



Centre for Work + Life



The Australian Work and Life Index (AWALI): Concepts, Methodology and Rationale

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The relationship between work and life – a complex interaction

There is increasing interest and awareness in Australia and internationally regarding the challenges of ensuring a healthy relationship between work and life. For example, the OECD referred to these issues in its 1994 *Jobs Study* (OECD 2004), and has increased its attention in recent years, especially around the question of the interaction of work and family. Its publication of comparative country-based studies about policy frameworks to assist the reconciliation of work and family life recognise the importance of these issues in a labour market increasingly drawing on the paid labour of women (OECD 2002, 2003, 2004, 2005). Many other significant research studies now exist (see for example Halpern & Murphy 2005 and Houston 2005 for recent collections on the theme).

This has been a rich area of both quantitative and qualitative research for over 20 years, and is increasingly of interest to governments, employers, trade unions and policy makers. There has been considerable debate regarding the key strategies for governments, organisations and individuals to ensure a sustainable, healthy relationship between work and life with fair outcomes for women and men and for employers and employees.

Governments are increasingly attentive – at least rhetorically - to these issues as a result of their demonstrable impact on social health and labour market outcomes. This is true internationally as well as in Australia where, for example, the Government of South Australia has recently included a healthy work-life balance target as part of its 2007 State Strategic Plan (T2.12 ‘Work-life balance: Improve the quality of life of all South Australians through maintenance of a healthy work-life balance’ (South Australian Government 2007, p 2).

The relationship between work and life is often discussed in terms of work-life ‘balance’ or ‘fit’ between two independent spheres. Here we discuss the relationship between work and life as an interaction between two interconnected spheres that may involve positive or negative spillover. We believe this conceptualisation more accurately captures the nature of the porous boundaries between work and life that is increasingly the reality for today’s worker.

Central to both effective policy and rigorous research are clear concepts about work and life and their interaction, as well as valid measures or indicators of:

- the degree to which individuals, an organisation or industry’s employees, or citizens of a nation as a whole, experience poor or good work-life outcomes, and
- the effects of poor or favourable work-life interactions on individual health and wellbeing, organisational outcomes, and social and health costs and benefits.

In this paper we introduce a new work-life measure, the Australian Work and Life Index (AWALI). AWALI is designed as a tool to inform the community, individuals, employers, unions and governments about the state of work-life interaction and its effects. The Centre for Work + Life plans to collect AWALI data annually, with the assistance of its research partners (including the University of South Australia, the South Australian Government and the Western Australian Work-life Committee in the Department of Health and Lend Lease Communities). The Index is designed to meet the requirements of policy makers and researchers. It is a short, simple and user friendly instrument that is easy to interpret. However, it is also based on careful and thorough consideration of the research literature, and has a sound theoretical foundation.

In the following sections we discuss the conceptual basis and rationale for a national Index of work-life interaction, describe the process of developing the AWALI, the

methodology of its collection, and outline its current and future uses. In particular we focus on the decisions that were made in our attempt to, firstly, achieve the fine balance between the needs and requirements of the research and policy fields and, secondly, the inevitable resource limitations that constrain data collection. This endeavour necessarily required difficult decisions and compromise, the discussion of which we hope will inform users of the AWALI and provide valuable insights for both users and those that may be pursuing similar research goals.

Why does Australia need a national Index of work-life interaction?

The Australian labour market is changing. Women's participation in paid work is increasing, especially amongst women with caring responsibilities. Women now make up 45 per cent of all employed persons and 57.6 per cent of women of working age now participate in the labour market (ABS Cat No 6202.0 March 2007). While many Australian women work part-time (42.4 per cent of the total), especially those with children, they face a complex juggle of work and care. Work-life pressures are especially intense for working women, and for men and women in dual-earner households. Both of these are increasing as a share of all women and all households, respectively. In this sense, work-life tensions in Australia are set to rise, rather than decline.

These pressures affect many outcomes for individuals, households, employers and larger society, including national fertility rates and labour market supply (Jaumotte 2004). For individuals, their personal well-being, the care arrangements for children and other dependents and the quality of relationships are affected (Pocock 2003, 2005). However, work-life effects are not confined to families: they extend to those without children although this group have been little studied in the literature.

Better analysis of work-life interaction is especially of interest in Australia at present in view of changes in the regulation of work. The consequences for the reconciliation of work and family of the 2006 amendments to the *Workplace Relations Act 1996* through *WorkChoices* have been the subject of heated debate. The Government website claims that '*WorkChoices* is the national workplace relations system that provides more choice and flexibility for employees in the workplace. The system offers better ways to balance work and family life and receive greater rewards and incentives' (Department of Employment and Workplace Relations 2007). However, other commentators argue that the greater scope for unfair dismissal, the potential loss of penalty rates for working at unsocial times, the lack of specific provision for workers' say over working time, the loss of meal breaks, and greater employer say over working conditions – amongst other provisions - generally makes these changes family-unfriendly (ACTU 2007).

There is a pressing need for evidence that helps illuminate the nature of work-life interaction amongst Australian employees, to inform such debates and allow the tracking of outcomes and perceptions amongst employees at a time of significant policy change.

Current sources of Australian data on work-life interaction

There are currently two large-scale longitudinal cohort studies of Australians' working and family lives that also collect some information on Australians' work-life interaction: the Household Income and Labour Dynamics in Australia (HILDA) survey (Watson & Wooden 2002) and the Longitudinal Study of Australian Children (LSAC) (Gray & Sanson 2005). Both studies provide valuable insight into Australians' work-life outcomes, especially since they trace participating households and individuals over time. However, the assessment of work-life outcomes in both surveys is exclusively focused on parents with responsibilities for their children's care. It is widely acknowledged that working

parents with caring responsibilities for infants, young children and teenagers are likely to experience some of the most significant work-life challenges. Yet for most people in the workforce an important goal is to achieve a satisfactory relationship between their work and personal lives, whether they have childcare responsibilities or not. Therefore, to focus exclusively on parents overlooks the work-life experiences of a significant proportion of working Australians (eg younger Australians prior to family formation, people who do not have children and older workers who no longer have children but may have elder care responsibilities) (cf Pocock 2005). A central goal for AWALI is to build on and complement the existing HILDA and LSAC data by focusing particularly and in depth on the work-life experiences of all working Australians, and to do so on an annual basis by examining a cross section of Australians each year.

Social and economic costs of poor work-life outcomes

There is good evidence that negative spillover from work to life can have significant economic and social consequences. Here we highlight some recent international and Australian research in this area.

The 2002 OECD report which focused on work-family reconciliation in Australia, Denmark and the Netherlands noted that a good work-family balance results in families better able to stand the stresses of modern life, better child development outcomes, less public expenditure and higher fertility (or at least enabling families to have their desired number of children) (OECD 2002).

International studies show that poor work-life outcomes are associated with significant health costs that occur across the labour market. In 2001, Canadian researchers estimated that the health costs in Canada of high work-life conflict, attributable to high role overload alone, amounted to over C\$6 billion. A further cost of C\$5 billion could be traced to high care-giver strain, \$C2.8 billion to high work-family spillover and \$C5 billion to family-work spillover (Duxbury & Higgins 2004).

Recent research using data from the Canadian National Longitudinal Survey of Children and Youth, found that children whose parents who work non-standard hours (evenings, nights or on weekends) were significantly more likely to have emotional and behavioural problems compared to children of parents working standard weekday schedules (Strazdins et al. 2004). Data from the same survey also indicates that dual-earner parents working non-standard work hours were more likely to report depressive symptoms, worse family functioning and less effective parenting (Strazdins et al. 2006). US research using the National Survey of Families and Households has found that non-standard work schedules put workers at significantly increased risk of marital breakdown (Presser 2000). Presser concludes of her US studies that while there are sometimes positive effects that arise from working non-standard schedules, negative effects – especially upon marital quality and instability - are generally stronger (Presser 2003, p 216). These especially affect disadvantaged households and workers, given that they are more likely to work non-standard hours.

Consistent with this international research, an Australian study on policewomen found that burnout (emotional exhaustion) was associated with increased family conflict and decreased family cohesion. Lack of supervisory support and role overload were key factors impacting on policewomen's levels of burnout (Thompson, Kirk & Brown 2005).

Systematic reviews and meta-analyses of research studies have also supported this link between negative spillover between work and life and a range of negative consequences for individuals, employers, and the wider community including:

- Burnout (emotional exhaustion) (Kossek & Ozeki 1999; Allen et al. 2000)
- Compromised mental health (eg stress, depression) and physical health (Allen et al. 2000)
- Higher turnover intentions amongst employees (Kossek & Ozeki 1999; Allen et al. 2000)
- Higher public health costs (Duxbury & Higgins 2004)
- Reduced employee performance (Kossek & Ozeki 1999)
- Reduced job, life and marital satisfaction (Allen et al. 2000).

Existing international literature suggests that work-life issues are highly gendered in their effects (Halpern & Murphy 2005, p 6). Given women's greater responsibility for all forms of unpaid care, it is not surprising that women are affected differently from men when they undertake paid work. This makes a gendered analysis of work-life issues of particular importance, with a focus on the experience of women, their specific circumstances, and policy measures that address equity for women.

It is also the case that different groups of workers are affected by work-life tensions in different ways: these vary by occupation, industry and income. This makes analysis of work-life issues in relation to class – as well as gender and various other individual, household and work characteristics - an important aspect of indices such as AWALI.

Antecedents of poor work-life outcomes

There is a large research literature (including both peer-reviewed and 'grey' unpublished reports) that examines the causes of poor work-life outcomes. A systematic review of this research is beyond the scope of this paper. Instead we highlight some recent Australian research, and summarise findings from select systematic reviews and meta-analyses. An important observation to be made from this literature is that the majority of factors linked to poor work-life outcomes are amenable to change via policy and other interventions at government and organisational levels. Indices such as the AWALI are central to the identification of the key factors that affect work life outcomes, and hence the most effective social and policy levers for improving work-life outcomes for all working Australians.

Australian research

How Australian men and women experience the relationship between work and life has been explored in a small number of studies. Here we highlight a selection of recent quantitative and qualitative studies from the published literature (2002 to present).

Using data from the LSAC study, Alexander and Baxter (2005) found that parents' work-family conflict increased with a range of work and family factors including: longer working hours, the desire to work more hours (fathers only) or fewer hours, weekend work, evening or nightshift work (fathers only), casual work (fathers only; casual work

reduced conflict for mothers¹), inflexible working hours, low work autonomy, more highly skilled jobs (eg professionals, managers), child(ren) aged 4-5 years old, the number of children, less parental support from partner, lower relationship quality, lower confidence in parenting skills, and doing less than one's fair share of domestic work (fathers only).

Similar findings are reported in other recent Australian studies, the majority of which have focused on the effects of work-related stressors on work-life fit. A large-scale study of workers in Queensland conducted by Allan et al. (2005) found that work-life conflict increased with higher work pressure, long working hours, a lack of management support, and a lack of control over workload and work scheduling.

The impact of working hours and work scheduling has also been highlighted in three other Australian studies. Using HILDA data Gray et al. (2004) found that fathers working more than 40 hours reported the strongest negative impact of work on their families. It should be noted, however, that Gray et al. did not find any significant difference on 10 other measures of well-being between fathers working 35-40 hours and those working longer hours. Further, dissatisfaction with working hours (regardless of the number of hours worked), was also a significant predictor of work-family strain and well-being. In a study of male and female engineers in the construction industry Lingard and Sublet (2002) found that the number of hours worked per week and role conflict (incompatible job demands) were associated with increased marital conflict. A more recent study of male construction industry professionals found that burnout (emotional exhaustion) was associated with work-family conflict, which in turn was predicted by job schedule irregularity and longer working hours (Lingard & Francis 2005).

Looking more broadly at the organisation as a whole, a study of Australian psychologists found that perceptions of an organisational climate supportive of work-life balance were associated with reduced feelings of job-related stress (Burke, Oberklaid & Burgess 2005).

There has also been some Australian research on the work-family pressures that individuals in dual-career relationships (ie where both partners are actively pursuing a career) may experience. In a study of law and accountancy professionals in dual-career relationships, Elloy and Smith (2004) found that work role ambiguity (uncertainty regarding roles and responsibilities at work) and work role overload was associated with increased perceptions of work-family conflict. These participants in dual-career relationships also reported higher levels of stress, role overload, role ambiguity, role conflict, and family conflict compared to their colleagues in single-career relationships (Elloy & Smith 2003). Dual-career participants did not, however, report statistically significant higher levels of work-family conflict, although the direction of the relationship indicated higher levels of conflict.

There have also been some small qualitative studies of work-life outcomes; see for example, (Pocock et al. 2001; Pocock 2006). However, they remain relatively small in scope and number.

As this brief overview demonstrates, there is limited research on the dynamics of the work-life interaction as experienced by Australians, with the majority of existing research focused on professional 'white collar' workers and much of it focussed upon work-family rather than more broad work-life interactions. AWALI is designed to help fill this gap in Australian data by providing a reliable annual, national measure of the nature and extent

¹ The authors note that this effect may be due to the different types of casual work that are typical for men and women. Women's casual work tends to involve professional or clerical work with fixed part-time hours, whereas men's casual work tends to involve full-time hours in labouring, production and trade positions that do not tend to be "family friendly" (Alexander & Baxter, 2005, p. 22).

of work-life interaction, and specifically the general and time-related interference of work-to-life and life-to-work, for working Australians across socio-demographic and household types, along with data on key predictors and outcomes.

Reviews and meta-analyses on the antecedents of work-life outcomes

A number of systematic reviews and meta-analyses have been conducted on the causes and consequences of positive and negative spillover from work to life. By examining work-life issues across industries, occupations, and countries, these studies provide valuable insight into the dynamics of work-life interaction that are likely to apply, to some extent, to most individuals.

A consistent finding across these reviews has been that health work-life outcomes are associated with:

- Reasonable work loads (ie work role overload is associated with higher conflict) (Byron 2005; Eby et al. 2005)
- Work schedule flexibility (Byron 2005; Eby et al. 2005)
- Fewer hours worked (ie avoiding long or very long work hours) (Byron 2005; Eby et al. 2005)
- The absence of high pressure and conflict at work (Eby et al. 2005)
- A 'family friendly' workplace culture supportive of flexible working arrangements and other conditions to facilitate a good relationship between work and life (Eby et al. 2005; Mesmer-Magnus & Viswesvaran 2006).

Conclusion

As this brief overview of Australian and international research has shown, work-life interaction is a multi-dimensional concept that is influenced by a range of factors in the family, life and work spheres. It also has significant implications for the health and well-being of individuals, their families, organisations, and the wider community. The structure and content of AWALI is informed by this research literature.

Conceptualising work-life interaction

Our understanding of the interaction between work and life has become increasingly sophisticated over the course of the past 20 years of research. However, the discussion is marked by some significant conceptual confusions. We deal with several of these in turn:

- Firstly, how are the terms 'work' and 'life' defined and what is their relationship with 'work and family': how are work-life issues different from work-family issues?
- Secondly, are work-life issues mostly about time or about more than this? And if they are about time, is this best conceived of as a zero-sum game between the time available to work and the time available to live outside work?
- Thirdly, are 'work' and 'life' best thought of as dichotomies or interactive categories - and how porous are the boundaries between these categories? In other words, is it more useful to talk of 'interaction', 'interference', 'balance' or 'fit'? These terms are sometimes used interchangeably with little definition: do they all mean the same thing? This is important to understanding the direction and nature of flows between different spheres.

- Finally, on the question of the direction and nature of flows: are work-to-life, or life-to-work interactions of equal interest, and can they both operate as positive and negative effects?

Defining work and life: For the purposes of AWALI we define ‘work’ as paid work. We define ‘life’ as the activities outside paid work including activities in the household and with friends, family and community, care activities including self-care and care of others, and community, sporting and other unpaid, voluntary activities. In this way, our definition of ‘life’ subsumes ‘family’ issues. While there are important policy reasons for specifically focussing upon the effects of changes at work on family life (and vice versa), especially the well-being of children and of working parents, there are also good reasons for applying a wider lens. Our qualitative research suggests that many young people without children are dealing with increasingly porous boundaries around their paid work, with implications for their progress towards family formation (Williams & Pocock 2006). Similarly, sole-adult households sometimes face important work-life issues that affect their well-being, community participation and labour market outcomes. What is more, most Australians will face work-life issues, including the combination of work and family care, that change over the life-cycle. Thus, work-life issues have relevance for groups who are not in traditional nuclear family households and for these reasons AWALI takes a life-cycle approach and measures work-life outcomes for a cross-section of all workers, regardless of their household type, family situation or care responsibilities.

Work-life interaction is about more than time: In relation to work-life issues and the question of time, we do not agree with the view that these issues are mostly about *time* and thus particularly centre around the ‘fit’ between the hours of work and the hours available for other life activities (see for example Ungerson & Yeandle 2005 who make this argument). This is certainly an important aspect of work and life, but it does not capture the full interaction. Work-life issues are broader and deeper than work consuming more of our time (although growth in the average length of the working week for full-time Australians over the past twenty years certainly makes this important). Some aspects of work have effects beyond working hours: for example, demanding jobs can affect health and mental and emotional well-being. Indeed it is this kind of spillover from the nature of parents’ jobs that many children notice (see for example, Galinsky 2000 and Pocock 2006). Children in Galinsky’s US study were often very alert to ‘the level of stress and exhaustion that parents bring home from work’ – effects that are created not only by the hours of work but also its conditions (Galinsky 2005, p 229). In this light, for the purposes of AWALI we do not focus only upon *time* aspects of work-life interaction, but upon *both time and other general forms of interference*. While AWALI measures the overall time burden on workers (through paid work, commuting, unpaid care and voluntary work), it also includes a measure of general interference with individuals’ capacity to effectively engage in responsibilities and activities in each sphere of work and life.

Interaction not fit, porous not separate spheres: Further we do not view work and life as dichotomies but as interactive spheres, with spillover between them. In our view, the boundaries between work and life are not closed but porous. This porosity is at once *spatial* (with work increasingly undertaken in the home), *temporal* (with work and care sometimes undertaken at the same time), and *interactive* with the effects of the one sphere affecting the other. In fact, the boundaries are often complex and messy and rarely tightly sealed. For these reasons, we prefer the word ‘interaction’ over that of ‘fit’ (given the latter’s implication that the two spheres of life sit alongside each other). We agree with Halpern and Murphy when they reject the balance, juggling and separate spheres metaphors and point to the positive (as well as negative) and interactive nature of work and life:

Work and family are not a zero-sum game. Although there are reasonable limits to all activities, there are many benefits that accrue to people who both work and have families and other out-of-work life activities. It is time to change the metaphor (Halpern & Murphy 2005, p 3).

At a conceptual level we find the word ‘balance’ unhelpful, given its implication that at the centre of such balance exists a clever or lucky individual who manages to keep things ‘in balance’. This appears to deny the complex range of actors and forces at work in constructing work-life outcomes.

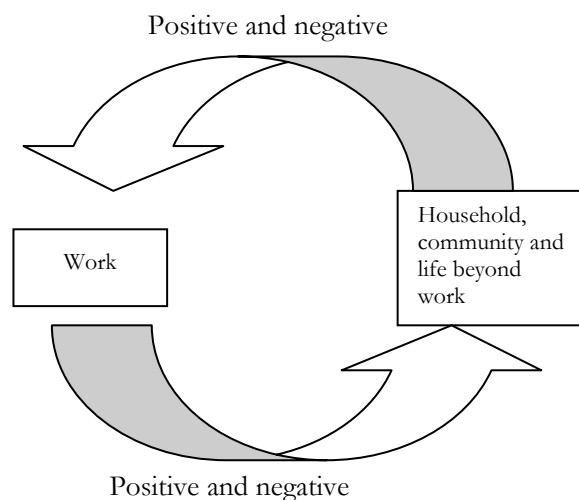
A bi-directional, positive and negative interaction: Much work-to-life interaction has been shown to have predictable negative effects. At the same time, it is evident that work brings satisfaction, pleasure and skill to many workers, enriching the larger lives of even those who often feel pressed for time or find it a challenge to juggle a job with care responsibilities.

In this way, the two-way interaction of work and non-work activities can have positive as well as negative outcomes (see Figure 1). There are overflows of positive and negative kinds from work to life, and in the reverse direction, from life to work. Thus it is now widely accepted that work-life interaction is a multi-dimensional concept that involves (Edwards & Rothbard 2000; Greenhaus & Powell 2006):

- A bi-directional influence between work and life (ie work influences life experiences, and life influences work experiences)
- Both positive (facilitative) and negative (conflict) effects
- Both time and emotional/psychological (ie feeling stressed, fatigued, tense, depressed etc) dimensions of strain.

Not all assessments of work-life address each of these dimensions. Many studies, for example, restrict their focus to conflict or negative spillover from work to family life (Eby et al. 2005).

Figure 1 Two-way flows of positive and negative interaction between work and life



Diverse methodological perspectives on work-life interaction

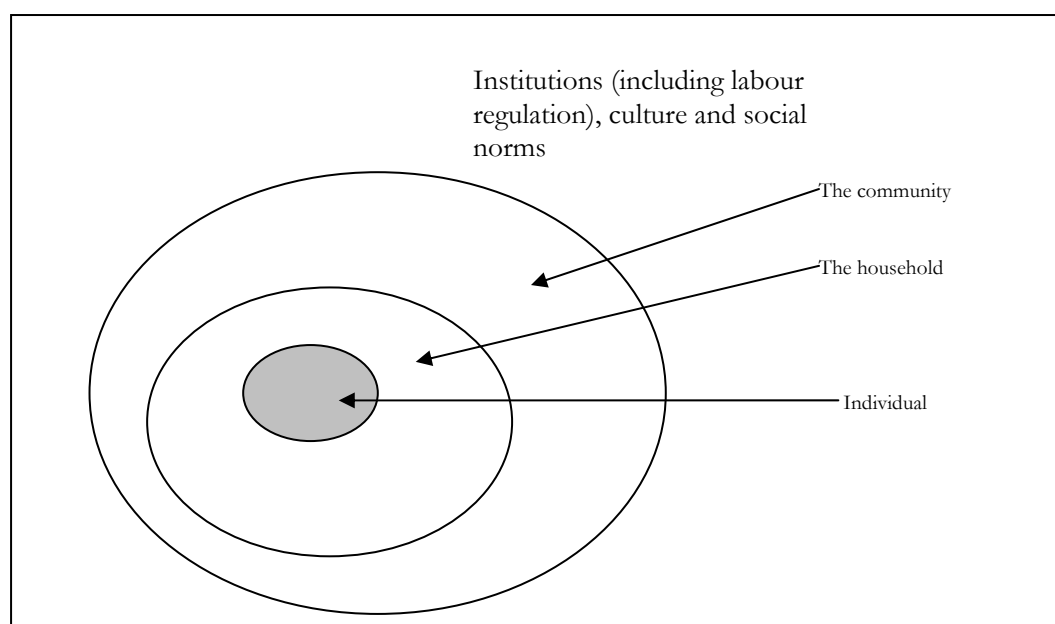
Alongside some conceptual debates, research about work and life has also been marked by some important disciplinary differences which complicate the academic conversation – and measurement – of work-life outcomes. ‘Economics, sociology, social policy, psychology, industrial relations and human resource management’ are just some of the perspectives that have been applied to the study of work and life in the UK (Houston 2005, p 3) and a similar array are at work in the US. Bringing a psychologist, economist and political scientist together to contrast their methodological approaches, Halpern et al (2005, p 11) argue that each has contributions to make and that none can claim to offer total illumination. At the risk of serious over-generalisation, psychologists tend to focus upon measurement and testing theoretical models, favouring quantitative methods, and their work often focuses upon the individual; economists often concentrate upon financial effects applying quantitative methods; while political scientists and sociologists usually offer more macro level social and political analysis and are less averse to qualitative methods (see for example Halpern, Drago & Boyle 2005 in Halpern & Murphy 2005, p 11-23).

In our conception, work-life outcomes are shaped by a wide range of factors. These include personal characteristics and preferences (the latter are not autonomously determined but in themselves shaped by gendered social norms) and workplace characteristics (including the formal and informal work/effort bargain, the nature of workplace policies and – more importantly – the extent of their implementation, the nature of local supervision and management approaches). Beyond this, the larger social and industrial context, including the nature of industrial regulation, the availability of public care and other social supports, and dominant gender cultures also have important effects (see Pfau-Effinger 1998 and Pocock 2003, p 15-48 for discussions of the important role of culture and institutions in shaping work and life outcomes).

AWALI is set within this larger context. It offers a quantitative measurement of the perceptions and experience of individuals, recognising that a range of demographic, household, socio-economic, work, cultural and institutional factors affect outcomes for individuals (see Figure 2). Given the importance of differences in experience and location of women and of disadvantaged workers, it is important to disaggregate analysis by gender and socio-economic factors like household income.

We also see great value in the collection and analysis of qualitative evidence about experiences underpinning, and associated with, quantitative measures like AWALI. The Centre for Work + Life has a range of parallel qualitative projects investigating work-life issues to contribute insights about explanations of work-life outcomes in different circumstances.

Figure 2 The larger social context of the individual and their work-life outcomes



Conceptualising the Australian Work and Life Index (AWALI)

Despite significant changes in the nature of the Australian labour market, work-life interaction effects (positive and negative, and bidirectional from work-to-life and life-to-work) have been subject to relatively limited study, and they have not generally included the whole of the working population, focusing more narrowly on work and family issues. AWALI is designed to help address these gaps.

As described in further detail below, the AWALI is a bi-directional measure of work-life interaction that is focused on the negative spillover that flows between these two spheres. While positive interactions are also likely, constraints on data collection mean that we focus on the issue with greatest policy interest. AWALI measures both the time (restrictions on time available to spend on work or non-work pursuits) and general interference dimensions of this relationship (ie on the extent to which one's work interferes with one's capacity to perform activities and responsibilities in one's personal life, and vice versa). We also include broad measures of emotional/psychological strain (stress and satisfaction with personal relationships), but do not include specific measures of the extent to which work or family factors are perceived to create emotional or psychological distress. The decision to restrict the focus of the AWALI in this way is a good example of the difficult decisions and compromises that are required to produce a short and user-friendly Index of utility for a range of stakeholder groups.

Our reasoning is as follows:

- (1) On balance, it is more important to have an accurate measure of the degree of conflict or problems with work-life interaction (ie negative spillover), rather than a measure of positive spillover between these two spheres. The impact and significance of conflict for the health and wellbeing of individuals and their families is likely to be greater than positive spillover effects;
- (2) Time and general interference are likely to be the most common or problematic types of strain, and are likely to contribute to emotional or psychological strain. In other words, there is a basic requirement for people to be physically present at

their workplace (or their workstation at home) for a certain amount of time which necessarily restricts the time available for other activities. There is also evidence in the literature of strain arising from other aspects of work beyond time restrictions such as emotionally demanding work (cf Galinsky 2000; Pocock 2005).

Structure and content of the draft AWALI

The goal for AWALI was to develop a short instrument that would provide a valid and useful 'snapshot' of respondents' work-life interaction and some of its major influences and consequences. As the previous overview of the research literature demonstrates, there are a myriad of antecedents and outcomes that can be linked to work-life outcomes. The content of AWALI was informed by two key considerations

- (a) What factors are most amenable to change by government or organisational policy?
- (b) What are the areas of greatest agreement in the research literature regarding antecedents and consequences of work-life interaction?

Thus AWALI was designed to answer the following questions:

- At a general workforce level, how do Australians currently experience the interaction between work and their larger lives, and how does this experience differ by demographic characteristics, gender, conditions of work and role demands?
- How are perceptions of work-life interaction associated with individuals' quality of life in regards to their health, family and social activities?

The measure of work-life interaction in the first draft of the AWALI was based on a scale developed by Gutek, Searle and Klepa (1991) to assess work-family and family-work interference. Gutek et al reported satisfactory internal consistency for each subscale, and a moderate positive correlation (.26) between the subscales, which indicated the assessment of two related but independent types of conflict. Gutek et al. found significant relationships between hours worked and both subscales in two separate samples, which is consistent with the emphasis in the broader research literature regarding the impact of working hours on work-life interaction.

As shown in Table 1 the first draft of the AWALI contained 52 questions organised into 10 categories addressing respondent and household demographics, working conditions, lifestyle, health and relationships. Items in categories A and B were standard questions used in the Newspoll omnibus survey to which the draft AWALI questions were attached for pilot testing. The pilot test is described in the next section.

Table 1 Structure and content of the draft AWALI

<i>CATEGORY</i>	<i>ITEMS</i>
(A) Respondent demographics	A1 Gender A2 Age A3 Highest level of education A4 Marital status A5 Socioeconomic status
(B) Household demographics	B1 Number of adults B2 Number of children B3 Age groups of adults B4 Age groups of children B5 Household income
(C) Employment demographics	C1 Work status (full/part time) C2 Occupation C3 Industry C4 Work sector (public/private) C5 Number of employees in organisation C6 Type of employment contract (permanent, fixed term, casual etc) C7 Type of workplace agreement (ie collective agreement, award etc) C8 Union membership
(D) Working conditions	D1 Hours travelling to work D2 Hours self work D3 Hours partner work D4 Hours would choose to work (self) D5 Work schedule flexibility D6 Job security D7 Job demands (work overload) D8 Work autonomy
(E) Employment entitlements	E1 Paid leave (holiday, sick, family, maternity/paternity/parental)
(F) Unpaid work demands	F1 Hours unpaid domestic work F2 Hours unpaid childcare F3 Hours unpaid dependent care (eg elderly)
(G) Lifestyle	G1 Hours social/sporting activities G2 Hours voluntary work G3 Perceived capacity to do as much care & community work as would like G4 After work too tired to do things would like to do
(H) Work-life interaction	H1 Family & friends dislike how often preoccupied with work H2 Demands of personal life take away from work H3 Superiors & peers dislike preoccupied with personal life at work H4 Work life has positive affect on personal life H5 Work interferes with involvement in local community H6 Work interferes with connections in local community H7 Feel rushed for time H8 Extent of satisfaction with balance between work and rest of life
(I) Health	I1 Rating of own health in general I2 Rating of own emotional health in general I3 Number of times visited a health professional in past 3 months I4 Number of times purchased prescription medication in past 3 mths I5 Number of times purchased non-prescription medication in past 3 mths
(J) Relationship quality	J1 Satisfaction with quality of interactions with partner J2 Satisfaction with quality of interactions with children J3 Satisfaction with quality of interactions with work supervisor J4 Satisfaction with quality of interactions with family/friends J5 Level of conflict in family over past 3 months

Note. Hour measurements per week. Exact item wording and source available from authors on request.

One of the main goals of pilot testing was to inform decisions regarding the removal of items/categories to produce the desired short user-friendly Index. In this respect, the first draft of AWALI involved a deliberate over-sampling of potential items to better inform decision-making on the development of a final concise Index.

Pilot testing

The AWALI underwent preliminary pilot testing in December 2006 as part of a larger Newspoll CATI survey. The Newspoll survey is a regularly conducted omnibus stratified random sample of Australian households, with random selection of respondents over the age of 18 within each household. Within this broader Newspoll survey, South Australian residents were selected to participate in the pilot study.

CATI surveys have many advantages including faster data collection, increased quality controls (ie interviewer controls and clarifications) and hence higher quality data, and the capacity to gather data from respondents regardless of their reading and writing abilities. In addition, the Newspoll survey incorporates a system of callbacks and appointments to facilitate a higher response rate and gain data from individuals who do not spend a great deal of time at home. Disadvantages of CATI include the possibility of some degree of sample bias as households without telephones are not included in the study, and the necessity of avoiding long or complex questions. Time and cost limitations, however, mean that CATI interviews are the most appropriate method of data collection for the Index on an annual ongoing basis.

The main goals of the pilot testing were to check clarity and correct comprehension of questions, the adequacy of response categories, and to identify poorly performing items (ie low or no correlation with expected variables) that could be removed with minimal impact on the validity or utility of the Index.

Pilot participants (n = 53) were South Australian residents in full-time (72%) or part-time (28%) work. Participants consisted of 33 men (62%) and 20 women (38%) over the age of 18 (11% aged 18-29; 53% aged 30-39; 34% aged 50-64; 2% aged 65+). The majority of participants (32%) had two or more children in the household, were living with a partner in a married (51%) or defacto (13%) relationship, with an annual household income of \$60 000 or more (68.5%). Participants worked in a range of occupations, the top five were professionals (21%), clerical and personal service workers (19%), technicians and trades workers (15%), labourers (15%) and managers (11%). The top five industries within which participants worked were health care and social assistance (23%), administrative and support services (11%), retail trade (7.5%), manufacturing (7.5%), and education and training (7.5%). On average, the first draft of the AWALI took 10-15 minutes to administer per participant.

One of the main priorities driving the development of the Index was to produce a short user-friendly instrument that could provide a useful 'snapshot' of work-life interaction and related antecedents and consequences. Therefore, correlations between items were examined to identify any potentially redundant items (ie those with low or no correlations with other items as expected, or high correlations between similarly worded items). A feedback session was also held with four interviewers regarding their views on the ease of survey administration and clarity of questions. Small changes to question wording (eg reducing length, modifying wording to increase clarity) were made based on this feedback. An overview of the items removed and the decision justification is provided in Table 2.

It is acknowledged that the sample size for the pilot test was modest. However, it was felt to be sufficient for an indication of the likely strength of relationship between items (correlation) and the possibility of problems with range restriction (ie ceiling or floor effects) on specific items. Decisions made to remove or retain items were informed by the pilot test results, combined with consideration of established research findings and the goals and expected applications of AWALI.

Table 2 Items removed from the draft AWALI and decision justification

<i>CATEGORY</i>	<i>ITEMS</i>	<i>JUSTIFICATION</i>
(C) Employment demographics	C4 Work sector (public/private) C5 Number of employees in organisation C7 Type of workplace agreement	<ul style="list-style-type: none"> • Not central to Index • Removed to reduce length • Significant number of respondents were unsure of their type of workplace agreement. An important variable but difficult to collect with confidence in an environment of industrial law change.
(E) Employment entitlements	E1 Paid leave	<ul style="list-style-type: none"> • Not central to Index • Better ABS sources exist • Removed to reduce length
(G) Lifestyle	G1 Hours social/sporting activities G3 Perceived capacity to do as much care & community work as would like G4 After work too tired to do things would like to do	<p>Item G1 (social/sport activities)</p> <ul style="list-style-type: none"> • Not central to Index • Removed to reduce length <p>Item G3 (community work)</p> <ul style="list-style-type: none"> • Highly correlated with other items that had similar wording, indicates item likely to be redundant (ie multi-collinearity) <p>Item G4 (tiredness)</p> <ul style="list-style-type: none"> • Item redundant after re-wording of work-life interaction questions
(H) Work-life interaction	H5 Work interferes with involvement in local community	<ul style="list-style-type: none"> • Highly correlated with similar item (H6) • Removed to reduce length
(I) Health	I2 Rating of own emotional health in general I5 Purchase non-prescription medication	<p>Item I2 (emotional health)</p> <ul style="list-style-type: none"> • Low correlation with other items • General health measures considered sufficient • Removed to reduce length <p>Item I5 (medication)</p> <ul style="list-style-type: none"> • Not central to Index • Removed to reduce length

A number of items were also reworded to either reduce the Index length, or to more accurately reflect the underlying construct. These decisions are summarised in Table 3 below.

Table 3 Items reworded in the draft AWALI

<i>CATEGORY</i>	<i>ITEM</i>	<i>JUSTIFICATION</i>
(D) Working conditions	D5 Work schedule flexibility D6 Job security D7 Job demands (work overload) D8 Work autonomy	<ul style="list-style-type: none"> • Schedule flexibility & autonomy questions did not correlate with most other items • Previous research indicates these are important predictive factors of work-life interaction • Items re-worded to be consistent with well established measures • Feedback from interviewers indicated that many respondents found the question on work autonomy too vague. Single question replaced with two specific items on time and task control at work. • Job security and job demands questions also reworded to be consistent with well established measures
(F) Unpaid work demands	F3 Hours unpaid dependent care	<ul style="list-style-type: none"> • Combined with item on hours of unpaid child care to reduce length
(H) Work-life interaction	H1 Family & friends dislike how often preoccupied with work H2 Demands of personal life take away from work H3 Superiors & peers dislike how often preoccupied with personal life at work H4 Work life has positive affect on personal life	<ul style="list-style-type: none"> • Examination of range of responses indicated potential problems with floor effects on many items (eg over 60% of respondents chose the strongly disagree response option on some items) • Alternative scale chosen that had been successfully used in previous research with no indication of range restriction problems
(J) Relationship quality	J1 Satisfaction with quality of interactions with partner J2 Satisfaction with quality of interactions with children J3 Satisfaction with quality of interactions with work supervisor J4 Satisfaction with quality of interactions with family/friends J5 Level of conflict in family over past 3 months	<ul style="list-style-type: none"> • Low or no correlations with other items (J6, J7, J10) • Feedback from interviewers indicated that some respondents found these questions too personal and intrusive • All items removed and replaced single measures of satisfaction with closest relationships

The final version of AWALI

The final version of AWALI consists of 29 questions organised into seven categories (see Table 4 below). As mentioned previously, the 10 items in categories A and B are standard demographic items in the larger Newspoll Omnibus survey to which the AWALI questions are attached. The full version of the AWALI is available from the Centre for Work + Life.

Table 4 Overview of the final AWALI items by category

CATEGORY	ITEMS
(A) Respondent demographics	A1 Gender A2 Age A3 Highest level of education (2 questions) A4 Marital status A5 Geographic location
(B) Household demographics	B1 Number of adults B2 Number of children B3 Age groups of adults B4 Age groups of children B5 Household income
(C) Employment demographics	C1 Work status (full/part time) C2 Occupation C3 Industry C4 Type of employment contract (permanent, fixed term, casual etc) C5 Union membership
(D) Working conditions	D1 Hours travelling to work D2 Hours self work D3 Hours partner work D4 Hours would choose to work (self) D5 Work autonomy (when do work) D6 Job security D7 Work autonomy (how do work) D8 Work overload D9 Work schedule flexibility D10 Job satisfaction
(F) Unpaid work demands	F1 Hours unpaid domestic work F2 Hours unpaid care to family members or others
(G) Voluntary work	G1 Hours voluntary work
(H) Work-life interaction	H1 Work interferes with responsibilities or activities outside of work H2 Work restricts time with family or friends H3 Personal life interferes with responsibilities or activities at work H4 Personal life restricts time on work responsibilities or activities H5 Work interferes with connections and friendships in local community H6 Extent of satisfaction with balance between work and rest of life H7 Feel rushed for time
(I) Health	I1 Rating of own health in general I2 Number of times visited a health professional in past 3 months I3 Number of times purchased prescription medication in past 3 months
(J) Relationship quality	J1 Satisfaction with quality of closest relationships
(K) Stress	K1 Stress in daily life

The majority of the attitudinal questions (ie D5-D10; H1-H7; I1, J1) were taken directly, or adapted, from well-established measures. Here we provide a brief discussion of these items including their sources and the justification for modifications or wording changes.

Measures of working conditions: autonomy, security, role overload, flexibility and satisfaction

The two items assessing perceptions of work autonomy (D5, D7) were sourced from the Household Income and Labour Dynamics in Australia (HILDA) survey (Watson & Wooden 2002). The job security item (D6) was sourced from the HILDA survey (Watson & Wooden 2002). The work overload question (D8) was a modified version (Cordes, Dougherty & Blum 1997) of an item originally sourced from Dougherty and Pritchard's (1985) role overload measures. The work schedule flexibility item (D9) was sourced from the UK government's HSE Management Standards Indicator Tool (Cousins et al. 2004). This item is also used in the HILDA survey. The job satisfaction item (D10) was sourced from deJonge et al (2001). It has been well established that single item measures of job satisfaction can provide valid and reliable assessment of this construct (Wanous, Reichers & Hudy 1997). A 4-point response scale was used for all items, ranging from 1 (strongly disagree) to 4 (strongly agree).

Measure of work-life interaction

As the original measure of work-life interaction used in the draft AWALI was not satisfactory, an alternative measure was developed. The first four items (H1-H4) of the revised work-life interaction scale were sourced and adapted from a measure developed by Frone et al. (1992). Two minor adaptations were made to the item wording to ensure the instrument is applicable to married/partnered and single respondents: 'family life' was changed to 'personal life', and 'family' was changed to 'family and friends'. Frone et al (1992) have demonstrated the internal consistency, factor structure, and construct validity (association with job stressors, family stressors, and depression) of this scale. Items H5 and H6 were developed by the project team. Item H5 addressed the impact of work demands on respondents' social networks and relations within their local community (ie social capital). With the exception of work by Voydanoff (2004; 2005), very few studies have examined the impact of work-life interaction on individuals' quality of life outside of their immediate family. The project team aimed to test the suggestion arising from qualitative research that poor work-life interaction (ie negative spillover) negatively affects social activity beyond the household, and item H5 was specifically designed to investigate this possible effect. Item H6 was developed by the project team as an overall measure of respondents' perception of their work-life interaction, similar to the global job satisfaction measure. Although we have previously argued against the usefulness of the concept of 'balance', Item H6 is framed in terms of work-life 'balance' as this terminology features prominently in public media and policy discussions and debates and hence is likely to be most familiar to Australian workers. Item H7 on time pressure was sourced from the Australian Time Use Survey conducted by the Australian Bureau of Statistics (ABS). This item is also used in the HILDA survey and the Longitudinal Study of Australian Children (Australian Institute of Family Studies). A 5-point frequency response scale was used for all items, ranging from 1 (never) to 5 (almost always). As time (or lack of it) is a key dimension of work-life interaction, it was anticipated that, compared to an agreement-based response format (ie disagree-agree), a time-based frequency response scale would be a more sensitive measure of work-life interaction that would to some extent quantify the amount or degree of negative spillover.

Measures of health and relationship quality

The self-report measure of health (I7) was sourced from the SF-12 (Ware, Kosinski & Keller 1996). There is evidence for the construct validity of single item self-report health measures (ie moderate correlation with multi-item self report health measures) (Cunney & Perri 1991; Kempen 1992), including the single-item SF-12 question used in AWALI (DeSalvo et al. 2006). The measure of overall satisfaction with the quality of closest relationships (J1) was developed by the project team. The single-item measure of stress in daily life was based on Littman et al. (2006).

Current and future uses of AWALI

AWALI was designed primarily as a national work-life Index for Australia. This measure will reflect the current work-life interaction of Australians by means of an annual cross-sectional national survey. The first round of data collection was conducted in March 2007 over two weekends, as part of a larger Newspoll CATI survey. As described above, the Newspoll survey is a national random stratified sample of Australian households, with random selection of respondents over the age of 18 within each household.

Respondents working full or part-time are randomly selected to respond to the Index questions which are part of the larger Newspoll survey.

An AWALI annual report: A cross-sectional assessment of work-life Interaction in Australia

The annual release of the Index will be marked by a report which analyses the Index and its component parts, and outcomes by occupation, state, gender, age, income and so on. Future work on the Index will include psychometric testing and evaluation (eg test-retest reliability, construct validity). AWALI is also being utilised in other research projects conducted by the Centre for Work + Life.

The Work, Home and Community Study

The ARC Linkage ‘Work, Housing, Services and Community Project’ is a national study exploring how men, women and children think about issues related to work, home and community. Its partners include Lend Lease Communities and the Innovation and Economic Opportunities Group (IEOG, based at Mawson Lakes). In particular, it analyses how changes at work and in households are reconfiguring relationships between work, home, services and community in ten sites across four states. AWALI forms part of a larger survey component of this project, and will enable comparisons between work-life interaction reported by participants at the ten study sites and Australian workers in general. This study will also provide additional opportunities for psychometric evaluation of the AWALI.

Work-life Balance, Well-Being and Health: Theory, Practice and Policy

This ARC linkage application in partnership with the South Australian Government and the Western Australian Work-life Committee in the Department of Health will, if funded, undertake qualitative and quantitative analysis of work-life interaction in Australia, funding several rounds of the collection of AWALI (2008-2010). It also includes qualitative analysis of a state health workforce across occupations and the life-cycle including early, mid and late career stages. It analyses the barriers to a healthy work-life interaction and actions which assist its achievement, to inform theory, practice and policy over individuals’ working lives and through key work-life transitions. AWALI will provide context for deep qualitative analysis in the health sector, giving the study national relevance.

Work-life interaction in Australian workplaces

The Centre for Work + Life is planning to establish a web-based tool for interested individuals and organisations to use to evaluate their work-life outcomes, or those of their workplaces, against national outcomes as measured by the annual AWALI.

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