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Juvenile Delinquency and Gender Revisited

The Family and Power-Control Theory Reconceived

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ABSTRACT

Cross-cultural evidence on the gender gap in delinquency is presented. Based on power-control theory (PCT), gender differences in aggressive behaviour are analysed. We assume that differences in labour force participation between father and mother lead to differences in parental control behaviour towards boys and girls, which in turn lead to different risk-taking preferences and eventually produce gender differences in aggressive behaviour. A revised PCT acknowledges that dominance ideologies also play a role in the genesis of gender differences in delinquency. This proposition is also tested. Analyses are based on data from 319 families (father, mother and two adolescent opposite-sex siblings) from West Berlin, East Berlin and Toronto. The findings support assumptions of PCT but differ substantially between the three cities. Evidence of the link between structural patriarchy and parental style – postulated in the original PCT – is found in East Berlin, whereas the West Berlin and Toronto results fit a modified version of PCT featuring gender-role attitudes (ideological patriarchy).

KEY WORDS

Adolescence / Attitudes and Values / Cross-Cultural Research / Delinquency / Gendered Socialization / Parental Styles.

Gender differences in deviant behaviour are a common finding in social science research. Girls usually show less delinquency, less drug use, less xenophobia, and less violent behaviour than do boys. This finding appears to be stable across cultures as well (Junger-Tas et al. 2003, 2004; Heitmeyer and Hagan 2003). Whereas socio-biologists prefer genetic explanations for this phenomenon, social scientists focus on the socio-structural and cultural roots of this gender gap, mediated through parental educational practices and family climate. A power-control theory (PCT; Hagan et al. 1979, 1987) provides a framework to explain gender differences in delinquency. According to this conceptual approach, an explanation of the gender gap must consider differences in labour force participation between mothers and fathers, differences in parental styles towards male and female children, and – in its most recent version – cultural patterns (e.g. dominance ideologies). The recent revision follows the assumption that gendered parental styles result not only from structural properties of the gendered workforce participation of mothers and fathers but also from gendered societal values at the cultural level.

This paper focuses on factors addressed in the original and the revised power-control theory, comparing adolescents from West Berlin, East Berlin and Toronto. Data presented here originate from a panel study of 319 family foursomes (quadruples: mother, father, daughter, son) from East and West Berlin and Toronto. Sons and daughters are adolescents of between 13–18 years of age.

Before doing cross-cultural comparisons, researchers have to decide which general approach to comparative research they will entertain. This cross-cultural comparison follows the so-called 'etic tradition' (Van de Vijver and Leung 1997). The decision implies that one classifies and understands research objects (e.g. social values or behavioural patterns) as representing cross-culturally applicable terms and categories rather than culturally specific meanings. This means that analyses are conducted in a 'top down' way, beginning with a theory, which is assumed to be valid across the included cultural settings. It is also required that equivalent instruments are used in all three settings.

A word is necessary on why we analyse East and West Germany as two different cultures more than 15 years after the Wall came down. Of course, we do not mean to turn back the wheel of history. Several studies have shown, however, that there are still two Germanys (e.g. Oswald 2000), distinguished by cultural and structural differences. Howard (1995) argues in a pointed way that East Germans and West Germans still constitute two different ethnic groups, because both are relatively territorially bounded entities with separate historical identities and distinct social representations (e.g. social values, lifestyles, party preferences). The East–West gap applies

in particular to questions of gender and family issues; the workforce participation of East German women is still much higher than that of West German women (Kolinsky 1992). Secondly, the actual data-gathering for the study presented here took place in 1999 and 2000, when even in Berlin, the now reunited capital of Germany, separation was still more visible. Thirdly, one must keep in mind that parental educational practices, one of the foci of the present study, are not formed to a major degree by current political events but rather have a socialization history. Thus, the baselines of educational practices of parents with adolescent children in the late 1990s were clearly formed during the period of German separation. At the same time, however, all three entities included in the cross-cultural test of the PCT model are sufficiently similar to enable proper comparisons in a top down, etic perspective. All three social units (West Germany, East Germany, Canada) – to use a neutral term – were, at the time of data-gathering in the late 1990s, democratic industrialized market economies providing comparable life circumstances and similar institutional solutions to social problems in everyday life, so that an etic cross-cultural test of PCT seems in order. It makes sense, as a starting point, to hypothesize an equivalent functioning of PCT in all three settings.

As will become evident throughout the paper, parental style is neither an independent nor a dependent variable in the PCT model, but has the function of a mediator or, in sociological terms, a bridging variable, bridging the gap between societal circumstances and individual behaviour. For this reason, we refrain from reviewing the existing literature on culture and parenting separately (see, e.g. Harkness and Super 2002), but turn immediately to a presentation of PCT in its original and its revised versions.

Power-control theory: Original version

Evidence of a strong link between (male) gender and delinquency has been apparent since the early days of empirical social research (Hirschi 1969; Cohen 1955). The societal and cultural causes of the gender gap have received less attention from empirical sociologists and psychologists, although there is an important feminist literature on societal causes of the general gender gap (e.g. Walby 1990) and the gender gap in delinquency (e.g. Chesney-Lind 1989; Rhodes and Fischer 1993). Hagan et al. (1979) offered a remedy by introducing a power-control theory of gender and delinquency (PCT). PCT in its original formulation (Hagan et al. 1979, 1985) postulates that the differential labour force participation of mothers and fathers and dissimilar authority positions in the workplace translate into different power positions in the family sphere. The socio-structural

gender gap, according to Hagan and his colleagues, leads to different parenting styles vis-à-vis boys and girls, that is, differences in parental control of daughters and sons. These differences in parental style lead to a different readiness among boys and girls to take chances/accept risks, and eventually to differences in delinquent behaviour. The theory suggests that a patriarchal difference in labour force participation and authority position in the workplace leads to a substantial gender gap in parenting so 'that daughters more than sons are the objects of familial control' (Hagan et al. 1985: 1156). This then leads to more risky and delinquent behaviour among males. 'Patriarchy' here refers to fathers working more hours (higher labour force participation) and in hierarchically higher positions (higher authority) than mothers.

The revised power-control theory

Since the late 1980s power-control theory has been subjected to several modifications and extensions (Hagan et al. 1987; Grasmick et al. 1996; see also Hadjar et al. 2003). As the labour force participation and authority positions of men and women became more equal in the last two decades of the 20th century, the importance of socio-structural gender differences for the gender gap in parental styles and delinquency weakened. The modal family structure became less patriarchal, as the dual breadwinner model prevailed in a rising number of families (Blossfeld 1995). This affected family living immensely, as LaNovara (1993) reports for Canada and Schwartz (1994) for Germany. PCT theorists and researchers now assumed that the influence of patriarchal structures was based on 'free-floating' ideologies. McCarthy et al. (1999) suggested that differences in parental control of daughters and sons may be connected to cultural patterns that bring about gender differences in behaviour. Grasmick et al. (1996) introduced an attitudinal measure of patriarchy into PCT analyses of juvenile delinquency. This approach was followed by Hagan et al. (2004), who show that the link between structural patriarchy and differences in parental control behaviour is mediated by patriarchal gender-role beliefs (e.g. the notion that women should not transcend their role as care-taker and housewife). These patriarchal gender roles carry the notion of the dominance of males and are thus ideologies of gender dominance.

Hagan et al. (1998) supplemented the factor of structural patriarchy by introducing the value syndrome of 'hierarchic self-interest' (HSI), which is an individual expression of societal dominance ideologies. Such ideologies are typical in modern industrial societies, which tend to be highly competitive and are strongly tied to the logic of free market capitalism (Hadjar

2004). They are an expression of a 'culture of competition' (Coleman 1987) and contain the notion that success in all areas of life means to 'perform better than others'. Similar to the authoritarianism construct introduced by Adorno et al. (1950), the HSI syndrome is a second-order construct that includes several factors. In accordance with the nature of a syndrome, these factors may vary and can be supplemented by factors other than the ones measured in a particular study. Typical HSI factors are 'competitiveness', 'Machiavellism', 'success orientation', 'individualism' and 'acceptance of social inequality' (for details, see Boehnke et al. 1998; Hadjar 2004). Dominance ideologies such as hierarchic self-interest are strongly related to gendered parenting. According to Oakley (1974) and Pratto et al. (1997), women are educated to fulfil a role as care-taker, whereas males are urged to be dominant and to focus on the work sphere; thus, males are higher on HSI across various cultures (Hagan et al. 1998).

   In summary, the revised power-control theory assumes that the links between patriarchal structures in the work sphere, differences in parental styles towards girls and boys, and differences in risk affinity and delinquency are mediated by ideological schemas (patriarchal gender-role preferences and hierarchic self-interest). The present paper is an attempt to simultaneously test both the original and the revised version of PCT cross-culturally.

Two explanatory models of gender differences in delinquency

In the following analyses, two hypothetical models will be tested (see Figure 1). The first model is an operationalization of the original power-control theory. It postulates an impact of differences in participation and authority in the working sphere on differences in parenting practices vis-à-vis girls and boys, which lead to gender differences in risk-taking and eventually in delinquent behaviour. In the second model, the mediating factors of the revised version of PCT, namely patriarchal gender-role preferences and hierarchic self-interest, are added. Both structural patriarchy in the workplace and differences in parental control are linked to gender-role preferences (among offspring) that support male occupational dominance and female responsibility for the family. Patriarchal gender-role preferences are assumed to lead to stronger expressions of hierarchic self-interest among sons, to a stronger tendency towards risky behaviours among sons, to a stronger male participation in delinquency, and consequently to greater gender differences in both risk-taking behaviours and aggressiveness (see Hagan et al. 2004).
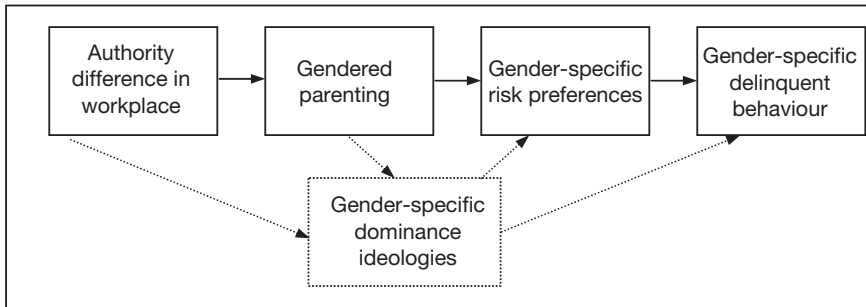
Figure 1 Power-control theory: Original and revised version.

Both models will be controlled for age differences between the siblings. This strategy recognizes findings on the impact of age and birth order on socialization processes – on parental styles, on adolescent values and eventually on juvenile delinquency. Bègue and Roché (2005: 74) assume a birth-order effect on delinquency, namely that 'the rebellious tendencies supposed to be manifest in later-borns increase their probabilities of law infraction and deviance toward their parents or institutions, which constitute factors invariably involved in delinquent conduct'. First-borns are more supervised by their parents and therefore less delinquent. Heck and Walsh (2000) also provide evidence that later-borns are more likely than first-borns to be violent. The social mechanisms behind these findings may be that first-borns experience higher levels of parental control and identify more deeply with their parents (Schaller 1972; Palmer 1966), since the older children often play the role of parent surrogate to the younger ones and therefore more fully internalize parental norms (see Bègue and Roché 2005). According to these conceptual assumptions and findings, a consideration of birth-order effects is necessary when analysing gender differences between siblings. It may be expected that, in families with a female first-born, the gender differences in delinquency may be reinforced by this birth-order effect, namely the gender gap increases because the girl is less delinquent owing to her position as a first-born and the boy is even more delinquent owing to his position as a later-born.

Research design

To operationalize the assumptions of power-control theory accurately, a fourfold family design with fathers, mothers and a pair of opposite-sex siblings is needed. Such a design was employed in an international panel

study of 'dominance ideologies, gender roles and delinquency in the lives of adolescents'.[1] During a follow-up survey in 1999 and 2000, questionnaire data from family foursomes were collected in West Berlin, East Berlin and Toronto. Girls and boys were between the ages of 13 and 18 at the time of data-gathering.

Sampling points were schools. In Toronto, schools were selected to be representative of their community settings in accordance with previous research. In West and East Berlin, schools were randomly selected. Toronto survey participants were paid $10. The adolescent survey was done in schools: adolescents had to bring a signed permission form and a short survey completed by one parent about both parents. In Berlin, adolescent school students were first screened for opposite-sex siblings, and then they were asked to bring a signed permission form. Whereas one sibling filled out a questionnaire in school, parents and opposite-sex siblings were asked to do so at home and mail back their surveys.[2]

The net sample used in the following analyses contains 319 foursome families (162 West Berlin families, 105 East Berlin families, 52 Toronto families) that provided full information on all measures needed for a test of the original and the revised PCT. This sample appears to be largely representative of the population of 'intact' two-parent families with two adolescent children in the selected cities. As can be seen, the Toronto sample is substantially smaller than the two Berlin samples. This is because the Toronto study was intentionally conducted in the same school districts as the study on which Hagan et al. (1979) based the formulation of the original PCT and its empirical test. This restricted the size of the sample. Only families from the chosen districts could be approached to participate and, because the possibility to participate was limited owing to a high percentage of new immigrants now living in these districts, no larger sample was obtainable. Both in Toronto and in Berlin, only families were included in which both generations were able to read and understood the local native language (English in Toronto, German in Berlin), reducing the number of available participants in Toronto considerably but at the same time homogenizing the samples across settings.

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[1] The study was funded in large parts by grants from the Deutsche Forschungsgemeinschaft (DFG) to Klaus Boehnke (BO 929/14-1) and to Hans Merkens from the Free University of Berlin (ME 733/9-1).

[2] The different sampling strategies are necessary in order to achieve social heterogeneity in the Toronto, West Berlin and East Berlin samples, because full probability sampling cannot be carried out. In Toronto, social strata are determined very much by city quarter, whereas in East Berlin this is the case only to a much lesser extent. Both sampling strategies were purposive, with strong probability elements. Although there is an upward bias in social status in our sample, the sample fits the demand for social heterogeneity.

Measures

As already indicated, one can take two overall methodological perspectives when doing cross-culturally comparative research: whereas the *emic* approach – based on the assumption that culturally determined phenomena in societies to be compared require different research instruments – suggests different methods and measurements for West and East Berlin and Toronto, the *etic* approach – based on the premise that cross-cultural comparisons can be drawn only for properties measured in the same way – entails the development of instruments that function reliably in all three samples (see Headland et al. 1990). Because West Berlin, East Berlin and Toronto are all situated in modern industrialized societies, in spite of the fact that they have different histories, the etic approach appears to fit to the research aim, in particular as a theory is to be tested that poses universal assumptions. Following the etic approach, survey instruments were first checked for basic psychometric properties (e.g. internal consistency) in all three samples. Only instruments that met the requirement of sufficient internal consistency were included in the analyses.

To measure the authority difference between mothers and fathers in the workplace, a variable was generated from two other variables, namely professional prestige and labour force participation. In a first step, the Treiman-prestige score (Treiman 1977) was used to convert the responses of parents to an open question about their profession. The Treiman scale is derived from international surveys on the prestige of many occupations. Participants in Treiman's study had to evaluate professions according to their prestige. Treiman scores range from 18.1 (unskilled worker) to 78.9 (university lecturers, physician). According to Weber (1920), prestige is an indicator of social honour linked to authority in the work sphere. In a second step, the Treiman scores of the professions of mother and father were weighted with the score of the hours parents spent on the job. This was done to take account of labour force participation, as suggested in PCT. If a parent did not work, this parent's Treiman score was multiplied by 0; if a parent worked part time, his or her Treiman score was multiplied by 0.5; if a parent held a full-time position, his or her prestige score was included in the analyses in full, that is, multiplied by 1.0. To create a difference variable, the weighted Treiman score of the mother was subtracted from the father's score. Positive difference scores mean that husbands are higher in job prestige and labour force participation than their wives (structural patriarchy). For conceptual reasons,[3] the difference score was finally

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[3] Power-control theory (Hagan et al. 1979, 1985) assumes differences in patriarchy between classes. Since class is not a continuous variable, we use a dichotomized variable for structural patriarchy.

dichotomized: families with a higher prestige weight of the father received the score '1', all others the score '0'.

Gendered parenting, that is, differential parental socialization orientations towards their opposite-sex offspring, was measured by the *difference* in instrumental control behaviour vis-à-vis their sons as opposed to their daughters. The two measures of parental control used here involved the adolescent's perception of parents' knowledge about where and with whom they are when they are not at home. The response options on this instrument ranged from 1 ('no control') to 4 ('strong control'). As PCT postulates that girls are more controlled than boys, the boy's parental control score was subtracted from the girl's score to create a difference variable, so that scores are positive in families where girls are controlled more than boys.

Gender-specific risk-taking preferences were measured by two items from Hagan et al. (1979): 'I like to take chances' and 'The things I like to do best are dangerous'. Response options ranged from 1 (no-risk preferences) to 5 (high-risk preferences). The difference score was calculated by subtracting the girl's score from the boy's score, so that positive scores indicate a stronger interest of boys in risky behaviour.

The instrument used to measure delinquent behaviour comprised four items introduced by Crick and Grotpeter (1995) that represent different kinds of aggression. Physical aggression was measured by the item 'How often have you pushed, kicked or beaten others during the past six months?' The frequency with which the adolescent told lies or spread rumours about a classmate in a bad way was used as an indicator of relational aggression. Verbal aggression was captured by the question 'Did you insult others by saying mean things to them or by calling them names during the past six months?'. And threatening behaviour was measured by 'Have you threatened to hit others if they do not do what you wanted them to do during the past six months?' The lowest score (1) stands for 'no delinquency', whereas the highest score (5) stands for 'high delinquency'. Aggressive or delinquent behaviour scores were calculated by subtracting the girl's from the boy's score. Thus, high scores here stand for the greater aggressiveness of boys.

The variables needed to test the revised PCT – patriarchal gender-role preferences and hierarchic self-interest (HSI) – were measured by several scales.

Patriarchal gender-role preferences were measured by three items from a scale originally introduced by Brogan and Kunter (1976). A traditional gender role is characterized by the acceptance of power differences, by a positive attitude towards gender differences in familial authority and employment opportunities, and by a clear stereotype of what is male and what is female. Sample items are 'It is more important for a woman to support her

husband in his career than to pursue a career of her own' and 'In a group of men and women, only a man should work in the leadership role'. This scale ranged from 1 (egalitarian gender-role orientation) to 4 (patriarchal gender-role orientation). Here we did not calculate difference scores, because the gender difference is built, so-to-speak, into the formulation of the items. Strong ideological patriarchality of boys and girls in a family is rather reflected by high scores of both boys *and* girls on these items. When both boys and girls have high scores on items that favour male dominance, the ideological climate of a family is patriarchal.[4] We assume that high *common* preferences of boys and girls for patriarchal gender roles favour differences in hierarchic self-interest (competitiveness and Machiavellism, see below) and, through these, differences in aggressive behaviour. For gender-role preferences we therefore summed the preference scores of boys and girls. Scores for the original scale again ranged from 1 (low preference for patriarchal gender roles) to 4 (high preference).

Hierarchic self-interest is composed, for the present analyses, of two of its core dimensions. 'Competitiveness' refers to the need to be better than others, as asserted in social comparison theory (Festinger 1954). Festinger emphasizes that individuals need to evaluate their abilities by social comparison with reference groups and strive to gain better assessments. This element of HSI is related to the hierarchical structure of society and positional competition (Hirsch 1977). To measure competitiveness, the items 'For me, to have success in life means to be better than others' and 'At any kind of examination or competition it is important for me to find out how well I did in comparison to others' were used. These items were selected from a scale proposed by Jerusalem (1984). 'Machiavellism' refers to aspects of a way of governing the state explored by Machiavelli in the 16th century. Central to this concept is a ruling class that is characterized by hard work, ambition, acumen, strong will and self-confidence, but lacking altruism, morality and wisdom. To be Machiavellian is to push through one's own goals against the interests of others. The Machiavellism scale for our analyses comprises two items originating from work of the Akademie der pädagogischen Wissenschaften der DDR (1989) and of Henning and Six (1977): 'It is not important how you get your money, you have to have

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[4] A better understanding of why difference scores were not appropriate for indicating ideological patriarchy may be derived from the following example: in the event that boys had high scores and girls had low scores, a constellation that would produce high difference scores (had we followed the construction principle of the other constructs incorporated in the PCT model), families with a clear male–female dissonance on gender-role preferences would have received the highest score. This is not in line with the theoretical assumptions of PCT: ideologically straightforward patriarchal families are only those where boys and girls both favour patriarchal roles.

money to get ahead' and 'Winning is the most important thing in life, not how you win'. Whereas the lowest score (1) represents no HSI preference, the highest score (4) stands for a high HSI preference. Here we again calculated a difference variable for boys and girls, because a high preference for competitiveness and for a Machiavellian way of life among males, but not among females, is an expression of the prevalence of a strong male dominance ideology. In the revised PCT model, this kind of ideology serves as a predictor for intra-familial gender differences in risk-taking and in aggressive behaviour.

The variable 'age difference between siblings' was created by subtracting the girl's age (in years) from the boy's age (in years). Scores above 0 indicate that the boy is the first-born and the girl is the later-born.

Results

Characteristics of the Berlin and Toronto samples

Table 1 lists all the indicators. The table contains information on internal consistencies as well as means and standard deviations for males and females in West Berlin, East Berlin and Toronto. The last two columns document means and standard deviations for the difference variables (males/females) and the one sum variable, which were created in accordance with power-control theory. Internal consistency coefficients suggest an at least satisfactory quality of the measures across both genders and the three samples.

As presented in Table 1, there are numerous mean differences between the three samples. ANOVA results show whether or not these differences between the genders and the cultures are statistically significant and if there are differences with respect to interactions between gender and the cultural settings.

Since the prestige variable is binary (0/1), means indicate percentages of patriarchal families: in West Berlin, 77 percent of the families are patriarchally structured, in East Berlin 47 percent and in Toronto 63 percent. The difference between husbands and wives in prestige and labour force participation is lowest in East Berlin, where mothers exhibit scores similar to their spouses. An analysis of variance with mother and father prestige scores as the repeated-measures dependent variable and culture as an independent variable shows that the gender factor ($F=56.81$, $p<.001$, $\eta^2=17.4$ percent), the culture factor ($F=12.67$, $p<.001$, $\eta^2=8.6$ percent) and the interaction term gender x culture ($F=13.14$, $p<.001$, $\eta^2=8.9$ percent) are significant. These results provide evidence that fathers have a higher average prestige than mothers. Scheffé tests show that prestige levels do not differ between

Table 1 Means, standard deviations, and consistencies

Variable	City	Male		Female		Difference variable	
		Mean	*Std. Dev.*	*Mean*	*Std. Dev.*	*Mean*	*Std. Dev.*
Treiman-prestige[a]	WB	48.9	20.5	26.1	19.1	0.77	0.42
	EB	47.3	18.7	43.0	21.0	0.47	0.50
	TO	40.2	21.8	25.0	20.3	0.63	0.49
Instrumental control[b]	WB	2.93	0.60	3.11	0.59	0.18	0.73
	EB	2.73	0.62	2.94	0.64	0.20	0.76
	TO	2.72	0.78	3.18	0.80	0.47	1.00
Cronbach's α (4 items)		.78/.80/.88		.78/.81/.86			
Risk preferences[c]	WB	2.30	0.66	2.04	0.56	0.27	0.80
	EB	2.17	0.60	2.01	0.58	0.17	0.78
	TO	2.66	0.62	2.35	0.60	0.31	0.90
Cronbach's α (2 items)		.74/.55/.68		.63/.70/.62			
Aggressive behaviour[c]	WB	1.70	0.65	1.46	0.43	0.24	0.78
	EB	1.68	0.65	1.39	0.40	0.29	0.68
	TO	1.71	0.79	1.37	0.51	0.35	0.93
Cronbach's α (4 items)		.77/.70/.81		.58/.67/.72			
Gender-role preferences[d]	WB	2.30	1.05	1.63	0.71	3.93	1.43
	EB	2.04	0.99	1.50	0.52	3.55	1.16
	TO	2.55	1.03	1.79	0.79	4.34	1.35
Cronbach's α (3 items)		.75/.81/.75		.64/.59/.63			
Hierarchic self-interest[c]	WB	2.46	0.52	2.24	0.46	0.22	0.60
	EB	2.65	0.50	2.34	0.48	0.32	0.61
	TO	2.57	0.62	2.24	0.65	0.33	0.88
Cronbach's α (2 meta-scales, i.e. averages of 2 scales with 2 items each)		.53/.50/.38		.41/.57/.51			
Age	WB	15.1	1.62	14.7	1.56	0.35	2.56
	EB	15.1	1.77	14.9	1.67	0.22	2.91
	TO	15.2	1.17	15.6	1.19	−0.40	1.90

[a] Father minus mother.
[b] Daughter minus son.
[c] Son minus daughter.
[d] Son plus daughter.

Toronto and West Berlin, whereas these two cities differ significantly from East Berlin, both having lower overall average prestige scores – owing to the higher female labour force participation in East Berlin. As reflected in the

significant interaction term above, difference scores vary significantly between the three cities, with East Berlin families showing significantly less patriarchality than families from the other two cities.

Mean differences in patriarchality of job market participation are not reflected in mean differences in parental control behaviour to the expected degree. Whereas parental control behaviour towards boys and girls in East and West Berlin is nearly the same, for the Toronto sample a somewhat larger gap is observed. However, in all three samples, girls are controlled more by their parents than are boys. An analysis of variance with boy and girl scores for parental instrumental control as the repeated-measures dependent variable and culture as an independent variable shows that the gender factor ($F=32.97$, $p<.001$, $\eta^2=9.5$ percent) and the culture factor ($F=4.31$, $p=.014$, $\eta^2=2.7$ percent) are significant, whereas the interaction term gender x culture is insignificant ($F=2.70$, $p=.069$, $\eta^2=1.7$ percent). So the extent of the gender gap in control behaviour does not differ systematically between the three cultures. Scheffé tests show that the levels of instrumental control differ significantly between East and West Berlin (the former having lower means), whereas the other two single comparisons are insignificant. As reflected in the insignificant interaction term, difference scores do not vary significantly among the three cities.

The difference between girls and boys in risk-taking preferences is again highest in Toronto, as expected according to PCT and considering the high difference in parental control. Toronto girls show a higher affinity for risky behaviour than do girls from West or East Berlin, but Toronto boys do too. An analysis of variance with boy and girl scores for risk preferences as the repeated-measures dependent variable and culture as an independent variable shows that the gender factor ($F=24.21$, $p<.001$, $\eta^2=7.2$ percent) and the culture factor ($F=15.23$, $p<.001$, $\eta^2=8.8$ percent) are significant, whereas the interaction term gender x culture is insignificant ($F=.70$, $p=.498$, $\eta^2=.4$ percent). Scheffé tests show that the levels of risk-taking preferences differ significantly between Toronto, on the one side, and East and West Berlin on the other side (Toronto adolescents reporting higher means). As reflected in the insignificant interaction term, difference scores do not vary significantly among the three cities.

The scores for aggressive delinquent behaviour in the male sub-samples from West Berlin, East Berlin and Toronto are nearly the same. The gender differences in delinquency are highest in Toronto and lowest in West Berlin. The low differences in West Berlin result from a rather high delinquency score for West Berlin girls – a finding that does not fit power-control theory, since structural patriarchy is rather high in West Berlin. An analysis of variance with boy and girl scores for aggression as the repeated-measures dependent variable and culture as an independent variable shows that the

gender factor ($F=36.30$, $p<.001$, $\eta^2=10.3$ percent) – with boys showing more delinquent behaviour than girls – is highly significant, whereas this is not the case for the culture factor ($F=0.47$, $p=.623$, $\eta^2=0.3$ percent) and the interaction term gender x culture ($F=0.40$, $p=.672$, $\eta^2=0.3$ percent).

The gender-role orientation of sons is most patriarchal in Toronto and least patriarchal in East Berlin – with West Berlin between the two. The order is the same for girls, though at a lower level. An analysis of variance with boy and girl scores on the gender-role preference scale as the repeated-measures dependent variable and culture as an independent variable shows that the gender factor ($F=90.81$, $p<.001$, $\eta^2=22.4$ percent) is highly significant. Sons show a preference for more patriarchal gender roles. Culture differences are also significant, though at a lower level ($F=6.48$, $p=.002$, $\eta^2=4.0$ percent), whereas no significance was found for the interaction term gender x culture ($F=0.77$, $p=.463$, $\eta^2=0.5$ percent) – that is, there is no evidence of systematic differences in the gender gap in gender-role orientation between East Berlin, West Berlin and Toronto. Scheffé tests show that patriarchal gender-role preferences are significantly higher in Toronto than in East Berlin, whereas other single comparisons are insignificant.

Differences in hierarchic self-interest are equally high in East Berlin and Toronto, whereas West Berlin male and female adolescents are more similar in their HSI scores. East Berliners have the highest HSI scores among both boys and girls. An analysis of variance with boy and girl HSI scores as the repeated-measures dependent variable and culture as an independent variable shows that the gender factor ($F=49.90$, $p<.001$, $\eta^2=13.7$ percent) is highly significant. Culture differences were also significant, but at a lower level ($F=3.88$, $p=.022$, $\eta^2=2.4$ percent), whereas no significance was found for the interaction term gender x culture ($F=.86$, $p=.424$, $\eta^2=.5$ percent). Scheffé tests show that HSI differs significantly between East and West Berlin, the latter showing lower scores.

All the calculated difference scores are positive, a finding that supports our hypotheses. Judged on the basis of proportions of explained variance (η^2), the largest cross-cultural differences were found for gender-role preferences and structural patriarchy.

Explanatory models of gender differences in delinquency

To test the assumptions of the original and the revised versions of power-control theory, structural equation models are estimated, using AMOS. This computer program is based on the SEM (structural equation modelling) approach (Jöreskog and Sörbom 1986; Hu and Bentler 1995, 1999). Because the Toronto sample is rather small ($N=52$), path coefficients in the Toronto model, although being fully compatible in size with the other two

samples, are in no case statistically significant. This reflects the low power of the test for such a small sample size. In order to adjust for this power deficit, all three models were adjusted *ex post* to the largest sample size (West Berlin, $N=162$) by redetermining the sample size in the AMOS correlation matrix. This strategy does not change the path coefficients. It affects only the significance of the parameters. To employ this strategy is appropriate only if one can reason that the families sampled in Toronto as well as in East Berlin represent a true estimate of the population for which they stand. In the language of sampling theory this means that one can employ the chosen strategy when the assumption makes sense that the addition of cases would result in the same means and the same standard deviations. In other words, one implicitly assumes that cases are missing completely at random (MCAR). In that instance, an estimation of all the missing – here, of course, non-existent – data, for example by means of a so-called EM estimation, would produce roughly the same correlation matrix as do the existing data. We have no way to prove the correctness of this assumption because no data for a similar population of two-parent families are available,[5] but we also have no indication that the MCAR condition is not met. In this situation we see our strategy as admissible, because it affects only significance parameters and not the sizes of the β-coefficients. In our report of results we present all the β-coefficients, so that the reader can judge independently whether the substantive inferences we draw as to the importance or non-importance of paths are conclusive.

The small Toronto sample discourages the test of a latent-variable model – because of the disparity between the true N and the number of parameters to be estimated. Therefore, manifest variables, that is, scale scores calculated as means of the single items that constitute the scales, are used for the structural analyses.

The results of the cross-cultural test of the original power-control theory, as shown in Figure 2, reveal similarities and differences among the three samples. The goodness-of-fit parameters for all samples are above conventional threshold values (Hu and Bentler 1995, 1999).

Whereas evidence across all samples can be found for most parts of the original PCT model – namely the link between gendered differences in instrumental control predicting gendered differences in risk preferences, which in turn predict gendered differences in aggressive behaviour – the full

[5] A comparison of the income distribution of our Berlin family quadruple sample and the income distribution within the population of Berlin families with at least two children shows – according to the Berlin Statistical Office – that an above-average socioeconomic situation seems plausible for a sample such as ours, because parents of adolescent children are older and therefore more integrated into their careers and the stratification system than are parents of younger children or single-parent families.
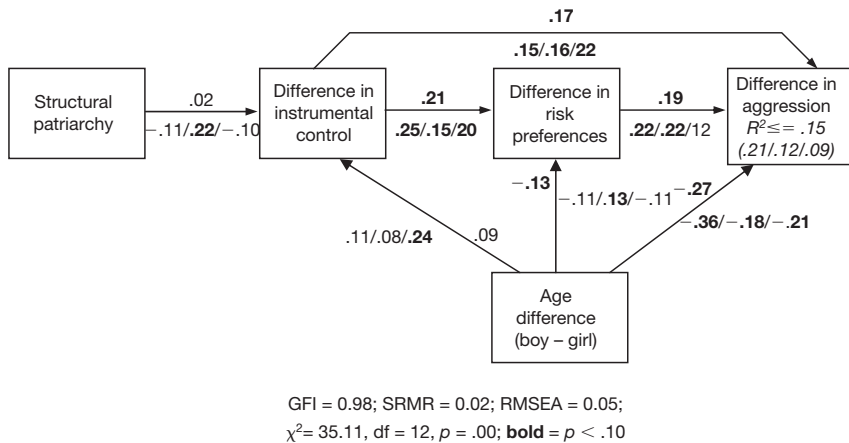
Figure 2 An intercultural test of the original version of PCT.
Notes: Value above path = grand sample; first value under path = West Berlin, second value = East Berlin, third value = Toronto.

original PCT model is confirmed only in the East Berlin sample. Here the weighted prestige difference of the professions of father and mother affects the difference in parental control: that is, a patriarchal disparity in the work positions of mothers and fathers is reflected in stronger control of girls. In East Berlin, structural aspects of the job market participation of fathers and mothers have a clear impact on parental styles and the genesis of delinquency. In West Berlin and in Toronto, the link between structural patriarchy and gendered parental control behaviour is not confirmed. A determination of intra-familial behaviour through structural context alone seems not to be the case in the latter settings.

In the East Berlin and Toronto samples, there is a further fairly sizeable direct effect of gendered differences in instrumental control on differences in aggressive behaviour (see Figure 2), which is not postulated in PCT. So, in Canada, West Germany and East Germany, gendered parental styles not only influence risk-taking tendencies but also directly foster gender differences in aggressiveness.

Birth order (age difference) does influence the difference in aggression substantially in the three settings. The path coefficients indicate that, if the boy is – according to theoretical assumptions – less supervised, gender differences in later-born delinquency increase. Age difference has an impact on the difference in risk preferences only in East Berlin. However, parental instrumental control behaviour depends on age difference (birth order) only in the Toronto sample. Although age difference has a strong impact on the gender difference

in aggression, the other effects (differences in risk preferences, difference in instrumental control) retain their significant effects. In other words, age difference does not draw variance from the other effects.

The amount of explained variance in the dependent variable 'difference in aggressive behaviour' is not overwhelming. It approaches 7 percent in West Berlin and East Berlin, and in Toronto about 5 percent of the variance is accounted for by the predictors of the original PCT model (excluding the age-difference and birth-order effect). The small explained variance and the restricted evidence for a path between structural patriarchy and gendered parenting call for an extension of the model by adding more predictors from the ideological sphere, as suggested above in the revised PCT.[6]

Figure 3 shows the results for the revised PCT model for the West Berlin, East Berlin and Toronto samples. The figure presents paths significant at $p<.10$.[7] The goodness-of-fit for the extended model is still more than sufficient, although slightly lower, since there are more estimates. The explained variances of the dependent variable 'gender difference in aggressive behaviour' improved in all three samples (West Berlin $R^2=11$ percent, East Berlin $R^2=8$ percent, Toronto $R^2=8.5$ percent; excluding the birth-order/age effect).

Looking at the combined sample, almost all the paths of the original PCT *and* of the revised PCT are confirmed, with two exceptions. First, the path from structural patriarchy to a gendered difference in instrumental control is not observed. Second, a 'return' path from either patriarchal gender-role preferences or hierarchic self-interest to gendered risk-taking preferences is not observed. Our results indicate that there is a mediated influence of structural patriarchy on gender differences in aggressive behaviour, in the form that structural patriarchy fosters an acceptance of patriarchal gender-role preferences among children, which in turn leads to gender differences in the acceptance of competitive and Machiavellian orientations towards life in general (hierarchic self-interest), which are a further source of gender differences in aggressive behaviour. Gendered educational practices also lead to gendered risk-taking preferences, which foster differences between boys and girls in aggressive behaviour.

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[6] Including the sub-sample (East and West Berlin vs. Toronto) in our analyses in the form of dummy predictors makes it obvious that there are certain differences in structural patriarchy and in gender-role orientations, but these differences do not influence the findings for our structural model. In detail, the findings were that there is less structural patriarchy in East Berlin and more structural patriarchy in West Berlin than we find in Toronto. At the same time, preferences for stereotypical patriarchal gender roles are higher in Toronto than in both East and West Berlin.

[7] Paths that did not achieve significance at that probability level in at least one of the sub-samples without sample size adjustments are omitted.
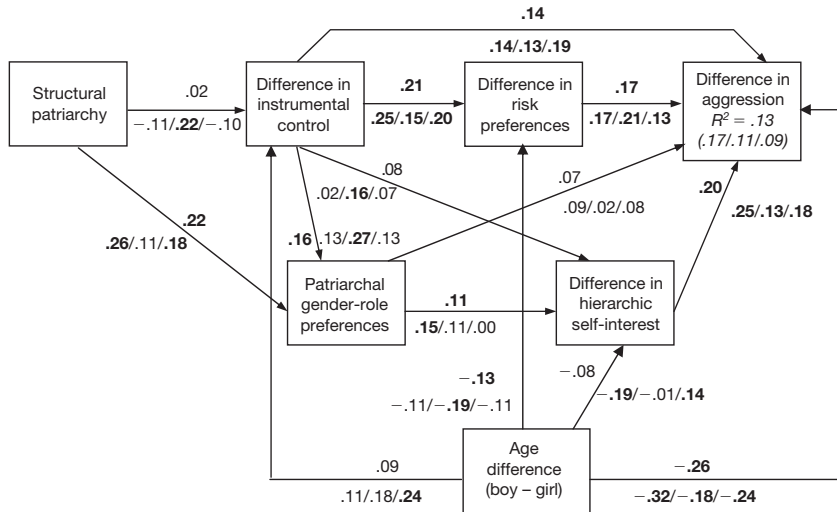
GFI = 0.98; SRMR = 0.03; RMSEA = 0.04;
χ^2 = 59.83, df = 28, *p* = .00; **bold** = *p* < .10

Figure 3   An intercultural test of the revised PCT.
Notes: Value above path = grand sample; first value under path = West Berlin, second value = East Berlin, third value = Toronto.

The puzzle in our findings is that, at first glance, there is no variable that predicts gendered differences in socialization practices, and also that there is no 'cross-over' influence from ideologies on risk-taking preferences. The fact that there is no significant predictor of gendered instrumental control, however, seems to be a consequence just of the design and instrumentation of our study, not a substantive finding: no information on parental adherence to dominance ideologies is available from the Toronto sample. It nevertheless makes sense to assume that parental preferences for patriarchal gender roles do indeed predict not only children's preferences but also the socialization practices of parents. This assumption is not a speculation, but can be shown empirically for the two German samples, where the pertinent data – parental gender-role preferences – are available (as Hadjar et al. 2003 have shown in a separate analysis of the same data). There the path from structural patriarchy to parental preferences for patriarchal gender roles was significant. Paths originating from a parental preference for patriarchal gender-role preferences to the patriarchal gender-role preferences of offspring are significant. Most importantly, the path from a parental preference for patriarchal gender roles to gendered socialization practices is also significant.

Looking at the different sub-samples, however, offers evidence of distinct cross-cultural differences in the validity of PCT in the three sampled cities. In West Berlin, all paths significant in the combined sample are also significant and are stronger. In East Berlin, empirical evidence supports the original version of PCT more than the revised version. The indirect effect of structural patriarchy through gendered socialization practices and gendered risk-taking on differences in aggressive behaviour is $\beta'=.036$, whereas indirect effects through dominance ideologies are only $\beta'=.003$.

The original PCT assumptions are least supported in Toronto. On the one hand, there is an effect from differences in instrumental control on gender difference in aggression – either direct or mediated by differences in risk preference. On the other hand, there is an effect of structural patriarchy on patriarchal gender-role preferences and an effect of the difference in HSI on the difference in delinquency (aggression). However, structural patriarchy and the gender difference in aggression are not connected, either directly or indirectly.

Again, age difference (birth order) has an important influence on the difference in aggression in all three settings – and the direction of this effect fits the theoretical assumptions above. Birth order affects the difference in instrumental control only in Toronto, differences in risk-taking only in East Berlin, and the difference in HSI both in West Berlin and in Toronto. Beside the effect of age difference on difference in HSI in the Toronto sample, all effects of birth order again fit the theory.

Discussion

Before looking at PCT-related results, the descriptive evidence from the three cities deserves some further attention. One must note that 'real socialism' clearly has found its way into structural gender relations: more mothers work in East Berlin, and they work in relatively higher positions than in the West, that is, in Toronto and West Berlin. This difference is reflected in lower preferences for patriarchal gender roles among sons and daughters in East Berlin.

Furthermore, larger differences in parental instrumental control vis-à-vis boys and girls, larger differences in risk-taking preferences, the greatest preference for patriarchal gender roles, and the greatest boy–girl differences in hierarchic self-interest make it plausible that the largest difference between boys and girls in aggressive behaviour emerged in Canada. One may speculate that this is because Toronto is a city with many immigrants. Immigrants tend to come from more traditional societies where the prevalence of gendered socialization practices is likely to be higher than in North America

(see also Hofstede 2003). Furthermore, the culture shock of being an immigrant (Ward et al. 2001) may encourage reinforcement of traditional gender roles and parental practices.

West Berlin is a peculiar case because, although the most patriarchally structured families are found here (77 percent), this city also features the smallest gender difference in instrumental parental control, in HSI and in aggressive behaviour. One can only speculate about the reasons for this unusual constellation. It could be that the general value climate among parents of adolescent children is in response self-consciously egalitarian in West Berlin. Some evidence for this surfaced in a study by Boehnke et al. (1993), but further investigation is needed of this interpretation.

If we look more specifically at the PCT-related results, findings suggest that gendered differences in a specific parental style, namely instrumental control (often also called monitoring in psychological studies), have a genuine impact on the gender gap in juvenile delinquency across settings, as also reported earlier by Slicker (1998; see also Palmer and Hollin 1996). This finding is robust with regard to birth order (i.e. age difference) in the models, as the PCT and revised PCT paths were controlled for birth-order effects.

In all settings – West and East Germany and Canada – stronger control of daughters is connected with gender differences in delinquent behaviour. Yet there are also differences across settings. In West Berlin, gendered parental control differences mostly increase differences in risk preferences, which then foster gender differences in aggression. In East Berlin, the same is the case but, furthermore, seeing parents employ gendered control also increases patriarchal gender-role preferences of boys and girls as well as the gender difference in the adherence to value orientations of hierarchic self-interest. A strong gender difference in HSI (itself predicted by a preference for patriarchal gender roles) then strengthens the gender gap in aggression. In Toronto, all significance levels are obviously contingent on sample size adjustment. The West Berlin finding that gendered parental control increases gender differences in risk-taking preferences, which then enlarge differences in aggression between boys and girls, is replicated in Toronto. In the grand sample, additionally, gendered control practices not only increase the preference for patriarchal gender roles but are also related positively to gender differences in HSI, which in turn predict aggression differences by gender.

Although the effects of a gendered parental style are highly similar across the three settings, the causes remain uncertain. East Berlin is the only setting in which structural patriarchy can be corroborated as a precursor of gendered parenting, as postulated in the original version of PCT. At the other two sites, structural patriarchy has a mediated effect on differences in

aggressive behaviour through dominance ideologies. A relationship between these ideologies and gendered parenting is not observed. Thus, our finding, although obvious and clear across settings, remains difficult to interpret. There is no clear-cut clue as to how dominance ideologies are reproduced in adolescent behaviour.

We do not, however, see this as speaking against the validity of the revised power-control theory; rather we see it more as a consequence of having to work with an abbreviated instrument in Toronto. As already mentioned, data on dominance ideologies were not obtained from parents. Thus, the relationship between a parental preference for patriarchal gender roles and gendered parenting cannot be tested. However, Hadjar et al. (2003) have shown – in an analysis of another section of the German data – that structural patriarchy of the family predicted parental preferences for patriarchal gender roles, which in turn proved powerful in predicting gendered parenting.

In the results, there are some signs that the family's social status and the family's class position are relevant to a revised conception of PCT. Looking at the East Berlin sample, with its high tendency toward egalitarian family structures, structural patriarchy – that is, a gender gap in work roles between mothers and fathers – is mainly found in lower-class families, where unemployment of one family member is more likely. Among West Berlin families, in contrast, structural patriarchy is a feature of higher-status families (i.e. high income of the father), since only these families are economically able to perpetuate traditional family models.

Three final cautionary notes are in order. First, even though the present study incorporates one site from what was formerly called the 'Second World', that is, the socialist bloc, no setting is included from what used to be called the 'Third World' some decades ago. An extension of tests of PCT to non-Western and developing countries is needed. Second, most of the conclusions of our study are framed in terms of causality; however, all the data presented here are cross-sectional. The Berlin research was a panel study, but the data presented here are from only one wave. The Toronto study was a long-term replication of an earlier study by John Hagan, but again the data presented are cross-sectional. Future research should feature panel data. Third, the dependent variable 'gender differences in aggression' is built upon self-report data. This could a priori tighten the link between the dependent variable and its predictors.

Power-control theory as applied here involves two-parent families. Although the current sample is rare in character, because it comprises both parents and children, the findings may be generalized only to metropolitan 'intact' families. It is important to ask how these families differ from families that are structured differently (e.g. single-parent families). Whereas

two-parent families are characterized by a more hierarchic structure, it may be that children in 'a single-parent family are more like junior partners; they have additional rights and authority as well as more responsibilities and duties' (Thornton 1991: 872). Owing to the lack of power differences and hierarchy within one-parent families, children may be raised more equally and in less-gendered ways so that the gender gap in delinquency may be smaller. Alternative family structures may occur more often in modern milieus and social environments where egalitarian gender-role preferences are more widely shared. Presumably, this could lead to less gendered parenting styles and smaller differences in juvenile delinquency in such families. A reverse argument could also be made – keeping in mind that it is not the difference between mother and father in the family but the structural patriarchy experienced in the workplace that may determine family life and parental styles. Single mothers who experience patriarchy in the workplace may also raise their children in a more gendered way, similarly leading to gender-specific attitudes and (problem) behaviours. This may apply also to families with just one child.

There is much that is supportive of power-control theory in our findings. The gendered structure of the work sphere contributes to the emergence of gender differences in aggressive behaviour, be it through increasing the genderedness of family socialization or through an ideological blueprint that accepts such gender differences. The contribution of these factors accounts for as much as one-sixth of the observed gendered variation in aggressive behaviour. This does not rule out biological or genetic factors in behavioural gender differences, but it supports the conclusion that the social genesis of aggression differences between males and females is not a chimera.

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