings who have died in infancy. We have let the advantages of a very short questionnaire (and high response rate) outweigh the disadvantages of a relatively crude categorization for three reasons. First, there are no objective, nor generally accepted, rules for coding functional rather than biological birth order (for an overview, see Somit et al., 1994). Second,

we are confident that exceptions (widely spaced siblings, stepfamilies, etc.) are “drowned” in our relatively large number of cases. Third, different codings of birth order have been shown to affect the strength of the correlation with political office, but not the direction of the correlation (Hudson, 1992, p. 149, table 6.2).

Our hypotheses refer to the over- and underrepresentation of particular birth-order positions. We therefore need population data as well. To our surprise, the distribution of our birth-order categories in the Dutch population at large is not readily available from demographic sources. However, since 1937, the Dutch Central Bureau of Statistics (CBS) has registered the birth-order position of every child born in a given year. In the Appendix we explain how we derived estimated proportions of birth-order categories for various birth cohorts in the population from these data. Thus, we can compare the birth-order distribution among politicians in a given birth cohort with the birth-order distribution in that birth cohort in the general population. Birth cohorts were used to test the generation hypothesis, but also to control for the fact that the birth-order distribution is likely to have been affected by changes in family size over time. For that reason, the general (i.e., non-generation-specific) “population” figures were arrived at by weighting each population birth cohort for the number of politicians in that cohort included in our study. This weighting is necessary to create a valid baseline with which to compare the birth-order distribution of Dutch politicians in our study; the resulting figures should not be interpreted as estimates of the current birth-order distribution in the Dutch population.

Results

Birth Order and Political Office

Table 2 allows us to compare the proportions of singletons, first-born, middle-born, and last-born children among Dutch politicians with those in the Dutch

Table 2. Birth Order Distribution Among Dutch Politicians and in the Dutch Population

Birth order	Dutch politicians (<i>N</i> = 1,161)	Dutch population estimates ^a
Singletons	71 (6.1%)	(5.0%)
First-born	413 (35.6%)	(25.5%)
Middle-born	456 (39.3%)	(44.4%)
Last-born	221 (19.0%)	(25.1%)

Note. The figures for politicians were entered as the observed values and the population estimates as the expected values in the calculation of the non-parametric χ^2 as a goodness-of-fit test: $\chi^2 = 72.976$, 3 df, $p < .001$.

^aSee the Appendix.

population. It is clear that the birth-order distribution of the politicians for whom we have data is very different from the birth-order distribution in the population at large, and that the difference is statistically significant. That being a first-born child increases the likelihood of attaining political office is confirmed once again, and this time on the basis of a larger number of observations than has been reported in earlier studies and from a country that has not been included in earlier studies. With regard to the two alternative perspectives, the birth-order pattern points toward parental impact (Hypothesis P1) rather than to sibling interaction (Hypothesis S1): Both singletons and first-born children are overrepresented relative to the population (by a factor of 1.22 and 1.4, respectively), whereas middle-born and last-born children are underrepresented (.89 and .76, respectively).

Although we cannot completely exclude the possibility that the overrepresentation of singletons and first-born children is a methodological artifact, its probability seems remote. The distribution of birth order in the population is based on a number of assumptions and can only be regarded as an estimate. However, the differences between politicians and the population are of such a magnitude that we can allow for a considerable margin of error in our population estimate. The overrepresentation of singletons and first-born children would also be an artifact if we are in fact dealing with a spurious correlation of the kind that Ernst and Angst (1983, pp. 10–11) identified in birth-order studies: If politicians are predominantly drawn from higher social classes, and if the average family size is indeed smaller in these classes, we should expect an overrepresentation of singletons and first-born children (and, to a lesser extent, last-born) even if birth order has no impact on an individual's political prospects. However, it is unlikely that Table 2 illustrates the effect of social class rather than of birth order. Although the Dutch political elite is unexceptional in being drawn disproportionately from the higher social classes (e.g., Secker, 2000), the existence of political parties representing the working class, combined with an electoral system of proportional representation, probably attenuates the correlation between class and political office in the Netherlands. More important, in the years in which the politicians of our study were born, social class had only a modest impact on family size (with a notable exception for farm owners). In the Netherlands, it was religion that was the most important differentiating variable with regard to fertility patterns. The estimated average number of children per marriage in the 1958 marriage cohort, for example, was 2.62 when the husband was a farmer; 2.52 for employers, self-employed, professionals, and higher employees; 2.39 for other employees; and 2.44 for manual workers. In the same marriage cohort, the average number of children among orthodox Calvinists was 2.66, among Catholics 2.53, and among the non-religious 2.38 (Frinking & Moors, 1976, pp. 85, 88; see also Moors, 1974). Although the non-religious have the smallest families, they are not overrepresented in political office in the Netherlands. Thus, we are confident that the association between birth order and the attainment of political office in the Netherlands is not a fallacious one.

Moreover, the birth-order effect can be observed among politicians across different types of political office. Table 3 shows that there is no significant association between type of political office and birth-order distribution. The fact that the same pattern can be observed in both local and national politics further reduces the risk that the observed birth-order effect is spurious: At lower levels of political authority, the overrepresentation of higher social classes tends to be less (Putnam's "Law of Increasing Disproportion": Putnam, 1976, pp. 33–36). Note also that last-born children are underrepresented in all political offices, whether elected (councilors, MPs) or appointed (government ministers). Although the Dutch electoral system, with party lists rather than voting for individual candidates, may not provide the best testing ground for the idea that the last-born have easier access to elected positions [suggested by Miller & Maruyama's (1976) finding that the last-born are more popular], Table 3 gives no support to that suggestion.

The only values in Table 3 that are congruent with the sibling interaction perspective, rather than with the parental impact perspective, refer to part-time aldermen: Among these local politicians, singletons are underrepresented and middle-born children are overrepresented. The office of alderman is an executive position, but in villages and small towns in the Netherlands (up to about 18,000 inhabitants) it is usually a part-time position; moreover, in contrast to the full-time aldermen in the bigger towns and cities, these part-time aldermen leave most of the day-to-day government to the full-time mayor (who is appointed by the national government) and the town clerk. Their position brings these aldermen prestige in the local community, but probably not much power. Why this particular category of politicians should show support for the sibling interaction perspective is not clear, but because the differences between types of political office are statistically not significant, this exception does not affect our conclusion.

Of Gender and Generation

If parental impact is indeed the most promising perspective, Hypothesis P2 also leads us to expect sex differences as (in patriarchal societies) parental

Table 3. Birth Order and Type of Political Office

Birth order	Local councilors (<i>N</i> = 755)	Part-time aldermen (<i>N</i> = 76)	Full-time aldermen (<i>N</i> = 141)	Members of Parliament (<i>N</i> = 109)	Government ministers (<i>N</i> = 69)
Singletons	46 (6.1%)	1 (1.3%)	11 (7.8%)	5 (4.6%)	7 (10.1%)
First-born	262 (34.7%)	23 (30.3%)	54 (38.3%)	42 (38.5%)	29 (42.0%)
Middle-born	304 (40.3%)	38 (50.0%)	47 (33.3%)	38 (34.9%)	24 (34.8%)
Last-born	143 (18.9%)	14 (18.4%)	29 (20.6%)	24 (22.0%)	9 (13.0%)

Note. $\chi^2 = 14.505$, 12 df, $p = .270$.

expectations and resources are presumably focused primarily on the sons. However, assuming that the birth-order distribution in the population is similar for both sexes, the overrepresentation of singletons and first-born children can be observed among politicians of both sexes in Table 4. The lack of support for Hypothesis P2 does not imply support for the sibling interaction perspective; Hypothesis S2 does suggest an equal overrepresentation, but of first- and middle-born children. We have already seen that in general this is not the case, but parental impact could be the dominant birth-order effect among sons in patriarchal society, whereas daughters could compensate for the lack of parental investment by focusing on their relations with their siblings. However, the female politicians also show the overrepresentation of singletons and the underrepresentation of middle-born children that is characteristic of the parental impact perspective. Table 4 actually shows a stronger association between birth order and political office for women than for men (albeit still not statistically significant), and this also fits with neither of our two theoretical perspectives.

A potential explanation would be that our birth-order categorization underestimates the parental impact on men, because some of the middle-born or even last-born male politicians in Table 4 were born as their parents' first son. In that case, we should expect more support for the second part of Hypothesis P2: that the first-born son is the object of most parental resources and anxiety, regardless of his overall birth-order position. In the columns "adjusted for within-sex birth order" of Table 4, we have included those later-born children who are the first-born of their own sex in the category "first-born." We lack the relevant population statistics for comparison, but a logical corollary of the hypothesis leads us to expect the proportion of first-born sons (including those with older sisters) to be higher among male politicians than the proportion of first-born daughters (including those with older brothers) among female politicians. The figures in the "adjusted" columns of Table 4 clearly fail to support this hypothesis: There is no statistically significant association between gender and the recoded birth order.

Table 4. Birth Order of Politicians by Sex

Birth order	Male politicians (<i>N</i> = 860)		Female politicians (<i>N</i> = 300)	
	Unadjusted	Adjusted for within-sex birth order	Unadjusted	Adjusted for within-sex birth order
Singletons	51 (5.9%)	51 (5.9%)	20 (6.7%)	20 (6.7%)
First-born	293 (34.1%)	439 (51.0%)	119 (39.7%)	173 (57.7%)
Middle-born	348 (40.5%)	251 (29.2%)	108 (36.0%)	69 (23.0%)
Last-born	168 (19.5%)	119 (13.8%)	53 (17.7%)	38 (12.7%)

Note. In the columns "adjusted for within-sex birth order," those middle- and last-born children who are the first-born of their own sex are counted as first-born. χ^2 for the association between gender and birth order among politicians is 3.694, 3 df, $p = .296$; χ^2 for the association between gender and "adjusted" birth order is 5.355, 3 df, $p = .148$.

Again, we find the percentages actually pointing to a stronger birth-order effect on daughters than on sons; if we dichotomize the "adjusted" birth order into singletons and first-born versus middle-born and last-born, the association is actually significant ($\chi^2 = 4.972$, 1 df, $p = .026$) but in the opposite direction from the one expected.

Finally, we argued that a decline in the overrepresentation of singletons and first-borns among politicians of more recent generations would fit with the parental impact perspective (Hypothesis P3), whereas an absence of generational differences or an increase in the overrepresentation of first- and middle-born children would support the sibling interaction perspective (Hypothesis S3). There is a significant association between birth cohort and birth order among our politicians ($\chi^2 = 47.793$, 18 df, $p < .001$). Because of the small number of observations in some of the cells for those cohorts, it is better to exclude from further analysis the 19 politicians born before 1930 (for whom we have no comparable population estimate anyway) and the 21 politicians born after 1969; together, these omitted cohorts represent 3.4% of the politicians. For the four remaining birth cohorts, χ^2 is lower (21.966, 9 df, $p = .009$) but still significant.

In itself, the association between birth cohort and birth order among politicians is not very important because the birth-order distribution also varies across birth cohorts in the population. The relevant population data are shown in Table 5, and the decline in the proportion of middle-born children from 48.5% in the 1930–1939 cohort to 26.8% in the 1970–1979 cohort shows that the trend toward smaller families has not bypassed the Netherlands. A first indication that the birth-order effect is indeed weaker among younger generations is that the birth-order distribution among politicians is no longer significantly different from that in the population in the 1960–1969 cohort (as shown by χ^2 as a goodness-of-fit test). The degree of over- or underrepresentation of a particular birth-order position in politics within a cohort is shown by the ratio of the proportion of that position among politicians to the proportion of the same position in the population. The summed deviations from identical birth-order distributions among politicians and the population provide a rough summary of the birth-order effect in a cohort. As Table 5 shows, the erosion of the birth-order effect did not start with the 1960–1969 birth cohort. With the exception of the 1940–1949 cohort, the birth-order distribution among politicians gradually converges with that in the population. The exception of the 1940–1949 cohort may be the result of the large variation of family size within this cohort because this period includes both the years of German occupation during the Second World War, which ended in a birth trough, and the liberation, which led to a subsequent birth wave.

We also see the divergent position of that birth cohort in Table 6, which provides the most direct test of the proposition that the overrepresentation of singletons and first-born children is less pronounced in more recent generations, but the ratios for the other cohorts seem to confirm that expectation and thus provide further support for the parental impact perspective from which it was derived.

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Table 5. Birth Order Distribution by Birth Cohort Among Dutch Politicians and in the Dutch Population

Birth cohort	Singletons	First-born	Middle-born	Last-born	Summed deviation ^d	Goodness of fit ^a					
						χ^2	df	p			
Pre-1919	1 (33.3%)	2 (66.7%)				13.890	3	.003			
	3 (18.8%)	4 (25.0%)	7 (43.8%)	2 (12.5%)							
	17 (10.4%)	52 (31.7%)	63 (38.4%)	32 (19.5%)							
	Population estimate ^b	(6.0%)	(23.1%)	(48.5%)	(22.4%)						
Ratio ^c	1.73	1.37	0.79	0.87	1.44						
1940-1949	24 (5.2%)	179 (39.1%)	180 (39.3%)	75 (16.4%)		54.155	3	<.001			
	Population estimate ^b	(5.7%)	(24.3%)	(47.4%)	(22.5%)						
	Ratio ^c	0.91	1.61	0.83	0.73				1.95		
	Population estimate ^b	(3.3%)	(26.1%)	(43.0%)	(27.6%)						
Ratio ^c	1.58	1.2	1.04	0.68	1.14						
1950-1959	7 (5.3%)	47 (35.3%)	42 (31.6%)	37 (27.8%)		18.251	3	<.001			
	Population estimate ^b	(5.5%)	(29.7%)	(36.2%)	(28.7%)						
	Ratio ^c	0.96	1.19	0.87	0.97				0.39		
	Population estimate ^b	(7.6%)	(33.2%)	(26.8%)	(32.4%)						
Ratio ^c		1.4									
1960-1969	14 (66.7%)	1 (4.8%)		6 (28.6%)		2.001	3	.572			
	Population estimate ^b	(32.2%)		(32.4%)							
	Ratio ^c										
	Population estimate ^b										

Note. For reasons of presentation, the percentages in this table are row percentages. Ratios and statistics were only calculated for the cohorts born between 1930 and 1969 because of the small number of observations in the other cohorts, and because no population estimates are available for pre-1930 cohorts.

^aThe figures for politicians were used as the observed values and the population estimates as the expected values in the calculation of the non-parametric χ^2 as a goodness-of-fit test.

^bSee the Appendix.

^cEach ratio is the proportion of a birth-order position among politicians divided by the comparable proportion in the population and shows the degree of over- (>1.0) or under- (<1.0) representation of that birth-order position among politicians.

^dThe deviations from identical birth-order distributions among politicians and the population (ratios of 1.0) of each of the four birth-order positions have been summed for each cohort to give an indication of how different the birth-order distribution among politicians in that birth cohort is from the birth-order distribution in the same birth cohort of the population.

Table 6. Over- and Underrepresentation of Birth-Order Positions Among Politicians by Birth Cohort

Birth cohort	Singletons and first-born	Middle- and last-born	<i>N</i>
1930–1939	1.44	0.82	164
1940–1949	1.48	0.80	458
1950–1959	1.24	0.90	365
1960–1969	1.15	0.92	133

Note. Each entry is the proportion of that birth-order position among politicians in that birth cohort divided by the comparable proportion in the population and shows the degree of over- (>1.0) or under- (<1.0) representation of that birth-order position among politicians of that birth cohort. *N* is the number of politicians in our study constituting that particular birth cohort.

Discussion

The fact that this study confirms the expectations of most birth-order theorists that first-born children are overrepresented in political office is itself noteworthy, but its aim was to uncover the reason why birth order has this effect. A particular birth-order position, we argued, leads to a particular relationship with the parents and to a particular pattern of interactions with other siblings, both of which may affect capability and ambition to rise to political office. To uncover which of these two family subsystems is (predominantly) responsible for the link between birth order and political leadership, we proposed three sets of rival hypotheses. Testing these hypotheses offered more support for the parental impact perspective than for the sibling interaction perspective. Most critically, we found that in addition to the first-born, singletons (who did not have any leadership experience within the family, but who were the sole recipient of parental resources and concern) were also overrepresented among politicians, whereas middle-born children (who had leadership experience within the family, but whose parents' resources and expectations were already diluted) were underrepresented, just as last-born children. Hudson (1990, 1992) and Steinberg (2001) found the same pattern, although their expectations were different. Newman and Taylor (1994) did not distinguish singletons as a separate category, but their finding that middle-born children were underrepresented among political leaders adds further support. Our finding for the Netherlands also seems relatively robust: The birth-order distributions are quite similar for holders of different types and levels of political office, and controlling for gender and generation did not provide evidence to support the sibling interaction perspective.

The parental impact perspective led us to expect an attenuation of the birth-order effect among younger generations (when average parents had sufficient resources to invest in all their children). Although here the evidence is less strong because of the deviant position of one birth cohort, there does seem to be a trend

toward a slow erosion of the overrepresentation of singletons and first-born children.

The most puzzling finding of this study concerns the relationship between gender and the link between birth order and political leadership. Our hypothesis that, in a still relatively patriarchal society such as the Netherlands, the birth-order effect is stronger for men (including later-born first sons) than for women found no support, as there are no significant differences between the two sexes; but the actual birth-order distribution among politicians of both sexes does not support the sibling interaction perspective either. If anything, the proportions of singletons and first-born overall, together with the proportions of first-born of the same sex, were higher among female politicians than among male politicians. This confirms Steinberg's (2001) finding that "first-born women were more preponderant among female leaders than first-born men were among male leaders" (p. 108). According to Steinberg, the explanation of this puzzle lies in changing norms and the impact of feminism on parent-daughter relationships. She found, for example, that having an older brother is more common among female leaders who came to power recently than among female leaders who achieved power before 1990.

Our study seems to corroborate Steinberg's explanation. Among those born before 1950 (when, presumably, these cultural changes did not yet take effect), the proportion of female politicians who are first daughters with an older brother (13.9%) was lower than the proportion of first sons with an older sister (15.7%) among male politicians. In the birth cohorts born after 1949, however, the proportion of female politicians who are first daughters with an older brother (22.4%) was higher than the proportion of male politicians who are first sons with an older sister (18.6%). Another potential explanation starts from the underrepresentation of women in Dutch politics: 25.9% of the politicians in our study were female, compared to 52.4% of the Dutch population of 20 to 80 years. This may serve as an indication that, apparently, the threshold for attaining political office is higher for women than it is for men. It follows that more capabilities and/or more ambition are needed to overcome that higher threshold, and this may be why we found slightly higher proportions of singletons and first-born children among female politicians (see also Steinberg, 2001, p. 106). Both of these potential explanations suggest that the reasoning behind our hypothesis with regard to gender and the birth-order effect was too simplistic. This is clearly an aspect of the link between birth order and political leadership that warrants further study.¹

We should also reemphasize that disentangling the parental impact perspective from the sibling interaction perspective was only a first step. The reasoning

¹ It would be desirable, for example, to gauge the relative contribution of birth order, gender, and generation to achieving political office. We were unable to provide such an analysis because our data set consists only of office-holders. For citizens not holding office, no individual-level data are available; only (estimated) aggregate distributions for the general population are known. Therefore, no combined data set is available that includes the dependent variable "office/non-office."

behind the parental impact perspective on singletons and first-born children, for example, includes political capabilities (resulting from a greater investment of parental resources) as well as political ambition (to compensate for greater parental anxiety). Hence, the birth-order effect may result in the selection of politicians who are better qualified, or it may result in a higher number of politicians who pursue power for its own sake. The next step should be to pry apart these two factors within the parental impact perspective to ascertain which of the two is responsible for the current overrepresentation of singletons and first-born children in politics. If we can do that, we may also learn how a continued attenuation of the link between birth order and political office will affect the quality of future political leadership.

APPENDIX: Estimating Birth-Order Categories in the Population

This is an example of the population data as they are available from the Dutch Central Bureau of Statistics for all years since 1937.

Year of birth	Number of children born as				Total
	First child	Second child	Third child	(etc.)	
1970	93,167	80,091	36,879	(etc.)	238,912
1971	91,766	77,838	33,441	(etc.)	227,180
1972	90,338	76,593	28,500	(etc.)	214,133
1973	84,363	72,954	23,310	(etc.)	194,993
1974	81,122	72,589	20,948	(etc.)	185,982
1975	77,995	70,411	19,457	(etc.)	177,876
(etc.)					

These data reveal that in 1970, for example, 93,167 of the 238,912 children born were their mother's first child (39%). Children who were born second, third, etc., accounted for the remaining 61% of the births in that year. From such data it cannot be determined how many of the first-born later acquired younger siblings and how many remained an only child, nor can it be determined whether later-born children are middle-born or last-born children. To classify all children born in a specific year as singleton, first-born, middle-born, or last-born, some assumptions must be made.

Step 1: Distinguishing singletons from other first-born children. If the age difference between siblings in the Netherlands is assumed to be 1 year, all the second-born children of 1971 (77,838) are younger brothers or sisters to the 93,167 first-born children from 1970, leaving 15,329 of them as singletons (or 6.4% of all children born in 1970). If the age difference between siblings is taken as 2 years, all second-born children of 1972 (76,593) are younger siblings to our 1970 first-born children, leaving 6.9% of the children born in 1970 without later-born brothers or sisters. Similar calculations are made for an assumed age differ-

ence of 3, 4, and 5 years (8.5%, 8.6%, and 9.5%). These five percentages of singletons, calculated on the basis of these five assumptions about the age difference between first and second children, are averaged to arrive at an estimate that 8.0% of all children born in 1970 grew up as an only child. This percentage is subtracted from the 39% of all children born in 1970 who were first-born, leaving an estimated 31.0% of the children of 1970 as first-born children who later acquired at least one younger sibling.

Step 2: Distinguishing middle- and last-born children. Having calculated this latter percentage for all years and making the logical assumption that in each family there must be one last-born child for every first-born child who did not remain an only child, it becomes possible to distinguish between middle-born and last-born children. As the number of mothers who give birth twice in a given calendar year is very small, we assume that the middle- and last-born children of 1970 have followed a first-born in their family who was born in the years before 1970, but we do not know in which year. We assume that the average percentage of first-born with younger siblings born in 10 preceding years (in this example, 1960–1969) approximates the percentage of first-born children for whom the later-born children of 1970 are younger brothers and sisters. This percentage is 30.1%, and therefore the percentage of children born in 1970 who are the last-born child in their family is estimated to be 30.1%. Subtracting this percentage from the 61% of the children born in 1970 who were later-born children leaves an estimated 30.9% of the children of 1970 as middle-born children.

Thus, we estimate that of all children born in the Netherlands in 1970, 8.0% grew up as a singleton, 31% were first-born children who later acquired one or more younger siblings, 24.9% were middle-born, and 30.1% were their family's last-born. These percentages represent the respective probabilities that a Dutch politician born in 1970 is a singleton, first-born, middle-born, or last-born child if birth order would have no effect on attaining political office. Because these estimates for a given year are sensitive to sudden discontinuities in birth patterns, we do not use individual birth years, but have calculated the average proportion of each birth-order category for 10-year birth cohorts, taking into account the different sizes of the birth years within each cohort.

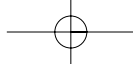
ACKNOWLEDGMENTS

An earlier version of this paper was presented at the 23rd annual scientific meeting of the International Society of Political Psychology, Seattle, July 2000. We thank the Association of Dutch Municipalities for their help in drawing a random sample of local councilors; Gijs Beets and Henk Hilderink of the Netherlands Interdisciplinary Demographic Institute for their advice on the calculation of population estimates; and Leiden colleagues Marinus Van IJzendoorn, Galen Irwin, and Joop Van Holsteyn as well as three anonymous reviewers for their helpful suggestions. Correspondence concerning this article should be sent to

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