

Clare Lyonette, Rosemary Crompton & Karin Wall

GENDER, OCCUPATIONAL CLASS AND WORK-LIFE CONFLICT

A comparison of Britain and Portugal

Although people from different countries may report similar scores on measures of work-life conflict, the factors which give rise to conflict may in fact be very different. Full-time working respondents to the 2002 Family module International Social Survey Programme (ISSP) in both Portugal and Britain were assessed for country, gender and occupational class differences in work-life conflict, focusing on both work and domestic spheres. Two distinct groups emerged as having very high levels of work-life conflict: routine and manual women in Portugal and professional and managerial women in Britain. It is suggested that very long hours of domestic work, combined with worries over unsatisfactory childcare arrangements and a lack of support from partners and informal networks, contribute to the high levels of conflict experienced by women working in routine and manual occupations in Portugal. The pressures of very long working hours, combined with a perception of increasing work demands, as well as additional domestic work, contribute to the high levels of work-life conflict for women working in professional and managerial occupations in Britain.

Keywords work-life conflict; gender; class; working hours; domestic work; childcare

En dépit des scores similaires sur les mesures de conflit travail-famille obtenus par les individus de pays différents, les facteurs qui provoquent le conflit peuvent être très divers. Les enquêtés travaillant à plein temps qui ont répondu en 2002 au Module Famille de l'International Social Survey Programme (ISSP) au Portugal et en Grande Bretagne ont été comparés, sur la base des facteurs pays, genre, et classe occupationnelle, en ce qui concerne les différences dans le conflit travail-famille, l'accent étant à la fois sur les sphères du travail professionnel et domestique. Les résultats montrent deux groupes distincts qui ont des niveaux très élevés de conflit travail-famille: les femmes avec des emplois routiniers et manuels au Portugal et les femmes professionnelles et dirigeantes en Grande Bretagne. On suggère que des heures très longues de travail domestique, combinées à des soucis par rapport aux solutions de garde d'enfants et un manque d'appui de la part des partenaires et des réseaux informels, contribuent aux niveaux élevés de conflit éprouvés par les femmes qui ont des occupations routinières et manuelles au Portugal. La pression des heures très longues de travail, associée à une perception d'exigences de travail croissantes, aussi bien que le travail domestique additionnel, contribuent aux niveaux élevés de conflit travail-famille pour les femmes qui ont des occupations professionnelles et dirigeantes en Grande Bretagne.

Most-clés conflit travail-famille; genre; classe; heures de travail; travail domestique; garde d'enfants

Introduction

From the closing decades of the twentieth century, the increase in the employment of women, particularly mothers, has brought to the fore a number of urgent policy issues. How can women's claims to equality in employment be reconciled with their continuing responsibility for domestic work and family care? How is the unpaid work of caring, by convention assigned to women, to be achieved given women's increased participation in paid employment? How do women, men and families adapt to these changing circumstances and what are the effects of these adaptations?

The complex nature of the changes that are under way suggest that single factor explanations are unlikely to enhance our understanding. The extent to which women have achieved a measure of parity with men in different spheres of society (in employment, within the family and in civic society) varies to a considerable extent between different nation states. This variation is a consequence of differences in national welfare regimes and labour market policies, as well as in less tangible aspects such as cultural factors. Similarly, nation states differ to a considerable extent in the levels of support they offer to dual-earner families. However, although national (and wider European) policies are obviously crucial in their impact, it should always be remembered that, as these changes affect some of the most intimate areas of personal lives, then individual attitudes and normative assumptions will also be significant in any attempts to understand and explain current trends.

Work-life balance, conflict, spillover and stress are becoming everyday terms, taken up increasingly by government, the press and news organizations (e.g. BBC website, March 2005; Department of Trade and Industry, 2005). Work-family conflict has been described as 'the direct result of incompatible pressures from an individual's work and family roles' (Roehling, Moen, & Batt, 2003, p. 103). Early research in the field distinguished between time-based, strain-based and behaviour-based conflict (Greenhaus & Beutell, 1985). Time-based conflict is experienced when time pressures associated with one particular role prevent a person from fulfilling expectations of the other role. Strain-based conflict is caused when strain or fatigue experienced in one role can affect one's performance in the other role. Behaviour-based conflict, on the other hand, is caused when behavioural patterns in one role are incompatible with the behavioural requirements of the other role (Kelloway, Gottlieb, & Barham, 1999). Many of the studies which have looked at work to family conflict and family to work conflict have found that employment has a greater (negative) impact on family life than family life has on employment (e.g. Eagle, Miles, & Icenogle, 1997; Gutek, Searle, & Klepa, 1991; Kinnunen & Mauno, 1998; Roehling et al., 2003; Williams & Alliger, 1994), although this may be due to the fact that work demands are easier to measure (Gutek et al., 1991). Researchers of work-family conflict typically distinguish between work interference with family (WIF) and family interference with work (FIW), claiming that both have unique antecedents, but

some researchers have also found high correlations between measures of both types of conflict (Frone, Russell, & Cooper, 1992; Gignac, Kelloway, & Gottlieb, 1996; Gutek et al., 1991).

Although a level of conflict between work and family life may be inevitable for people attempting to balance many different and time-consuming roles, do all people experience conflict for the same reasons? Even though people may report similar scores on various measures of conflict, spillover and stress, these scores may in fact reflect differences in structural supports and constraints, cultural and societal norms, individual attitudes towards work and family, individual differences in occupational demands and family demands, gender, occupational status and other factors.

Many authors have found that long working hours are predictive of higher work-life conflict (e.g. Bacharach, Bamberger, & Conley, 1991; Voydanoff, 1988; White, Hill, McGovern, Mills, & Smeaton, 2003). Relatively few studies have examined country differences in work-life conflict, but a recent study (Chandola et al., 2004) compared Finland, Japan and the UK, and found that Finnish women had the lowest work-life conflict and best mental health overall. Drawing upon questions fielded in the 2002 Family module International Social Survey Programme (ISSP) surveys for Britain, France, Finland, Norway and Portugal, Crompton and Lyonette (2006) also found significantly lower levels of work-life conflict in Finland and Norway, even after a range of factors were controlled for. However, another recent comparative study (Tang & Cousins, 2005) found that levels of work-family conflict were very high in Sweden, which was somewhat unexpected, given its generous family-friendly policies. Levels of conflict were also very high in the UK and other countries where long working hours were the norm, however. This research also showed that men often report higher levels of work-family conflict, especially when asked if work makes it difficult to carry out household tasks or to fulfil family responsibilities (Tang & Cousins, 2005). Other studies which have examined gender differences in work-life conflict have shown mixed results, but generally report that women experience greater work-life conflict than men (e.g. Duxbury & Higgins, 1994; Gutek et al., 1991).

In a study of occupational class differences in work-life conflict, Chiu, Man, and Thayer (1998) examined role conflict and satisfaction among three different professions in Hong Kong. The authors claimed that work to family conflict had a strong impact on stress, caused by a clash of cultures. Although the Chinese value their families above all else, they are also increasingly influenced by Western values which prioritize work in order to attain career success and higher incomes. Professional people were especially prone to the increasing prioritization of work. However, a recent cross-cultural study (Hill, Yang, Hawkins, & Ferris, 2004) involving IBM employees in 48 countries claimed that a 'transportable', globally applicable model, rather than a culturally specific or gender-specific model of work-family conflict, was supported. Job flexibility was related to reduced work-family conflict, reduced family-work conflict and enhanced fit between work and family, and work-family fit was related to increased work satisfaction. If, as these findings suggest, work-family conflict is experienced for similar reasons by working people across all developed nations, then efforts to reduce conflict should also be similarly applied across countries. However, if it is found that the determinants of conflict vary

for different individuals within different countries, more culturally sensitive interventions need to be developed and implemented.

This research focuses on Britain and Portugal, two European countries with very different histories, in order to examine whether or not similar factors predict work-life conflict for working individuals in both countries. Portugal has seen the relatively recent collapse of the Salazar regime, which was in power from the 1930s until 1974, a series of colonial wars and high levels of poverty within the population. On the other hand, Britain has experienced a long period of political stability and is, comparatively, a much richer country. There is a much smaller professional class in Portugal than in Britain, and educational levels are lower overall. Even though illiteracy dropped considerably between 1970 and 1991, Eurostat data demonstrate that in 1995, only 22% of Portuguese people aged between 25 and 64 had completed at least upper secondary education, compared with 52% of British people of the same age (EU-15 average 55%). Recent OECD data have also shown that Portugal has the lowest per capita income in the euro area and, until the recent expansion, it also had the lowest overall in the EU (OECD Policy Brief, 2004).

The reasons for these differences in education, occupational class and income between Britain and Portugal may be explained by the different historical development of the two countries. Industrialization was slow and relatively late in Portugal, and Salazar's corporate state was intended to protect the traditional societal elites and keep the masses under control by maintaining traditional conservatism (Lloyd-Jones, 1994). In this way, the regime which was in power for almost 40 years was instrumental in 'holding back' the population from attaining higher levels of education and income. Since that time, things have changed considerably, but Portugal still has high levels of job protection as a result of its corporatist past. In contrast, Britain experienced early industrial growth, and in comparison with the rest of Europe, its labour market is relatively unregulated (Hutton, 2002). Overall, Portugal is less 'developed' than Britain in capitalist terms, and, despite huge changes in behaviour and attitudes to women and employment post-Salazar, Portugal 'still has to deal with the legacy of authoritarian values which still permeate society and many institutional settings, as well as the problem of a civil society bogged down for forty years' (Wall, forthcoming).

The Salazar regime, while emphasizing the importance of women's domestic duties, did not exclude women from working. The dual-earner model of family life, based on the traditional rural system, combined with the rise of industrialization and the depletion of the male workforce due to colonial wars and emigration meant that women's employment was always accepted, if underpaid. However, women often left the labour force after marriage and having children, in spite of high levels of poverty. By law, they were also responsible for managing the home (Wall, forthcoming). The current level of economic activity amongst women of working age is higher in Britain (71%) than in Portugal (65%), but British women are much more likely to work part time. Eurostat data (Franco & Winqvist, 2002, p. 3) demonstrate that amongst couples with a child under 15, there are very similar proportions of 'male breadwinner' families in the two countries (27% in Portugal, 30% in Britain), but the proportions of joint *full-time* households are very different, at 67% in Portugal, but only 29% in Britain.

Due to the high proportion of women in Portugal working full time, demand for good childcare is obviously on the increase. Although 75% of three to six year olds are currently in pre-school institutions, organized on a full-time basis, only 22–23% of under-threes are in formal childcare facilities (OECD Report, 2004). The high employment rate of mothers with very young children (70%) is not only facilitated by these formal childcare services, but also by childminders (12%) and relatives (36%), mostly parents and parents-in-law. However, there are concerns that young children in low-income families are sometimes left unattended or with older children if informal networks to provide care are not available (Torres, Vieira da Silva, Libano Monteiro, & Cabrita, 2002). Recently, the 'Creche 2000' Programme has been seeking to develop the provision of formal care to the under-threes. The restricted capacity of subsidized facilities in some areas, however, exerts a constraint on parents who are then compelled to rely on private childcare institutions where the fees are much higher. The relatively high part-time fees for formal childcare also act as an obstacle to increasing part-time work in Portugal (OECD Report, 2004).

Problems also exist for women with school-age children in Portugal. In spite of policy changes in the 1990s which allowed parents to take up to 30 days per year to care for sick children under 10 (or 15 days for children over 10), as well as entitlement to part-time work if required, take-up was low due to a lack of financial compensation. In the late 1990s, however, new laws were passed to try to address some of these problems, with financial compensation for the 30 days, the introduction of canteens in schools and the setting up of more after school clubs, increased (unpaid) parental leave, the introduction of a five-day paternity leave and an increase in maternity leave (Wall, Aboim, Cunha, & Vasconcelos, 2001).

In Britain, as in Portugal, childcare is also in increasing demand. The Families and Children Study (2004) found that among working families, 33% of those with pre-school children used nurseries or playgroups, 15% used childminders, 40% were helped by parents or parents-in-law, 12% by other relatives and only three per cent used nannies or au pairs (multiple response format). Recent government pledges include a 10-year plan to ensure a Sure Start children's centre in every community, more hours of free early education and care for three and four year olds, rising to 20 hours per week in the long term ('Choice for parents, the best start for children', DTI website, 2005). Childcare provision for school-age children is also a growing business, although the Families and Children Study (2004) reported that of those working families with school-age children, only four per cent used holiday schemes (which are relatively expensive and therefore prohibitive for many parents), whereas 17% were helped by parents or parents-in-law and 10% relied on other relatives. Overall, 46% of those with pre-school children used 'eligible' childcare (i.e. nurseries, registered childminders, etc.), compared with only nine per cent of those with school-age children.

The Employment Act of 2001 (operating from 2003) introduced extended maternity leave and pay and the right to (unpaid) paternity leave, and parents of young children were also given the right to 'request' flexible working. Many of the recent work-life changes introduced by the British government, however, have merely served to bring Britain into line with EU requirements, and statutory 'work-life' protections in Britain remain rather modest in comparison to other European countries (Dex & Smith, 2002).

This research will examine levels of work-life conflict for men and women in Britain and Portugal, focusing on country, gender and occupational class differences. By examining these two European countries, with large differences in education levels, childcare and domestic situations, as well as employment regulations, we will explore the relative influence of different factors which contribute to levels of conflict between work and family. Attitudes to gender roles, women's employment, emphasis on family life and men's involvement in the home and childcare will be examined. Hours of paid work and hours of household work will also be examined for variations by gender, occupational class and country, in order to assess the relative importance of the workplace and the domestic sphere in levels of work-life conflict.

Method

Sample

The research presented here will focus on the 2002 Family module ISSP data for both Portugal and Britain.¹ Extra work-related ISSP questions, included only for Britain and Portugal, were also analysed. Because of the large differences between women's working status in the two countries, a decision was taken to focus on full-time employees only, even though this would reduce the number of British women in the sample, especially non-professional women who are more likely to work part time. One problem with this strategy is that, given that a large proportion of British women work part time, and that part-time work is not available to most women in Portugal, full-time women in Britain and Portugal may not be directly comparable groupings. That is, 'similar' women (particularly in routine and manual occupations, where there is a concentration of part-time work) in Britain would be likely to be working part time, as compared to Portuguese women. However, many of the issues we focus on in this paper, including attitudes to the impact of mothers' employment on children

TABLE 1 Country by class and sex (all full-time respondents only)

country	class	sex		
		male (%)	female (%)	total (%)
Portugal	Professional	74 (26.1%)	54 (27.0%)	128 (26.4%)
	Intermediate	37 (13.0%)	77 (38.5%)	114 (23.6%)
	Manual	173 (60.9%)	69 (34.5%)	242 (50%)
	Total	284 (100%)	200 (100%)	484 (100%)
Britain	Professional	318 (48.5%)	235 (53.5%)	551 (50.6%)
	Intermediate	75 (11.5%)	163 (37.1%)	238 (21.8%)
	Manual	260 (39.9%)	41 (9.3%)	301 (27.6%)
	Total	651 (100%)	439 (100%)	1,090 (100%)

and work-life conflict, will be crucially affected by whether or not the respondent works full time, so it was important to control for this factor.² By focusing on working respondents only, age effects are also controlled for. Table 1 shows the breakdown of respondents in the final study sample by country, occupational status and sex.

Measures

Socio-demographic variables

Respondents were categorized according to country of origin (Portugal; Britain), sex (male; female) and occupational status (professional and managerial; intermediate; routine and manual, according to ISCO-88 categories).

Emphasis on family life and attitudes to women's employment

Five items from the ISSP questionnaire were used to measure emphasis on family life and attitudes to mother's employment in both Portugal and Britain. These questions were:

- A job is all right, but what most women really want is a home and children.*
- Watching children grow up is life's greatest joy.*
- People who have never had children lead empty lives.*
- A pre-school child is likely to suffer if his or her mother works.*
- All in all, family life suffers when the woman has a full-time job.*

All items were scored on a 5-point Likert scale, ranging from 'strongly agree' to 'strongly disagree'.

Gender role attitudes

A single item from the ISSP data-set was used to measure attitudes to gender roles: 'A man's job is work, a woman's job is to look after the home and family.' The item was scored on a 5-point Likert scale, ranging from 'strongly agree' to 'strongly disagree'.

Attitudes to men's involvement in the home

Two items from the ISSP data-set examined respondents' views towards men's involvement in both domestic work and childcare:

- Men ought to do a larger share of household work than they do now.*
- Men ought to do a larger share of childcare than they do now.*

The items were scored on a 5-point Likert scale, ranging from 'strongly agree' to 'strongly disagree'.

Domestic division of labour

A series of questions were asked relating to household tasks, and a domestic division of labour (DDL) index was computed from five questions from the ISSP survey:

In your household, who usually does the:

Laundry

Cares for sick family members

Shops for groceries

Household cleaning

Prepares the meals

(responses: always me, usually me, about equal, usually spouse/partner, always spouse/partner).

By convention, these would be considered 'women's' tasks. Scores were allocated in accordance with this assumption (ranging from 5 to 25). Thus a 'most traditional' score (where all of the tasks are usually carried out by the woman) would be 25. Factor analysis on the scale showed one factor, with an Eigenvalue of 2.70, explaining over 54% of the variance. Cronbach's alpha for all five items = 0.79.

Work-life conflict

In order to assess the impact of combined work and domestic conditions within each country, we used a measure of work-life conflict which was developed from four items (respondents were asked to indicate for each item whether this occurred several times a week, several times a month, once or twice or never. Higher scores indicate higher work-life conflict). It should be noted that there are a range of measures of work-life conflict available that have been used in previous research (e.g. Kelloway et al., 1999), and these measures are not always comparable.

- I have come home from work too tired to do the chores which need to be done.*
- It has been difficult for me to fulfil my family responsibilities because of the amount of time I spent on my job.*
- I have arrived at work too tired to function well because of the household work I had done.*
- I have found it difficult to concentrate at work because of my family responsibilities.*

Although the first two items relate to work-to-family conflict or work interference with family (WIF), and the final two relate to family-to-work conflict (or family interference with work (FIW)), analyses showed that the two sets of variables were highly correlated (Pearson's $r = 0.456$; $p < 0.001$) and that the scale worked well as a unitary measure for both countries. Cronbach's alpha for the 4-item scale was 0.73; factor analysis showed one factor with an Eigenvalue of 2.2, explaining 56% of the variance. Several other researchers have also found that, although the two domains have different determinants, they are highly correlated in different measures (e.g. Frone et al., 1992; Gignac et al., 1996; Gutek et al., 1991).

The scale used here includes both time-based and strain-based items of work-life conflict.

Hours of household work and hours of paid employment

These were measured with single items from the ISSP data-set.

Data analysis

Chi-square tests and analysis of variance (ANOVA) were used to examine differences by country, occupational class and sex. Descriptive data were included for the questions relating to the domestic division of labour, as numbers were too small to carry out statistical analyses. GLM univariate analyses were used to examine work-life conflict by class and sex in order to check for effects of both independent variables, as well as potential interactions. Regression analyses were not possible due to the very small numbers in some cells.

Results

Emphasis on family life and attitudes to women's employment

Initial analyses examined differences between men and women in the emphasis placed upon family life and attitudes to women's employment in both Portugal and Britain, using single items from the ISSP data. In Portugal, both men and women have relatively 'traditional' attitudes to gender roles, although women are less likely to agree that what women really want is a home and family. Interestingly, 78% of Portuguese women think that pre-school children suffer, and 59% think that family life suffers if the mother goes out to work, in spite of the fact that all the women answering the questions work full time: in this case, behaviour (working full time) does not appear to affect attitudes, and attitudes in turn do not affect behaviour. British men are significantly more traditional than British women in their attitudes to gender roles and more critical of the impact of women's employment on children. Although the initial cross-national comparisons show that Portuguese respondents place a high emphasis on family life overall, this analysis masks large within-country variations by social class (see tables 2 and 3). In this instance, respondents were categorized according to their occupation (professional and managerial, intermediate, routine and manual occupations, derived from ISCO-88 classifications).

In Portugal, there are very large differences between manual and professional respondents (both men and women) in almost all the questions asked. In other words, although Portuguese respondents appear to place a high emphasis on family life overall, manual full-time employees place significantly more emphasis on the family and the negative impact of women's employment than managerial and professional full-time workers. Occupational class differences in the emphasis placed upon the

TABLE 2 Portugal only — emphasis on family by sex and by occupational class

	men only (% saying yes)			women only (% saying yes)			total M+F
	prof	inter	manual	prof	inter	manual	
What women really want	33.3	48.6	76.2*	41.5	41.6	62.3*	97 (48.7%)
Life's greatest joy	96.7	100.0	97.5	90.4	97.2	100.0	184 (86.3%)
People without children	46.2	37.1	68.8*	42.3	55.4	77.9*	116 (59.8%)
Pre-school child suffers	68.5	73.7	83.7	64.8	79.2	88.4*	157 (78.5%)
Family life suffers	47.3	59.5	69.4*	50.0	51.3	79.4*	120 (60.6%)
							270 (56.1%)
							443 (86.7%)
							291 (59.3%)
							379 (78.5%)
							296 (61.5%)

*Denotes significant within-sex class differences; p < 0.05.

TABLE 3 Britain only — emphasis on family by sex and by occupational class

	men only (% saying yes)						women only (% saying yes)					
	men only (% saying yes)			total n			men only (% saying yes)			total n		
	prof	int	manual	total n	prof	int	manual	total n	prof	int	manual	total n
What women want	16.3	10.0	24.9	100 (19.0%)	10.0	15.0	28.0*	51 (13.5%)	151 (16.7%)			
Life's greatest joy	70.1	57.8	82.9*	390 (73.7%)	69.7*	84.3	78.9	281 (75.9%)	670 (74.6%)			
People without children	11.9	9.7	13.9	67 (12.5%)	5.7	6.0	5.3	22 (5.8%)	89 (9.7%)			
Pre-school child suffers	42.8	29.7	39.6	216 (40.0%)	21.0	26.8	39.5*	96 (24.9%)	312 (33.7%)			
Family life suffers	35.7	21.9	35.0	184 (33.8%)	22.0	29.1	21.1	93 (24.4%)	277 (29.9%)			

*Denotes significant within-sex class differences; p < 0.05.

Downloaded By: [B]on Consortium - 2007] At: 16:08 21 February 2008

Downloaded By: [B]on Consortium - 2007] At: 16:06 21 February 2008

family are also discernible in Britain, although they are much less marked than in Portugal.

In both countries, manual women are more likely than other women to think that a pre-school child suffers if the mother goes out to work, although there is no significant class difference in Britain in the proportion of women who believe that family life suffers as a result.

Gender role attitudes

Portuguese respondents are more likely than British respondents overall to agree that what women really want is a home and family, which may be seen as a reflection of more traditional gender role attitudes, although there were significant within-country class differences on this item. The 'classic' gender role attitude question: 'a man's job is to earn money; a woman's job is to look after the home and family' also reveals significant differences between the two countries, and there are highly significant occupational class differences in Portugal, in particular (table 4).

Portuguese manual men and women are significantly more traditional in attitude than other men and women in Portugal. Overall, however, women in Portugal are more likely to disagree than men, indicating more liberal gender role attitudes. The same trend is also found for both men and women in Britain, where manual workers are significantly more traditional than either intermediates or professionals. However, the percentage differences are not as great as in Portugal. Women are also more liberal in attitudes overall than men.

There is no significant difference in gender role attitudes between British and Portuguese professional men, although a higher proportion of Portuguese men disagree than British men (78% compared with 67%), suggesting more liberal attitudes. However, manual men in Portugal are significantly more traditional than manual men in Britain. Overall, Portuguese men are less liberal than British men: although a similar proportion of men in both countries *disagreed* that man's job is work (65% in both countries), 26% of Portuguese working men *agreed* that man's job is work, compared with only 13% of British men.

There is no difference between British and Portuguese professional women in gender role attitudes, with the great majority of both groups disagreeing. Intermediate women in Portugal are significantly more traditional than intermediate women in Britain. Overall, British full-time working women are significantly less traditional than Portuguese women working full time: 86% of British women *disagreed* that a man's job is work, compared with 71% of Portuguese women, while 22% of all women in Portugal *agreed* that man's job is work, compared with less than five per cent of British women.

Summary of attitudinal data

Women in both countries are more liberal in gender role attitudes than men. Men and women in higher occupational classes in both countries are generally more liberal in gender role attitudes than manual men and women. In both countries, over a half of respondents 'disagree' with traditional gender roles, although Britain is less attitudinally 'traditional' than Portugal. However, inter-class differences in attitudes

TABLE 4 Gender role attitudes by class and sex: 'Man's job is to earn money ...'

	men only (% disagreeing)				women only (% disagreeing)				total M+F, n (%)
	prof	inter	manual	total	prof	inter	manual	total	
Portugal	78.4	84.2	50.9***	65.1	87.3	72.7	57.1***	70.8	300 (66.4%)
Britain	67.0	73.4	60.5**	64.7	88.1	85.4	73.0**	86.5	684 (73.7%)
Country differences ^b χ^2	4.595	2.268	15.469***	28.529***	4.778	16.831***	3.684	41.202***	53.687***

^aDenotes within-country class differences.

^bCountry differences may occur in either the proportion agreeing or disagreeing that man's job is work; only the proportion disagreeing are presented in the table, however. Disagreeing = more liberal in attitudes.

*p < 0.05; **p < 0.01; ***p < 0.001.

are much greater in Portugal than in Britain. Gender role attitudes amongst managerial and professional groups in Portugal are very similar to those of similar British respondents, but whereas there is a 30% difference (in a more 'liberal' direction) between Portuguese managerial/professional and manual workers, this disparity is under 15% in Britain. Therefore, due to the lower proportion of professionals in Portugal than in Britain, this group has less of an impact on gender role attitudes in aggregate.

Domestic division of labour

As we have seen, Portuguese full-time workers place more emphasis on family life than the British and are slightly less liberal in their attitude to the male breadwinner model, and we therefore wanted to examine whether or not this corresponded with a more traditional division of domestic labour for respondents in Portugal. Using the DDL measure described earlier, results show that, although Britain is in fact quite traditional (women are much more likely than men to do the majority of domestic work), Portugal is even more traditional (Britain mean DDL score = 18.75, Portugal mean DDL score = 20.48; $t = -7.34$; $df = 777$; $p < 0.001$). However, this only gives a measure of the relative traditionalism in households' division of domestic labour and does not give any information on the number of hours actually spent by individuals in domestic work. Further analyses show that women in Portugal, particularly manual women, do significantly more household work than either Portuguese men or British men and women (table 5). There are no significant differences for men, either by country or by occupational class, in the number of hours spent per week in household work.

TABLE 5 Hours of household work per week by class and sex (partnered respondents only)

	men only				women only			
	prof	inter	manual	total	prof	inter	manual	total
Portugal								
N	48	19	112	179	33	45	53	131
Mean	4.99	8.45	5.58	5.73	17.25	21.68	26.36	22.45
SD	5.13	8.78	6.87	6.87	9.01	13.65	15.60	13.91
Britain								
N	184	33	135	352	135	87	21	244
Mean	6.73	7.28	5.83	6.43	9.13	12.68	11.64	10.61
SD	5.98	7.98	4.95	5.83	6.77	8.37	8.39	7.68

Portugal: men ANOVA $F = 1.807$, n.s.; women ANOVA $F = 4.650$, $p < 0.05$ (manual women did significantly more hours than professional women).

Britain: men ANOVA $F = 1.322$, n.s.; women ANOVA $F = 6.095$, $p < 0.005$ (intermediate women did significantly more hours than professional women).

Attitudes to men's involvement in domestic work and childcare

In order to test the impact of these very long hours of domestic work for Portuguese women, especially those working in routine and manual occupations, we then asked questions relating to men's involvement in the home, both in domestic tasks and childcare tasks. Both men and women were asked if men should do more. Results showed that professional women in Portugal are more likely than professional men to think that men should do more childcare (94% compared with 72%), and, not surprisingly, given the large number of hours that they spend on household work, Portuguese manual women are considerably more likely than manual men to think that men should be more involved in housework (90% vs. 76%) and childcare (93% vs. 80%). Manual women in Britain are also considerably more likely than manual men to think that men should be more involved in housework (66% vs. 49%) and childcare (76% vs. 57%). In some contrast to the attitudinal responses on which we have been focusing so far, there are no significant within-country class differences for Portugal or Britain on either question. However, in general, Portuguese men and women are more likely to think that men should do more housework and childcare than their British counterparts. This may be partly explained by the contrasts in the two social contexts. In Britain, the availability of part-time work may undermine a more liberal attitude to the need for equal sharing in the home. In Portugal, where full-time work and long hours are the norm for both men and women, attitudes over the last decades have come to place a strong emphasis on the need for more equal sharing in the home.

As we have seen, manual women in Portugal place a high emphasis on family life. However, they are also increasingly likely to work full time. Previous research has also shown that lower class families in Portugal had the lowest levels of support from informal networks over the course of married life, suggesting that manual women are also less likely than women from higher occupational classes to rely on other family members for help with childcare (Wall et al., 2001) and for financial support or help with household tasks (paid or unpaid). They are therefore the women who are most likely to have a 'double' working day.

Work-life conflict

Against this background of cross-national differences in attitudes to family life, gender role attitudes, hours of domestic work and attitudes to men's involvement in both housework and childcare, we now examine levels of work-life conflict for both British and Portuguese respondents (table 6).

GLM univariate analyses for each country show that in Portugal, there are significant sex differences ($F = 11.969; p < 0.001$), and significant interactions between sex and class ($F = 3.112; p < 0.05$). Women in Portugal report significantly higher work-life conflict than men, but manual women also report significantly higher conflict than professional women. In fact, the pattern for men and women differs in Portugal: for men, the higher the occupational class, the higher the work-life conflict (as in Britain), whereas for women, the lower the occupational class, the higher the work-life conflict. This finding, we suggest, will reflect the longer hours of domestic work carried out by Portuguese women. For Britain, although

TABLE 6 Work-life conflict by class and sex (partnered respondents only)

	men only			women only			total M+F
	prof	inter	total	prof	inter	total	
Portugal							
N	50	21	163	43	51	149	312
Mean	7.34	7.05	7.25	7.58	8.31	8.49	7.84
(SD)	(2.28)	(2.17)	(2.68)	(2.57)	(2.82)	(3.00)	(2.90)
Britain							
N	172	28	328	126	76	219	547
Mean	7.80	7.32	7.51	8.37	7.57	8.01	7.71
(SD)	(2.16)	(2.21)	(2.30)	(2.51)	(2.23)	(2.39)	(2.35)

Note: Univariate analyses reduce the sample size slightly, as respondents must have answered all questions in order to be included (i.e. class, sex and conflict variables).

professional women report higher conflict than professional men, these differences are not significant. However, there are significant class differences ($F = 4.729$; $p < 0.01$), with professional respondents overall reporting significantly higher conflict than manual workers.

When comparing full-time working women only, a significant country difference is demonstrated ($F = 4.065$; $p < 0.05$), as well as a significant class by country interaction ($F = 6.006$; $p < 0.005$). Women in Portugal overall report higher work-life conflict than women in Britain. However, full-time professional women in Britain report significantly higher work-life conflict than full-time professional women in Portugal, whereas full-time manual women in Portugal report significantly higher work-life conflict than full-time manual women in Britain. When controlling for the presence of child(ren) in the household, the same pattern is shown for men and women in both countries.

Our analyses will now attempt to unravel the factors which give rise to the very high levels of work-life conflict for manual women in Portugal and professional women in Britain. Firstly, we examine the total number of hours of paid work by occupational class and gender for partnered respondents only.

Table 7 shows that partnered men in general work significantly longer full-time hours than partnered women. However, after intermediate women in Portugal, professional women work the shortest full-time hours of all Portuguese employees, on average. Professional women in Portugal begin to emerge as a relatively advantaged group. Manual women in Portugal work slightly longer hours than intermediates and professionals, and it is to be expected that the quality of work is also lower for these women. However, it has previously been shown that even when paid work is hard and heavy, manual women in Portugal would prefer to get a different job, rather than not work at all (Torres et al., 2002). The recent Transitions series of projects undertaken across Europe also showed that Portuguese women

TABLE 7 Hours of paid work by class and sex (partnered respondents only)

	men only				women only			
	prof	inter	manual	total	prof	inter	manual	total
Portugal								
<i>N</i>	50	19	112	179	37	49	51	136
Mean	48.02	41.27	45.90	45.99	41.01	39.20	42.16	40.79
SD	18.27	7.19	15.54	15.75	11.53	10.83	4.91	9.33
Britain								
<i>N</i>	230	38	170	438	157	108	24	289
Mean	47.98	42.84	49.13	47.98	43.77	37.55	38.99	40.99
SD	10.37	8.92	12.66	11.31	10.66	5.48	4.32	9.15

Portugal: men ANOVA $F = n.s.$; women ANOVA $F = n.s.$ (no significant class differences). Britain: men ANOVA $F = 4.872$, $p < 0.01$; intermediate workers work significantly lower hours than other groups; women $F = 17.80$, $p < 0.001$; professional women work significantly higher hours than other groups.

would prefer to work full time, and in fact Portuguese couples would like to increase their working hours (Transitions Context Mapping Report No. 1, 2004). Low wages and rising expectations of social mobility in Portugal have meant that two incomes are necessary not only for buying basic goods, but also for the support of young children and prolonged educational careers (Wall, forthcoming). Manual women in Portugal have to work to earn money, and due to the relatively low incomes in Portugal, this means working long hours.

Although British men on average work longer hours than women, in contrast to the Portuguese case, female professionals in Britain work significantly longer hours than either intermediate or manual women. A series of work-related questions were included in the ISSP 2002 for Britain and Portugal only, allowing for a more detailed examination of specific differences between the two countries in work practices. An examination of these questions showed that 72% of partnered British professional women thought that people in general were expected to work longer hours these days, compared with only 43% of British intermediate women and 48% of manual women. Sixty-eight per cent of partnered British professional men also agreed, significantly higher than other men in Britain. Although partnered Portuguese professional women were also significantly more likely to agree than other women in Portugal, they were still significantly less likely to agree than British professional women (48%). British professional women were also significantly more likely than other women in Britain to agree that in order to be promoted, people were expected to work longer hours (61% compared with 46% of intermediate women and 32% of manual women). Fifty-one per cent of professional men in Britain also agreed, and in Portugal, 46% of professional women agreed. A further question asked respondents whether or not they agreed with the statement 'My job is rarely stressful' and in this case, 81% of professional women in Britain disagreed, compared with 67% of intermediate women and 33% of manual women in Britain. Seventy-seven per cent of professional men in Britain also disagreed, and 51% of professional women in Portugal.

As other research has demonstrated, hours of paid work are highly predictive of work-life conflict (see Introduction). However, as feminists have argued, work in the household is also 'work' (albeit unpaid), although as noted earlier, this is less likely to contribute significantly to work-life conflict in general. The domestic division of labour (DDL) index used earlier gives an indication of the relative 'traditionalism' within households, but in an examination of the individual items making up the scale, some interesting cross-national differences emerged, particularly in respect of laundry and cleaning done by another person (table 8).

Due to the very small numbers in some cells, it was impossible to carry out statistical tests on the data. However, it can be seen that in Portugal, professional women are much less likely to do the laundry and cleaning than manual women. However, this is not as a consequence of professional women's husbands doing more: there are no class differences between men on any tasks (apart from laundry, where professionals are more likely to do equal amounts than other classes). Instead, Portuguese professional women are more likely to pay for help in the home. Men are much more likely to share caring and grocery shopping (not shown here) than laundry, cleaning or cooking, considered to be traditional female tasks. International Labour Organization (ILO) data for 2000 showed that a total of 518,000 women in

TABLE 8 DDL questions by class, coded by couple-level answers

	laundry (% within class)			cleaning (% within class)		
	prof	inter	manual	prof	inter	manual
<i>Mostly done by man:</i>						
Portugal	1.2%	0	1.2%	2.6%	6.3%	2.4%
Britain	6.8%	3.1%	2.3%	4.4%	3.9%	4.5%
<i>Shared equally:</i>						
Portugal	11.1%	3.1%	1.2%	17.9%	10.9%	14.5%
Britain	18.9%	19.1%	17.0%	28.3%	34.1%	35.8%
<i>Mostly done by woman:</i>						
Portugal	70.4%	92.3%	91.5%	52.6%	76.6%	78.8%
Britain	72.2%	76.3%	77.8%	58.1%	60.5%	56.8%
<i>Done by other person:</i>						
Portugal	17.3%	4.6%	6.1%	26.9%	6.3%	4.2%
Britain	2.1%	1.5%	2.8%	9.1%	1.6%	2.8%

Portugal were classified as 'domestic and related helpers, cleaners and launderers', representing a total of 12% of all women in paid employment. Only five per cent of British women fell into this category (ILO website, 2005). As we have already seen, many of these manual Portuguese women are also likely to be carrying out extremely long hours of domestic work in their own homes.

In Britain, female professional and managerial employees are also more likely than other occupational classes to have the cleaning done by someone else, although this is still less than 10% of all professionals, compared with almost 30% in Portugal. As in Portugal, men in Britain are generally more likely to help with caring and grocery shopping (not shown here) than laundry, cleaning or cooking, although the difference between tasks is not as acute.

Combined paid work and domestic work hours

Table 5 showed that women in Portugal do more housework than British women — female partnered, full-time working respondents reported an average of 22 hours of domestic work a week, as compared to the 11 hours reported by British women (the number of weekly hours of domestic work reported by partnered, full-time working British and Portuguese men is very similar, at 6.4 and 5.8 hours, respectively). However, the difference between class groupings varies enormously, especially in Portugal, where manual women do an average of 26 hours of domestic work per week. An analysis was then undertaken to examine the total average number of hours per week spent in both paid work and domestic work for similar men and women. This was assessed by individual responses, rather than at the couple level, as there were large discrepancies in the number of hours reported by men and women in the hours of domestic work undertaken by the spouse. Only partnered respondents were

TABLE 9 Mean combined paid and household work hours per week by class and sex (partnered respondents only), individual level data

	Portugal				Britain			
	prof	inter	manual	all	prof	inter	manual	all
	<i>N</i>	46	19	110	174	183	33	133
Men	53.75	50.21	51.19	51.77	54.80	51.00	55.04	54.53
<i>N</i>	32	45	51	128	134	87	20	242
Women	59.54	60.34	68.42	63.35	53.16	49.96	50.00	51.74
Mean difference	-5.79	-10.13	-17.23	-11.58	1.64	1.04	5.05	2.79

included at this stage, as the question relating to number of hours of household work carried out was only asked of married/cohabiting respondents (total numbers have been reduced from table 5, as all respondents had to answer both questions to be included at this stage) (table 9).

On average, partnered male respondents in Portugal do 12 hours a week less than female respondents when individuals' paid work is combined with household work. However, the difference between male and female combined hours is most pronounced in the manual class, with manual women doing over 17 hours a week more than manual men on average ($t = -6.421$; $df = 158$; $p < 0.001$). In an analysis of the 1999 time survey in Portugal, Perista (2004) also showed that working men did on average one and a half hours of unpaid work per day, compared with four hours undertaken by working women.

Full-time male respondents in Britain do over two hours a week on average more than full-time female respondents when individuals' paid work is combined with domestic work. Professional and manual men do more hours than intermediate men, and professional women do more hours of combined work than either intermediate or manual women in Britain. There are no significant differences between men and women when comparing occupational classes, however.

Discussion and conclusions

Our analyses suggest that work-life conflict results from different factors in different countries, and between different individuals within those countries. This is in contrast with previous research which has claimed support for a transportable cross-cultural, rather than a culturally specific or gender-specific, model of work-life conflict (e.g. Hill et al., 2004). Portugal and Britain are rather different in terms of attitudes to gender roles and the emphasis on family life, as well as the domestic division of labour. These two countries offer different contexts within which individuals and families make decisions about their employment and family lives. In aggregate, levels of work-life conflict are very similar in the two countries (7.71 in Britain vs. 7.84 in Portugal). However, our comparative analysis has shown that there are two different groups of women with very high levels of work-life conflict: professional women in

work the longest hours in Europe, and the British government has negotiated a partial exemption from the EU Working Time Directive. Recent legislation has granted parents in Britain the right to *apply* for reduction to part-time employment when children are young, but this right is not guaranteed. In any case, a range of evidence has demonstrated that part-time employment is not compatible with career success. Given the British government's reluctance to interfere in employers' 'right to manage', the prospects for a reduction of working hours in Britain are not particularly favourable, but this does not mean that we should not continue to press for this policy objective.

It should be noted that the measure of work-life conflict used in this research did not include several items used in previous studies of work-family conflict (e.g. Kelloway et al., 1999). However, although brief, the measure did include items similar to those used in recent research in the field (e.g. Tang & Cousins, 2005). While it has been shown in this research that work to family conflict and family to work conflict were highly correlated and the four items were therefore used as a unitary measure of conflict, it has been argued that the two domains have distinctive antecedents. The differential impact of work to family conflict and family to work conflict for British and Portuguese women would lend support to this argument.

Our analyses have demonstrated that, although levels of work-life conflict may be relatively similar across countries, the reasons for these levels of conflict may be very different. These differences, we suggest, are a consequence of cultural and societal norms, structural supports and constraints, individual attitudes towards work and family, individual differences in occupational demands and family demands, as well as occupational status and gender. Instead of applying cross-cultural 'solutions' to the problems of combining work and family life, the very different contexts in which individuals live and work must be considered. Our understanding of these contexts is likely to be enhanced through qualitative, as well as quantitative, research.⁴

Notes

- 1 For a description of the ISSP programme, see Davis and Jowell (1989); also Jowell, Brook, and Dowds (1993). In 2002, interviews were carried out with a stratified random sample of 2,312 in Britain and 1,092 in Portugal. Questions on work-life stress were asked of employees only (1,015 in Britain and 516 in Portugal, unweighted data).
- 2 A comparison including all respondents working over 20 hours per week (both men and women) did not reveal significantly different findings as compared to our 'full-time' comparisons.
- 3 In fact, work-life stress amongst Portuguese part-time women is slightly *higher* than amongst women working full time. However, there are only 38 in the sample and all are routine and manual employees.
- 4 See the ESRC-funded Gender Equality Network (<http://www.genet.ac.uk>).

References

- Bacharach, S. B., Bamberger, P., & Conley, S. (1991). Work-home conflict among nurses and engineers: Mediating the impact of role stress on burnout and satisfaction at work. *Journal of Organizational Behaviour*, 12, 39-53.
- BBC website. (2005). <http://www.bbc.co.uk/parenting/work>
- Chandola, T., Martikainen, P., Bartley, M., Lahelma, E., Marmot, M., & Michikazu, S., et al. (2004). Does conflict between work and home explain the effect of multiple roles on mental health? A comparative study of Finland, Japan and the UK. *International Journal of Epidemiology*, 33(4), 884-893.
- Chiu, R. K., Man, J. S. W., & Thayer, J. (1998). Effects of role conflicts and role satisfactions on stress of three professions in Hong Kong: A path analysis approach. *Journal of Managerial Psychology*, 13(5/6), 318-333.
- Crompton, R., Dennett, J., & Wigfield, A. (2003). *Organisations, careers and caring*. Bristol: Policy Press.
- Crompton, R., & Lyonette, C. (2006). Work-life 'balance' in Europe. *Acta Sociologica*, 49(4), 379-393.
- Davis, J.A. & Jowell, R. (1989). 'Measuring national differences' in R. Jowell, S. Witherspoon & L. Brook (Eds.), *British Social Attitudes: Special International Report*, Aldershot: Gower.
- Department of Trade and Industry. (2005). *Choice for parents, the best start for children*.
- Dex, S., & Smith, C. (2002). *The nature and patterns of family-friendly employment policies in Britain*. York: York Publishing Services.
- Duxbury, L., & Higgins, C. (1994). Interface between work and family: A status report on dual-career and dual-earner mothers and fathers. *Employee Assistance Quarterly*, 9, 55-80.
- Eagle, B. W., Miles, E. W., & Icenogle, M. L. (1997). Interrole conflicts and the permeability of work and family domains: Are there gender differences? *Journal of Vocational Behaviour*, 50, 168-184.
- Franco, A., & Winqvist, K. (2002). Women and men reconciling work and family life. *Statistics in focus*. Eurostat.
- Frone, M. R., Russell, M., & Cooper, M. L. (1992). Antecedents and outcomes of work-family conflict: Testing a model of the work-family interface. *Journal of Applied Psychology*, 77, 65-78.
- Fu, C. K., & Schaffer, M. A. (2001). The tug of work and family: Direct and indirect domain-specific determinants of work-family conflict. *Personnel Review*, 30(5), 502-522.
- Gignac, M. A., Kelloway, E. K., & Gottlieb, B. H. (1996). The impact of caregiving on employment: A mediational model of work-family conflict. *Canadian Journal on Aging*, 15, 525-542.
- Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. *Academy of Management Review*, 10, 76-88.
- Gutek, B. A., Searle, S., & Klepa, L. (1991). Rational versus gender role explanations of work-family conflict. *Journal of Applied Psychology*, 76(4), 560-568.
- Hill, E. J., Chongming Yang, Hawkins, A. J., & Ferris, M. (2004). A cross-cultural test of the work-family interface in 48 countries. *Journal of Marriage and the Family*, 66(5), 1300.
- Hutton, W. (2002). *The world we're in*. London: Little, Brown.

- International Labour Organization. (2005). <http://www.ilo.org>
- Jowell, R., Brook, L. & Dowds, L. (1993). *International social attitudes*. Aldershot: Dartmouth.
- Kelloway, E. K., Gottlieb, B. H., & Barham, L. (1999). The source, nature and direction of work and family conflict: A longitudinal investigation. *Journal of Occupational Health Psychology, 4*(4), 337–346.
- Kinnunen, U., & Mauno, S. (1998). Antecedents and outcomes of work family conflict among employed women and men in Finland. *Human Relations, 51*(2), 157–177.
- Lloyd-Jones, S. (1994). *Corporatism in Spain and Portugal: A comparison*. Lisbon: Contemporary Portuguese Political History Research Centre.
- OECD Policy Brief. (2004). *Economic survey of Portugal*. OECD Observer.
- OECD Report. (2004). *Babies and bosses: Vol. 3. New Zealand, Portugal and Switzerland*.
- Perista, H. (2004). *Occupational segregation, gender equality and the (difficult) combination of paid work and unpaid work — The case of Portugal*. Paper presented at the 25th CEIES Seminar Series, Stockholm.
- Rochling, P. V., Moen, P., & Batt, R. (2003). Spillover. In P. Moen (Ed.), *It's about time: Couples and careers* (pp. 101–121). Ithaca, NY and London: ILR Press.
- Tang, N., & Cousins, C. (2005). Working time, gender and family: An east-west European comparison. *Gender, Work and Organization, 12*(6), 527–550.
- Transitions Context Mapping Report No. 1 (2004). <http://www.workliferesearch.org/transitions/>
- Voydanoff, P. (1988). Work role characteristics, family structure demands, and work/family conflict. *Journal of Marriage and the Family, 50*, 749–761.
- Wall, K. (2005). Family change and family policies: Portugal. In S. Kamberman & A. Kahn (Eds.), *Family change and family policies in Southern Europe*. Oxford: Clarendon Press.
- Wall, K., Aboim, S., Cunha, V., & Vasconcelos, P. (2001). Families and support networks in Portugal: The reproduction of inequality. *Journal of European Social Policy, 11*(3), 213–249.
- White, M., Hill, S., McGovern, P., Mills, C., & Smeaton, D. (2003). High-performance' management practices, working hours and work-life balance. *British Journal of Industrial Relations, 41*(2), 175–195.
- Williams, K. J., & Alliger, G. M. (1994). Role stressors, mood spillover, and perceptions of work-family conflict in employed parents. *Academy of Management Journal, 37*, 837–868.

Clare Lyonette is a research officer in the Department of Sociology at City University, London. She is currently working on the project 'Class, Gender, Employment and Family' with Rosemary Crompton, which is part of the ESRC-funded GeNet research project (<http://www.genet.ac.uk>). Her main research interests are in gender, women's employment and caring responsibilities, and she has also worked on previous cross-national comparative ESRC projects with Professor Crompton. Address: Department of Sociology, City University, Northampton Square, London EC1V 0HB, UK. [email: C.Lyonette@city.ac.uk]

Rosemary Crompton is professor of Sociology at City University, London. Her most recent book is *Employment and the Family*, published by Cambridge University Press in 2006. Other books include *Restructuring Gender Relations and Employment* (OUP, 1999), *Women and Work in Modern Britain* (OUP, 1998) and *Class and Stratification* (Polity,

1998). She is currently Principal Investigator of an ESRC project: 'Class, Gender, Employment and Family' linked to the GeNet Research Network (www.genet.ac.uk).

Karin Wall received her PhD in Sociology from the University of Geneva. She is a Senior Research Fellow at the Institute of Social Sciences of the University of Lisbon and coordinates the research network on Sociology of Families and Intimate Lives at ESA. Her research interests include sociology of the family, gender and family issues, work and family life, family policies in Europe, migrant women and families. She is the author of *Famílias no Campo. Passado e Presente em duas Freguesias do Baixo Minho* (D. Quixote, 1998) a book on family change in Portuguese society; *A Outra Face da Emigração: Estudo da Situação das Mulheres que ficam no País de Origem* (CIDM, 1982); and coordinator and co-author of *Famílias em Portugal* (Imprensa de Ciências Sociais, 2006).