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REPORT TO THE DEPARTMENT OF FAMILY AND COMMUNITY SERVICES

FAMILY AND COMMUNITY INFLUENCES ON LIFE SATISFACTION

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EXECUTIVE SUMMARY

This report investigates the effects of family and community influences on the quality of life – that is, people’s overall happiness or well-being. It uses the largest dataset ever brought to bear on this topic in Australia, the pooled set of 13 IsssA surveys between 1984-2001 (IsssA-Pool) with over 26,000 cases. Methods of analysis include multinomial probit regression, OLS regression, multilevel analysis, and structural equation modeling. Our modeling strategy follows a biographical logic, beginning with the family of origin and then assessing the consequences of current family and community situation. The effects we report in this summary are coefficients from statistical models translated in verbal English; they each represent the separate effect of an explanatory variable, on average and all else equal. That phrase should be understood to apply to each sentence in this summary. The results we report are largely based on sample survey data and so are subject to sampling error. The amount of explained variance in models of life satisfaction that do not contain other measures of satisfaction with components of life is invariably very small, and that is true of our models as well. This in no way prejudices the coefficient estimates we present; omitted variables here are likely to add to explained variance rather than altering the coefficient estimates of variables here.

Effects of family background

As to lasting effects of childhood situation on the offspring decades later when the children have grown to adulthood, we find that:

- Parental divorce reduces their children’s life satisfaction. This comes about through two intermediate consequences of parental divorce: (1) a reduced likelihood of the offspring being married and (2) lower quality marital relationships among the offspring who do marry.
- Parental education has a positive effect on their children’s life satisfaction. This effect is not mediated by any later influences.
- Father’s occupational status, a good indicator of family prosperity, has no lasting effect on children’s life satisfaction.
- Family size has no significant effect, with happiness and unhappiness being equally common in large and small families.
- Furthermore:
 - Men are a little less satisfied with their lives
 - Migrants do not differ from the Australian born

Effects of current family situation

When it comes to the current family situation, compared to never married people:

- Married people are substantially happier
- Second marriages are just as happy as first marriages
- De facto relationships are no more satisfying than being single
- Divorced people are substantially unhappier (unless they re-marry)
- Widows and widowers are no less satisfied with their lives than are the never married.
- These pattern of marital effects is the same for men and women.
- The well-being that flows from marriage is entirely explained by the quality of the relationship.
- People with different numbers of children are equally satisfied with their lives, probably because their family sizes mostly match their preferences.
- Furthermore:
 - Ageing has a positive effect on subjective well-being

Effects of social capital

Community engagement enhances subjective well-being in several ways:

- Church-going increases life satisfaction.
- Different denominations and religions are equally satisfying, except that those with “No religion” are less satisfied with their lives.
- Volunteer/ charity work has a substantial positive effect on well being.

The social composition of neighbourhoods has no effect on life satisfaction.

- Postcode characteristics related to social stratification are closely related. Factor analysis shows they measure one concept which justifies making them into a multiple-item socio-economic status (SES) index.
- Community SES has no impact on life satisfaction, net of other things.

- The percentage of single mothers has no effect, nor does the percentage of single-person households.
- The residential stability of the neighbourhood has no effect.
- Subjective well-being decreases slightly with city size.
- The ethnic composition of the neighbourhood has no impact on life satisfaction.
 - The percentage of Aborigines or Torres Straits Islanders has no effect.
 - The percentage of migrants from English speaking countries has no effect.
 - The percentage of migrants from non-English speaking countries has no effect.
 - In sum, migration and the ethnic diversity that flows from it have no net impact on Australians' life satisfaction. Thus ethnic diversity is either irrelevant or (more likely) it has both good and bad points which in the end balance out.

What your neighbours do has an important impact on well-being.

- Neighbourhoods that provide friends enhance well-being.
- Neighbourhoods with an outgoing, sociable culture enhance well-being.
- Neighbourhood incivility – indexed by public rudeness, street hostility, and louts hanging around the neighbourhood – depresses well-being.
 - This is not a proxy for a high concentration of male youth. Here, again, it is not who they are but what they do: anyone who misbehaves is a problem.
 - Hanging around – loitering – is harmful mainly because it tends to lead to incivility.

Effects of employment

Effects of paid employment are not a focus of this report, but several workforce-related variables were included for purposes of comparison:

- People in the labour force are no happier than people out of the labour force.

- Having one's spouse in the labour force has no effect, either for better or for worse.
- One's own education has no effect on life satisfaction.
- Income has a substantial positive effect on life satisfaction.
- Among those in the workforce, part-time workers are the most satisfied
- People working ordinary full-time hours (35-48 hours), long hours (49 to 59) and very long hours (60 plus) are equally satisfied with their lives. So there is no disadvantage in working long hours.
- Occupational status – one's location in the occupational hierarchy – does not affect subjective well-being, aside from the income it brings.
 - This is important because it suggests that low-skilled jobs can be satisfying to the right incumbents.
 - But by the same token, getting a skilled job is no help, apart from the income it brings.
 - Other aspects of the job do matter. In particular, job security increases life satisfaction substantially.
- Being unemployed reduces life satisfaction substantially.
 - This is important because it emphasises that the unemployed are not cheerful idlers.
 - This result buttresses the view that moving people from unemployment even into low-skilled jobs will substantially improve their quality of life, on average (inasmuch as people in low status occupations enjoy the same level of well-being as people in high status occupations).
 - Past receipt of unemployment benefits – either by one's self or one's spouse -- leaves no scars on subjective well-being. This is important because it suggests that re-entry into employment fully restores the normal level of life satisfaction.

Other effects

Effects of health are substantial:

- Current health has a moderately large effect on well-being.

- Psychological stress has a very large effect.
- Spouse's health has an independent impact, fully half as large as that of one's own health.

Over time, the effect of past health problems fade away:

- Past receipt of disability benefits has no effect on subjective well-being, net of current health. This is contrary to the view that benefit receipt leaves psychological scars.
- The same is true of spouse's past receipt of disability benefits.

INTRODUCTION

This report examines influences of family and neighbourhood factors on people's subjective appraisal of their quality of life – their overall happiness or well-being. This concept is variously called “happiness” in philosophy; “welfare” or “utility” in economics; “life-satisfaction” or “subjective well-being” in sociology and psychology; and “quality of life” in many disciplines. In all these guises it reflects an attempt to give an overall evaluation of an individual's position in life. As such, it is of obvious relevance to each individual and, aggregated over the society as a whole, to public policy. In most of its guises the evaluation is the individual's own view of the matter, rather than an external standard imposed upon them.

The aim of the project is to provide information that will assist the Department of Family and Community Services (FaCS) in achieving three social policy outcomes identified in its Strategic Plan: stronger families, stronger communities and economic and social participation. In general, the outcomes are achieved through capacity building and early intervention; promotion of independence, choice and self-reliance; and maintaining a strong and sustainable social safety net. The motivation for this project is that identifying familial and neighbourhood sources of subjective well-being will enable FaCS more effectively to target social policy interventions to achieve a strong and sustainable safety net. Equally important is identifying plausible-sounding factors that do not actually affect well-being. Understanding the factors that drive well-being is also important for capacity building and self-reliance.

We propose causal models predicting life satisfaction. Causality is a concept that prompts continuing philosophical debates, but we simply use it in the sense that is usual in empirical sociology. “X causes a rise in Y” means that a rise in X, independently of other influences, increases the chances that Y will also change. The magnitude of the induced change is less often hypothesized in advance, because we are only beginning to assemble enough evidence in this field to make reasonably reliable directional predictions (with a few exceptions that will be noted in connection with the appropriate variables). Although some have proposed statistical tests for causality, these are not widely accepted (Bollen 1989: Chapter 3). Rather, the plausibility of causality rests on a number of criteria: (1) the theoretical plausibility of the explanation, compared to alternatives, (2) complexity – that the theory incorporating the causal linkage makes a number of predictions which are all correct, (3) that the finding is replicated in multiple settings, and (4) [when possible] that the change in the causal variable precedes the change in the dependent variables (Bollen 1989: Chapter 3).

The influences we examine fall into two main groups, following a biographical logic: (1) family situation (e.g. Andrews and Withey 1976; Cantril 1965; Diener

et al 2002; Headey and Wearing 1992) and (2) neighbourhood context (e.g. Lewis and Salem 1986; Ross, Reynolds, and Geis 2000; Warner and Rountree 1997). Specifically we consider:

- enduring effects of family background;
- marital status and, marital history;
- children,
- labour force status and spouse's labour force status;
- quality of job and job security,
- family income,
- the socio-economic composition of the neighbourhood and its unemployment rate,
- the neighbourhood's ethnic composition,
- neighbourhood friendship and sociability, and
- levels of incivility in the neighbourhood.
- control variables such as religion

We chose these variables, on the basis of their potential importance to FaCS and on the basis of indications in the literature that they have demonstrated or potential effects on subjective well-being.

Next, we briefly sketch the key arguments that are more fully developed in the body of the paper.

Family background effects on subjective well-being have been relatively lightly studied, to date, but they seemed important to explore in this project for several reasons: (1) Because intergenerational issues are of especial concern to FaCS, with the long-term impact of policies on clients' children, especially on their capacity-building warranting attention; (2) because intergenerational impacts are so pervasive in life, with, for example parental education and parental occupation affecting children's opportunities (e.g. Broom et al, 1980; Marks 1992; Williams et al. 1980).

The impact of one's own marital career has formed the focus of abundant prior research. Prior research throughout the world tends to find that married people are happier than single or divorced people (Diener et al 2000; Veenhoven 1984). Moreover, prior research suggests that the divorced are worse off than singles, and much worse off than married people (Maastekaasa 1994; Waite and Gallagher 2000: 67). Causal interpretations of these results are bolstered by longitudinal studies controlling for prior subjective well-being (Mastekaasa

1995). Results on de facto relationships are more ambiguous (e.g. Bennett, Blanc, and Bloom 1988; Headey 1993; Maastekaasa 1994; Macklin 1978; Marks and Fleming 1999; see Table 1, Row 2).

Research on the effects of neighbourhoods on well-being is in its infancy (Ross, Reynolds, and Geiss 2000). We investigate the impact of the social and economic composition of the neighbourhood, local social capital, and neighbourhood civility.

Neighbourhood composition is largely included as a set of control variables.

“Social capital” is a term that has been used in various ways in sociology. The past decade’s focus of research on the topic usually stems from one of two sources, (1) Coleman’s social-networks-based definition (Coleman 1988:S98; Schneider and Coleman 1993) or (2) Putnam’s (1993) organisational participation/ community-group engagement definition.¹

Key expectations derived from Coleman’s work on social capital are that participating in local social networks will enable people to feel a greater sense of belonging and a greater sense of mastery over their environment, thereby elevating well-being. Moreover, the social-networks emphasis suggests that volunteer work might be beneficial for those who do it, in terms of subjective well-being. Accordingly, we assess the effects of neighbourhood friendships, neighbourhood sociability, and volunteering on life satisfaction.

Key expectations from the Putnam tradition are that people participating in local community organisations will experience greater well-being. In operational terms, we examine the effects of church attendance as an instance of the impact of belonging to and participating in an important community organisation (e.g. Black and Hughes [2001]: 61,71). Insofar as volunteer work takes place through community organisations (rather than individually or through social networks), the Putnam social capital framework also suggests that volunteer work should have a positive effect on subjective well being (e.g. Black and Hughes [2001]: 61,63,64).

The next hypothesis is that neighbourhood incivility reduces the life satisfaction of residents. One alternative causal argument concerning the same negative association would be that people with different levels of life satisfaction sort themselves into neighbourhoods that provide different levels of civility, but this seems to us substantively unlikely. Another alternative explanation would be that an omitted variable – a social force not represented in the model – actually causes both depressed life satisfaction and neighbourhood incivility. This is more plausible. Some researchers would argue that incivilities and disorder are indicators of the breakdown of informal social control in neighbourhoods (e.g. Ross, Reynolds, and Geis [2000]). If so, it could be argued that it would be the

¹ Other definitions exist, for example, social capital appears to be basically equated with norms in Fukuyama’s writing (e.g. Fukuyama 2000), but seem to us less influential (see the review in Black and Hughes [2001]: 35).

sense of powerlessness rather than the sense of danger that depresses subjective well-being, and this is an empirical question that could be tested in future research on Australia. But it does not look like a promising hypothesis because Ross, Reynolds, and Geis (2000) find that incivility/disorder significantly increases psychological distress, even when feelings of powerlessness are controlled in the model. That is not conclusive evidence, because distress is not the opposite of subjective well-being (Headey and Wearing 1992) and because the research pertains to another country, so it is conceivable that neighbourhood processes here might work differently. Nonetheless, it is the best evidence on the question, so far as we know, and it increases the plausibility of the causal interpretation. The causal interpretation -- that it is the incivilities themselves that depress subjective well-being is consistent with the existing evidence and is by far the simplest hypothesis, so Occam's razor favours it, in the absence of evidence to the contrary. Accordingly it seems reasonable to predict a negative association between incivilities and well-being, and to give that negative association a causal interpretation.

These, then are the foci of the report. The remainder of the report is organised as follows. The next part of the introduction presents the models that are used in the remainder of the report, and discusses the modeling strategy. Then, PART 1 provides an extended discussion of, and evidence on, the measurement of life satisfaction/ subjective well-being which is the focus of the report. The first substantive section. [The dataset is described in "Appendix A: Data" and the measurement of non-focal causal variables is in the "Appendix B: Measurement".] PART 2 sets forth the measures of family variables, discusses prior findings on the effects of family variables on life satisfaction/subjective well-being, and analyses first the effects of family background and then the effects of current family situation on subjective well-being. There are also analyses of individual-level control variables such as unemployment, occupation and health. Part 3 sets forth the measurement of community variables, discusses prior findings on the effects of community variables on life satisfaction/subjective well-being, and analyses first the effects of community variables on well-being. The measurement of postcode SES requires some supplementary detailing which is provided in "Appendix: Postcode Socio-Economic Status". The community effect on life satisfaction of residents that are assessed range from the SES and ethnic composition of the neighbourhood to local friendships, neighbourhood sociability, and neighbourhood incivility.,

Modeling

For the purposes of the analysis, the dependent variable of interest is life satisfaction, the measurement of which is discussed below in the section “Measurement of Subjective Well-Being” and in table 4.2. The measurement of the causal variables is discussed in the “Appendix: Measurement”.

The multivariate analyses of this report open with an analysis of the long term impact of family background. Because there is little prior research on the impact of family background, we draw on largely on variables that have been shown to have long term impacts in other domains of social life, as discussed in the introduction (see equation 2). Except for gender, all these variables are causally prior to other variables we investigate in later models, so we estimate their total effects without including the intermediate variables (e.g. Alwin and Hauser 1975). Defining “Life_satisfaction” to be estimated life satisfaction (\hat{y}):

$$\text{Eq. 1. } \text{Life_satisfaction} = f(\text{Gender}, \text{Number_of_Siblings}, \text{Foreign_born}, \text{Parents' _education}, \text{Father's_occupation}, \text{Parental_divorce}).$$

The findings in Table 2.1 come from this model.

Because of the focus of this report on family and community effects on well-being, we turn next to the effects of marital status and childbearing on subjective well-being. Age also needs to be entered at this stage (especially in order to avoid a biased estimate of the effects of widowhood). To be sure that none of the marital status effects we might observe is merely a proxy for an omitted background variable, we retain the background variables in the model (e.g. Pedhazur 1997: 765-840). The marital status variables are operationalised as a set of dummy (indicator) variables representing current marital status, with the reference (omitted) category being single (here defined as never married and not currently in a de facto relationship). To allow for the possibility that first marriages differ from subsequent marriages in the amount of subjective well-being they provide, we differentiate them here:

$$\text{Eq. 2. } \text{Life_satisfaction} = f(\text{Eq 1}, \text{Married [first marriage]}, \text{Married [second marriage]}, \text{De_Facto}, \text{Divorced}, \text{Widowed}, \text{Number_of_offspring}).$$

The findings in Table 2.2 come from this model.

To explore the possibility that has had a good deal of prominence in theoretical discussions that the effects of marital statuses might differ for men and women, we estimated Equation 2 separately for men and women, a strategy that, in effect, allows for all possible interactions (Table 2.3). An alternative route to this same end would be to compute all possible interactions with gender and re-estimate an augmented version of Equation 2 including all the interactions. The latter strategy has advantages when sample sizes are small, but with large samples, as here, the results are, in practice, interchangeable.

Being married turns out to have large and significant effects in the models, prompting an inductively-stimulated inquiry into the impact of marital quality on subjective well being. For this purpose, we limit the sample to married people, and turn from our usual full IsssA-Pool sample to two specific IsssA surveys which have included the appropriate questions to make an index of marital quality. We incorporate the family background variables of equation 1 plus current age and number of offspring as controls.

$$\text{Eq. 3. } \textit{Life_satisfaction} = f(\textit{eq 1.}, \textit{Marital_quality}, \textit{Age}, \textit{Number_of_Offspring})$$

This is the model estimated in Table 2.4

We estimated the model represented in equation 3 for the population as a whole, and also separately for men and women to assess the possibility of gender differences in the linkage of marital quality to subjective well-being. Neither here nor in the previous model of the impact of marital status on subjective well-being did we find any large or systematic interactions, so we conclude that the evidence is against the predicted gender interactions, and hence do not include them in the remaining models. We also revert to the larger IsssA-Pool sample for the remaining analyses, which means we must omit the marital quality index from subsequent models, despite its demonstrated importance. This choice is justified in that the larger sample provides much more precise estimates of the effects of the community variables of interest, and, moreover, the omission of marital quality is unlikely to bias the effects of community measures in the model.

The analysis of community effects begins with the incorporation of several measures of community engagement, which can be considered part of social capital in the Putnam sense. These community variables are entered before the current individual controls because religion heavily reflects socialisation experience.

$$\text{Eq. 4. } \textit{Life_satisfaction} = f(\textit{Eq 1.}, \textit{Volunteer_work}, \textit{Church_attendance}, \textit{Denomination})$$

The results of this model are given in Table 2.5.

Next, we introduce individual level controls which are necessary so that the later estimates of subsequent community variables are not biased by correlated omitted variables.

$$\text{Eq. 5. } \textit{Life_satisfaction} = f(\textit{Eq 4.}, \textit{Education}, \textit{Family_income}, \textit{In_labour_force}, \textit{Spouse_in_labour_force})$$

The results of this model are given in Table 2.6. (In practice, it would not have mattered whether we entered the volunteering and religion variables before or after the individual level controls, because the measured effects of the volunteering and religion variables are essentially the same in Tables 2.5 and 2.6.)

The simple fact of participating in the work force of one's self and one's spouse did not, in this model have a significant effect on life satisfaction. That prompted an inductively-induced exploration of whether more specific features of the work situation are material. In particular, in terms of current policy debates, it is especially useful to compare the well-being of unemployed people with people in jobs low in the occupational hierarchy, because that can help cast light on the degree to which encouraging people receiving unemployment-related benefits to move into jobs is likely to impact of their quality of life. For this analysis, we limit the sample to people in the workforce, i.e. people who have jobs or who are actively seeking them. Family income is omitted from this equation because we here investigate the impact of work-related earnings.

Eq. 6. Life_satisfaction = f(Eq 4., Education, Unemployed, Works_part-time, [Works regular full-time hours is the reference category], Works_long_hours [49 to 59 hours a week], Works_very_long_hours [60+ hours a week], Earnings, Occupational_status, Job_security, Spouse_in_labour_force)

The results of this analysis are in Table 2.7 and simulations based on it allow us to compare the average level of subjective well-being of the unemployed to various comparison groups.

The important impact of current unemployment prompted an inductively-induced exploration of whether there are long-term impacts of prior benefit receipt. This inquiry necessarily was limited to a smaller subset of surveys, as the IsssA has only asked these questions in recent years. To get a proper estimate of the direct impact of past disability experience, we need to take current health into account as control variables (Alwin and Hauser 1975; Pedhazur 1997). The past receipt variables all are defined as the duration of past receipt, as discussed in connection with Table 2.8. We simplified the control-variables part of the model to focus on these issues.

Eq. 7 Life_satisfaction = f(Own_past_receipt_of_disability_or_single_parent_benefits, Spouse_past_receipt_of_disability_or_single_parent_benefits, Own_past_unemployment, Spouse_past_unemployment, Own_current_health, Spouse_current_health, Offspring_current_health, Current_medical_usage, Age, Gender, Education, Occupational_status, Family_income)

The results of this are shown in Table 2.8, panel A. We also used this model to test for the effects of psychological stress

Eq 8. Life_satisfaction = f(eq. 7, Psychological_stress)

The results of this are shown in Table 2.8, panel B.

We turn next to the matter of building a core model of individual effects to hold constant in the exploration of neighbourhood/ community effects. For this purpose, we wanted to use the large IsssA-Pool data to obtain estimate of the community effects that were as precise as possible. To this end, we omitted variables which were only measured in subsets of the data. We also omitted variables which were shown to have non-significant effects on subjective well-being in earlier models and which did not require to be retained in the

community analyses in order to allay concerns about potential omitted variables problems (see the discussion surrounding Table 2.9).

Eq. 9. Life_satisfaction = f(Gender, Age, Foreign_born, Parents'_education, Parental_divorce, Education, Church_attendance, No_religion [contrasted with having any religious affiliation], Married, Divorced, [reference category is single/de facto/widowed], Family_income).

The estimates for this model are in Table 2.9. The sizes of the coefficient estimates of the effects in this model closely resemble those from earlier models in which different variables were controlled, suggesting that they are quite robustly estimated. Note that variables representing education and immigration are retained in the model despite their non-significance in this and prior models because they will be needed later in the neighbourhood models to ensure that neighbourhood effects in the same domains that we might observe are not inflated by omission of the relevant individual-level variables.

Next, the models explore the issues of neighbourhood effects, beginning with the socioeconomic status of the postcode using `postc.aode` aggregate data from the ABS. The measurement of postcode SES is described in the sections on “3. Community Effects On Well-Being: Multivariate Models: Postcode Based Measures Of Community Characteristics” and in Table 3.1

Eq. 10. Life_satisfaction = f(eq. 9, Postcode_SES).

The estimates for this model are in Table 3.2. The effect of postcode SES is non-significant, but we retain it in the model to ensure that its omission does not cause omitted variables problems in subsequent models.

We next augment this model with measures of residential stability, ethnic diversity, concentration of single persons and concentration of single mothers. The measurement of these variables is described in the sections on “3. Community Effects On Well-Being: Multivariate Models: Postcode Based Measures Of Community Characteristics”, except for the measurement of urbanicity (size of place in which R lives) which is described in “Appendix: Measurement”.

Eq. 11. Life_satisfaction = f(eq. 10, Residential_stability, %ATSI, %NES_migrants, %ES_migrants, %Single, %Single_mothers, Urbanicity).

The estimates for this model are in Table 3.2. None of the effects is significant except for that of urbanicity (size of place in which R lives). From this model we retain urbanicity, because it has a significant effect in this model. We also retain two ethnic composition measures %ATSI and %NES migrants because of their potential correlation with (and logical causal priority to) some of the variables whose effects we examine in subsequent models.

Next we turn to the character of local employment opportunities, operationalised as the industrial composition of the postcode (the percentage of the local workforce employed in each industry).

Eq. 12. Life_satisfaction = f(eq. 10, Urbanicity, %ATSI, %NES_migrants, %Agriculture, %Mining, %Manufacturing, %Electrical, %Construction, %Retail_trade, %Wholesale_trade, %Transport, %Communications, %Financial_services, %Business_services, %Government, %Education, %Health, %Culture, %Personal_services).

The estimates for this model are in Table 3.3. None of the effects of industrial composition is significant.

Because there has been a lot of interest in the field in whether the level of unemployment in one's environment has a negative effect on quality of life, net of one's own unemployment experience (Andrews and Withey 1976; Cantril 1965; Frijters 1999; Kahneman, Diener, and Schwartz 1998), this report next investigates the effect of the national unemployment rate (net of respondent's own experience of unemployment).

Eq. 13. Life_satisfaction = f(eq. 10, Urbanicity, %ATSI, %NES_migrants, Unemployed(respondent), National_unemployment_rate).

The estimates for this model are in Table 3.6. Because the national unemployment rate is not significant and has no theoretical importance in connection with the subsequent neighbourhood-social-capital-Coleman variables, it is hereafter omitted from the model.

The community-social-capital-Coleman variables concern neighbouring behaviour – both social networking and public civility. To avoid the omitted-variables risk that the possibility that such effects of neighbourhood civilities as we might observe actually merely reflect the presence of large numbers of male youth in the community, we control for relevant aspects of the postcode age and gender composition (the percentage of the postcode's population that is male in the relevant ages). Neighbourhood incivility is measured by a multiple item index that meets the statistical and substantive criteria for a multiple-item index (Bollen 1989: 179-184). It is described in the subsection of "Neighbourhood incivilities" within the "Social Capital" section, below, and in Table 4.2 and the surrounding text.

Eq. 14. Life_satisfaction = f(eq. 10, Local_friends, Neighbours_cooperate, Neighbourhood_incivilities, %Male_age_10-14, %Male_age_15-19, %Male_age_20-24, %Male_age_25-29, Urbanicity, %ATSI, %NES_migrants.)

The estimates for this model are in Table 3.7, panel A. To further explore the effects of the neighbourhood incivility measure, we experimented with two other models. One of these substitutes a measure of youth loitering (a multiple item index) for the measure of neighbourhood incivility.

Eq. 15. Life_satisfaction = f(eq. 10, Local_friends, Neighbours_cooperate, Youth_loiter, %Male_age_10-14, %Male_age_15-19, %Male_age_20-24, %Male_age_25-29, Urbanicity, %ATSI, %NES_migrants.)

The estimates for this model are in Table 3.7, panel B.

The other experimental model included both youth loitering and the measure of neighbourhood incivility.

$$\text{Eq. 16. } \textit{Life_satisfaction} = f(\textit{eq. 10}, \textit{Local_friends}, \textit{Neighbours_cooperate}, \textit{Youth_loiter}, \textit{Neighbourhood_incivilities}, \textit{\%Male_age_10-14}, \textit{\%Male_age_15-19}, \textit{\%Male_age_20-24}, \textit{\%Male_age_25-29}, \textit{Urbanicity}, \textit{\%ATSI}, \textit{\%NES_migrants}).$$

The estimates for this model are in Table 3.7, panel C.

Because the age/gender composition effects and the ethnic composition effects were not significant, and it has now been clearly shown by including them in the model with the neighbourhood-social-capital-Coleman variables that leaving them out would create no omitted variables problem, they are omitted from the next final model of community effects (with individual controls as before).

That completes the exploratory modelling. We next propose a final model. The measure of postcode SES is re-introduced here to ensure that any effects of the neighbourhood behaviour measures we might observe are not due to postcode SES.

$$\text{Eq. 17. } \textit{Life_satisfaction} = f(\textit{eq. 10}, \textit{Local_friends}, \textit{Neighbours_cooperate}, \textit{Youth_loiter}, \textit{Neighbourhood_incivilities}, \textit{Postcode_SES}).$$

The estimates for this model are in Table 4.1. OLS estimates are in Panel A, and random effects GLS estimates (to correct for the smaller sample size of postcodes than of individuals) are in Panel B. The estimates derived from the two different methods are essentially indistinguishable.

We next estimate a structural equation model that models these effects with corrections for attenuation due to random measurement error in the neighbourhood behaviour measures. Attenuation due to random measurement error is a perennial concern in social science measurement (Alwin and Jackson 1979; Andrews 1984; Joreskog 1993), so when one has arrived at a final exploratory OLS model, it is a good plan to estimate a structural equation model. Structural equation models which incorporate simultaneous equations with multiple endogenous variables and allows random measurement error both in the endogenous and exogenous variables (e.g. Bollen and Long 1993: 1; Joreskog 1979).

$$\text{Eq. 18. } \textit{Life_satisfaction_true} = f(\textit{Life_Satisfaction_Measure_1}, \textit{Life_Satisfaction_Measure_2}, \textit{error})$$

$$\text{Eq. 19. } \textit{Sociable_neighbourhood_true} = f(\textit{Do_things_together}, \textit{Help_eachother}, \textit{Go_own_way}(\textit{reversed}), \textit{error})$$

$$\text{Eq. 20. } \textit{Neighbourhood_incivilities_true} = f(\textit{Rude}, \textit{Hostile}, \textit{Louts}, \textit{error}).$$

The measurement model's maximum-likelihood factor analyses are given in Table 4.2. We assume for simplicity that the other variables in the model are measured with perfect reliability².

$$\text{Eq. 21. } \textit{Life_satisfaction_true} = f(\textit{Sociable_neighbourhood_true}, \textit{Neighbourhood_incivilities_true}, \textit{Local_friends}, \textit{Postcode_SES}, \textit{Gender}, \textit{Age}, \textit{Foreign_born}, \textit{Parent_education}, \textit{Parent_divorced}, \textit{Education}, \textit{Married}, \textit{Divorced}, \textit{Church_attendance}, \textit{No_religion}, \textit{Family_income}, \textit{error}) .$$

The estimates of this model are in Table 4.3. Panel A gives the structural equation (LISREL) estimates, and, for comparison, Panel B gives the corresponding OLS estimates. These show very few differences, because the measurement is highly reliable.

A key strategy in establishing causality in the non-experimental sciences has long been to assess multiple predictions (Bollen 1989:40-79), so we build a parallel model with a different dependent variable to assess whether the effects of neighbourhood sociability, local friendships, and neighbourhood incivilities also affect neighbourhood satisfaction.

$$\text{Eq. 22. } \textit{Neighbourhood_satisfaction_true} = f(\textit{Sociable_neighbourhood_true}, \textit{Neighbourhood_incivilities_true}, \textit{Local_friends}, \textit{Postcode_SES}, \textit{Gender}, \textit{Age}, \textit{Foreign_born}, \textit{Parent_education}, \textit{Parent_divorced}, \textit{Education}, \textit{Married}, \textit{Divorced}, \textit{Church_attendance}, \textit{No_religion}, \textit{Family_income}, \textit{error}) .$$

The results are given in Table 4.4.

Model fit

Models of life satisfaction that do not include domain satisfactions thus far have not explained large amount of variance in life satisfaction (e.g. Near and Rechner 1993; Veenhoven 1984). Researchers are not concerned that this suggests that their estimates of effects are misspecified, because omitted effects are only a problem to coefficient estimates to the degree that the omitted variables are correlated with the included ones and that the shared variance should properly be attributed to the omitted ones. Because researchers have striven to include a range of correlates of focal causal variables over time, it seems reasonable to adopt, as a working hypothesis, the view that omitted variables are not distorting coefficient estimates in models of life satisfaction. Aside from the omitted variables issue, there is nothing of particular interest in the fact of low R²s, because low R²s do not constitute evidence against a model (Goldberger, 1991: 177).

² This is the conventional assumption, of necessity, for variables for which we have only one measurement.

1. MEASUREMENT

The questions on subjective well-being

We used the standard measure of subjective well-being. The core measure is Andrews and Withey's life-as-a-whole index (Andrews and Withey 1976; Cantril 1965; for Australia see Headey 1988 and Headey and Wearing 1992). For similar developments in economics see Kahneman, Diener and Schwarz (1998) and the authors of the "Leyden School" (Van Praag 1971; Frijters 1999 and the references given there). Self-reported subjective well-being measures (also known as quality-of-life measures or life satisfaction measures) have been shown to correlate well with other people's perceptions of respondent's well-being (e.g. Dew and Huebner 1994).

A standard form of the life-as-a-whole index, and the one we use, combines answers to essentially the same question asked twice – once at the beginning of a series of questions about particular domain satisfactions ("standard of living", "sense of purpose and meaning in life", "hobbies", "neighbourhood", etc.), and then once again at the end of the series.

```
"How do you feel about your life as a whole?"
    Delighted
    Very pleased
    Pleased
    Mostly satisfied
    Mixed feelings
    Mostly dissatisfied
    Unhappy
    Terrible
...
[other satisfaction questions, for example "standard of living", "sense of
purpose and meaning in life", "hobbies", "neighbourhood"]
...
"All in all, how do you feel about your life as a whole? "
```

The answer categories are replications of earlier research to enhance comparability with other nations and over time. In general, reliability of ratings drops if there are under 3 answer categories or more than 9 answer categories (Milkovich and Wigdor. 1991: 3). The 8 answer categories used in our question fall within this range.

Question length is also an issue in assessing data quality. Experimental and observational studies established long ago that very long questions tend to

produce unreliable answers, and that a mix of moderate-length and terse questions tend to produce data of higher reliability and validity (Laurent 1972).

The usual application of this finding is to strive for a mix of questions over the course of a questionnaire such that most questions are very short, there are a moderate number of middle-length questions, and rather few very long questions, with these mostly being used in unavoidable situations, for example, where replication is an important goal, or where the issue at hand is likely to be unfamiliar to most respondents (e.g. Sheatsley 1983). We strive for such a balance in the IsssA questionnaire as a whole, with the life-satisfaction/subjective well-being battery being brief items. The same, and closely similar, items have shown high reliability in prior research (e.g. Andrews and Withey 1976). The items are all very clear and understandable, which is an important feature of data quality (Sheatsley 1983).

As part of the background to this research, we performed the usual data quality checks to discover whether distributions were similar across years, and assessed the correlations among items and with criterion variables (Bateson 1984; Hyman 1972; Sudman and Bradburn 1974; Miller 1991). As expected, given their well-established performance in prior research (e.g. Andrews and Withey 1976; Cantril 1965; Headey 1988 and Headey and Wearing 1992), these questions are highly suitable for social research.

Scoring the questions: Multinomial ordinal probit estimates

Prior research in this area mostly treats the answers to subjective well-being questions as though the answer categories (“delighted”, “very pleased”, etc.) were measures directly appropriate for use as equal interval (Likert) scales in multivariate analysis, although the measures are, in fact, categorical. The key question here is whether the categories approximate equal intervals well to be coded at equal intervals for analysis, or whether their psychological distances are sufficiently unequal as to warrant a different scoring.

For life satisfaction, a convenient equal interval scoring would give “delighted” at the top a score of 100, “terrible” at the bottom a score of zero, and other categories scores at equal intervals in between:

100.0	Delighted
85.7	Very pleased
71.4	Pleased
57.1	Mostly satisfied
42.9	Mixed feelings
28.6	Mostly dissatisfied
14.3	Unhappy
0.0	Terrible

Other equal interval scores would be, for example, 1, 2, 3, 4, 5, 6, 7, 8 (“Likert”) or the reverse 8, 7, 6, 5, 4, 3, 2, 1, or zero to one (0, .143, .286, ..., 1.000). All equal interval scoring schemes lead to essentially the same results: the units change in the obvious way, but can easily be converted from one to the other with no loss of

information (just like the price of a computer could be expressed in cents, Australian dollars, euros, or yen without making any real difference).

What does matter is the *gap* between answers: the equal interval scoring assumes that the gap between (for example) “delighted” and “very pleased” is the same magnitude as the gap between (say) “unhappy” and “terrible”. In our preferred equal interval scoring shown above, that gap is 100/7 (since the 8 answer categories produce 7 gaps); in Likert scoring the gap is 1.

But is that true? It could be, for example, that people make a very large distinction between “delighted” and “very pleased” but only a small one between “unhappy” and “terrible”. It might, for example, take a \$100,000 windfall to shift some who is “very pleased” with his life to being “delighted” but only \$25,000 to shift him out of misery from “terrible” to “unhappy”. Or it could be the exact opposite, taking a lot to shift him out of misery but only a little to tip him from “very pleased” to “delighted”.

To discover how large these gaps are, we turn to an ordered probit analysis, predicting life satisfaction from some of the key variables we will return to in the substantive discussion of the multivariate results, below. In this section we work with just one of our two global measures of life satisfaction, because we need to score them before we can combine them into a multiple-item index.

The ordinal multinomial probit regression model posits an underlying continuous linear variable, y^* , that reflects respondents' unobserved true scores plus an error term:

$$y^* = a + b_j X_j + e$$

where the X_j are j observed independent variables, the b_j are weights for them, the individual subscripts are suppressed for simplicity, and e is a normally distributed random error term. Respondents are assumed to answer the survey question by choosing the answer category closest to their underlying position, y^* :

$$\text{Probability (Outcome} = i) = \text{Pr} (\text{Cut}(i-1) < y^* \leq \text{Cut}_i)$$

where i subscripts the response categories labeled by their endpoints (“cutting points”). The coefficients b_j and the cutting points Cut_i are estimated simultaneously by maximum likelihood methods.

The cutting points imply a suitable scoring for the categories of the dependent variable, essentially an effect-proportional score using y^* as the criterion.

For our life satisfaction measure, these cutting points are shown in the bottom panel of Table 1.1 (the top panel shows the coefficients from the ordered probit model that we fitted to derive the cutting points; we will discuss the substantive findings later).

Table 1.1: Scaling of life satisfaction categories: Ordinal multinomial probit estimates.

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
Male	-0.022	0.02	-0.95	0.34	-0.07 0.02
Migrant	0.022	0.04	0.49	0.62	-0.06 0.11
Parents' education	0.014	0.00	3.17	0.00	0.01 0.02
Parent divorced	-0.035	0.04	-0.92	0.36	-0.11 0.04
Married	0.183	0.03	5.36	0.00	0.12 0.25
Divorced	-0.177	0.05	-3.29	0.00	-0.28 -0.07
Age	-0.0001	0.0008	-0.08	0.93	0.00 0.00
Church attendance (ln)	0.049	0.01	6.79	0.00	0.04 0.06
No religious affiliation	-0.094	0.03	-3.16	0.00	-0.15 -0.04
Education	0.000	0.00	0.03	0.98	-0.01 0.01
Family income (ln)	0.090	0.02	5.02	0.00	0.05 0.13
Neighbourhood: incivility	-0.007	0.00	-10.71	0.00	-0.01 -0.01
Neighbourhood: sociable	0.003	0.00	4.39	0.00	0.00 0.00
Neighbourhood: friends	0.006	0.00	8.68	0.00	0.00 0.01
Postcode: SES	0.000	0.00	0.18	0.86	0.00 0.00
Cutting point 1	-1.49	0.20			
Cutting point 2	-1.12	0.19			
Cutting point 3	-0.74	0.19			
Cutting point 4	0.04	0.19			
Cutting point 5	0.86	0.19			
Cutting point 6	1.56	0.19			
Cutting point 7	2.49	0.19			

Number of obs = 8616
 Wald chi2(15) = 535.01
 Prob > chi2 = 0.0000
 Pseudo R2 = 0.0221
 Log likelihood = -13718.852

We use this scoring, converted for clarity and without loss of generality to range from a low of zero to a high of 100, as shown in Table 1.2.

Table 1.2 provides information showing the scoring for each answer category, in a zero to 100 metric, that would come (1) from an equal interval scoring (on the left) and (2) from the scoring implied by the ordinal probit analysis in Table 1.1 (above).

Table 1.2: Life satisfaction: Percent distribution, equal interval scoring, and scoring implied by ordinal probit analysis. N=8,616.

Percent	Equal interval scoring		Scoring based on ordinal probit		
	Equal intervals	Gap from category above	Mean predicted value	Implied 0 to 100 scoring	Gap from category above
12.8	100.0	--	1.40	100	--
28.2	85.7	14.3	1.38	95	4.6
26.1	71.4	14.3	1.32	82	13.3
22.0	57.1	14.3	1.26	69	13.3
8.5	42.9	14.3	1.17	49	19.5
1.5	28.6	14.3	1.08	28	21.4
0.6	14.3	14.3	1.07	25	3.0
0.4	0.0	14.3	0.96	0	24.8
100%					

Note first that there is a strong concentration of cases towards the top – the more satisfied answers, with 97% of the cases in the top 5 categories and only 3% scattered over the remaining three categories (column 1). This is a standard finding for this area of research (e.g. Cummins 1998; Headey and Wearing 1993: Ch. 4; Veenhoven 1984).

The second thing to notice about Table 1.2 is that the gap between the answer categories at the most satisfied end of the scale is smaller in the probit scoring (column 5) at 4.6 points out of 100 (column 6) than in the equal-interval scoring (column 2) where the corresponding gap is 14.3 points out of 100 (column 3). Across the middle categories, the gaps implied by the probit scoring (13 to 20 points out of 100) and those from the equal interval scoring (14.3 points) are of very similar size (compare columns 3 and 6). Towards the dissatisfied end, the gaps implied by the probit scoring are quite irregular, quite possibly because of the small case base at that end of the distribution (column 6).

To assess whether the probit scoring is measurably advantageous over the equal interval scoring, we begin by comparing correlations of life satisfaction scored in these two ways with each other and with criterion variables (Table 1.3, columns 1 and 2).

[Table 1.3 about here]

The first important point in the comparison of the scorings is that the correlation between the two different scorings of life satisfaction is 0.98. That is very near the maximum correlation (which would be 1.0). This means that the scorings implied by the two methods are very close for most of the cases.

Table 1.3. Comparison of equal interval and probit scoring of life satisfaction. Correlations and OLS metric partial regression coefficients. N=12,183.

Variable	Units	Correlations		Regression	
		Probit scoring	Equal interval	Probit scoring	Equal interval
Satisfaction:					
Probit scoring	0 to 100	--	--	--	--
Equal interval scoring	0 to 100	0.98	--	--	--
Male	0 or 1	0.00	-0.01	-0.1	-0.4
Migrant	0 or 1	-0.01	0.00	0.6	0.8
Parents' education	years	0.03	0.03	0.24	0.25
Parent divorced	0 to 100	-0.05	-0.04	-1.5	-1.4
Married	0 or 1	0.15	0.14	2.8	2.9
Divorced	0 or 1	-0.11	-0.10	-3.3	-3.1
Age	years	0.04	0.04	0.014	0.010
Church attendance (ln)	log	0.12	0.12	0.81	0.89
No religious affiliation	0 or 1	-0.07	-0.08	-1.2	-1.3
Education	years	0.04	0.03	0.1	0.1
Family income (ln)	log	0.12	0.11	1.89	1.85
Neighbourhood: incivilities	0 to 100	-0.14	-0.14	-0.11	-0.11
Neighbourhood: sociable	0 to 100	0.12	0.12	0.07	0.06
Neighbourhood: friends	0 to 100	0.12	0.12	0.09	0.10
Postcode: SES	0 to 100	0.03	0.02	0.01	0.01
(Constant)		--	--	51.9	44.3

The second important point about Table 1.3 is that the correlations of criterion variables (in this case, we've mainly used variables of interest in the later substantive analysis) with life satisfaction scored in these two different ways are very similar. Running your eyes down columns 1 and 2 will reveal no discrepancy of any importance. For example, the correlation of with being married with probit-scored life satisfaction is .015, and the correlation of being married with equal-interval-scored life satisfaction is 0.14. Similarly, the correlation of church-going with life satisfaction scored both ways is identical at 0.12. All in all, the correlations based on the two scorings with this broad array of criterion variables are so close that there is no evident advantage to the probit scoring.

Consider also the regression estimates of the effects of these criterion variables on life satisfaction in the probit scoring (column 3) and in the equal-interval scoring (column 4). Here again, the estimates are very similar. For example, divorced people are 3.3 points out of 100 less satisfied with their lives than are single people in the probit scoring, and are 3.1 points less satisfied with their lives in the equal-interval scoring. Similarly, the effect of church attendance weighs in at .81 in the probit scoring and .89 in the equal-interval scoring. The discrepancies between the estimates in the two columns are small and do not systematically favour either scoring.

In sum, the comparison of the equal-interval scoring and the probit scoring of life satisfactions show that they yield very similar results and that, in particular, the

probit scoring does not provide clearly stronger estimates. Following the standard scientific rule of Occam's Razor -- that the simpler explanation or method is to be preferred unless a more complex alternative yields measurable advantage -- suggests that, in this case, we should employ the equal interval scoring (similar conclusions have been reached by Bentler and Chou 1987). This also has the advantage of being more comparable with past research.

Accordingly, we use the equal interval scoring throughout the rest of this report.

Measurement of explanatory variables

CLASS AND STATUS VARIABLES

Family background on occupational status have of course been widely studied, most notably in the vast tradition of sociological research stemming from the Blau-Duncan paradigm (Blau and Duncan 1967; Featherman and Hauser 1978). Subsequent developments included class models (e.g. Erickson and Goldthorpe 1992; Wright 1985), models incorporating both class and status elements (e.g. Robinson and Kelley 1979), and many others. The Blau-Duncan paradigm led to a flowering of research unprecedented in sociology. Robust findings about stratification emerged first for the US (Blau and Duncan 1967; Duncan, Featherman and Duncan 1972) and soon afterward for many other countries, including Britain and Australia in the western industrial world (Broom and Jones 1969); Poland and Hungary in Eastern Europe (Zagorski 1984); and developing and even tribal societies (Kelley 1978). A Kuhnian (1962) "normal science" of social stratification was the outcome.

Our model is in the comprehensive tradition, incorporating both class and status aspects of family background. Objective class is measured by Kelley's extension of the Blau-Duncan model to include ownership and authority. It provides a more powerful and parsimonious model than the usual typological alternatives (Kelley 1990:350-56, 1992:23-34; Robinson and Kelley 1979).

SELF-EMPLOYED

Self-employment is measured by a direct question. **Father self-employed** is measured in the same way based on a question about father's work "when you were age 14".

SELFEQ	Self-employed	Value	Percent
Value Label			
Private/govt/other		.0	87
Self-employed		1.0	13
		Total	100
Mean	.132	Std dev	.339
Valid cases	20845		

SUPERVISORS

Supervisor is based on a direct question about supervision and, for those who do supervise, a second question asking whether those supervised themselves

supervise yet other workers. It is scored 1 for high level supervisors (viz, those who supervise other supervisors); 0.5 for low level supervisors (viz, those who supervise only ordinary non-supervisory workers); and 0 for everyone else. The importance of the distinction between high and low level supervisors has long been known (Robinson and Kelley 1979). **Father supervisor** is measured in the same way.

SUPER3Q Supervises (0, 0.5, 1.0)		
Value Label	Value	Percent
Not supervise	.0	61
Low level supervisor	.5	25
Higher supervisor	1.0	14
	Total	100
Mean	.270	Std dev .366
Valid cases	20438	

In some analyses, we use a dichotomous version of supervision which scores both low and high level supervisors 1 and everyone else 0.

OWNERS

Owners are defined as the self-employed who also supervise (and so presumably have employees). They are scored 1; all others are scored 0. Most owners run very small businesses. **Father owner** is defined in the same way, based on direct questions about father’s work “when you were 14”.

OWN2Q Big owner (=self-employed & supervise)		
Value Label	Value	Percent
No	0	95
Owner	1	5
	Total	100.0
Mean	.051	Std dev .219
Valid cases	20669	

PETTY BOURGEOISIE (SELF-EMPLOYED WITHOUT EMPLOYEES)

Petty bourgeoisie are defined as the self-employed who do not supervise (and so presumably have no employees). They are scored 1 and all others 0. **Father petty bourgeoisie** is defined in the same way.

PBOURGQ Petty bourgeoisie (self-emp, no employee)		
Value Label	Value	Percent
No	0	92
Petty Bourg	1	8
	Total	100
Mean	.082	Std dev .274

GOVERNMENT EMPLOYMENT

Government employment is scored 1 for national, state and local government employees, and zero for everyone else. It is based on a direct question. **Father government employee** is defined in the same way.

GOVTQ Government employee			
Value	Label	Value	Percent
		0	68
		1	32
		Total	100.0
Mean	.317	Std dev	.465
Valid cases	20845		

EDUCATION

Education is years of schooling. In Australia, respondent's education was ascertained by a series of questions on years of primary and secondary schooling and details on highest educational qualification. These were coded into the Australian Bureau of Statistics' 3 digit educational code and recoded into usual years of schooling.

Mean	11.227	Std dev	2.962
Valid cases	26061		

Mother's and father's education was measured by direct questions with 8 or 9 categories, and recoded into approximate years of schooling. In many analyses, we use **parents' education**, defined as mother's education if only that is known; or father's education if only that is known; or the average of the two if both are known.

For cross-national analyses, we take years of education as defined by the original ISSP or ISEA investigators, often with country-specific corrections and refinements using data on qualifications.

PRIVATE SCHOOLING

Private schooling is measured by a direct question asking whether respondent attended a government, religious, or secular private school for their secondary education. In many analyses, we distinguish private non-Catholic schools (mainly fee-paying) from all others, both government and Catholic (which generally have low or negligible fees).

PVTEUCQ Private (non-Catholic) secondary school			
Value	Label	Value	Percent
	Other	.00	90.5
	Private non-C	1.00	9.5
		Total	100.0
Valid cases	24537		

BOOKS IN PARENTS' HOME

Books in parents' home, a good indicator of the family cultural orientation, was asked by a direct question. The reference period was when respondent was age 14.

BOOK14Q	# books in parents house (R age 14)		
Value	Label	Value	Percent
		1	2
		2	5
		5	0
		10	11
		20	16
		50	23
		100	19
		200	13
		500	8
		1250	4
		Total	100.0
Valid cases	25127		

EARNINGS, FAMILY INCOME

Family Income is income from all sources for respondent and, if married, their spouse.

Earnings is income from respondent's main job.

All income figures are adjusted to the price levels of the year 2000, using the consumer price index.

We use the natural log of income for some analyses, as is usual in many contexts. This means that metric coefficients reflect percentage rather than absolute changes – for example, that one additional year of education increases earnings by (say) 9% rather than \$1200 per year.

Variable	Mean	Std Dev	Label
EARNQ	23351.58	27990.21	Earnings (inflation adjusted to yr 2000)
FAMINCQ	47680.36	38822.45	Family income: (inflation adjusted to yr
LNEARNQ	6.50	5.21	ln earnings (inflation adjusted to yr 20
LNFINCQ	10.48	.80	ln family income: (inflation adjusted to

PARENTS' INCOME

We have no direct measure of **parents' income** because survey respondents are not generally able to provide reliable information on their parents's income. The do, however, provide reliable information on their parents' education, occupation, supervision, labour force participation and the like. We estimated parents' income from those known facts in the following way. (1) First, we estimated the impact of education, occupation. supervision, labour force participation and the like on the (log of) family income of comtemporary families by OLS regression. (2) Next, we assumed that this relationship held equally in the past, and so predicted their parents' income on the basis of their parents' education, occupation, labour force participation, and the like. The resulting estimate is provides a plausible but by no means perfect proxy for family income, and we used this proxy in some analyses.

The estimating equation is:

Variable	B	SE B	Beta	T
EDUCQ	.025630	.003443	.161275	7.444
OCCSTATQ	.003600	3.9070E-04	.206906	9.215
SUPER3Q	.236724	.022586	.201801	10.481
SELFEQ	.017019	.033738	.013528	.504
OWN2Q	.103667	.042383	.065266	2.446
GOVTQ	-.065521	.018814	-.064779	-3.483
LNURBANQ	.006583	.002547	.045702	2.585
SEDXWRKQ	.031160	.001593	.343437	19.557
(Constant)	10.222974	.042726		239.270
Adjusted R Square				.37628
Standard Error				.38213
n=3247 varying somewhat with missing data				

where SEDXWRKQ is a measure of the spouse's education and employment. Parents' income was then estimated from the corresponding equation for parents' characteristics, and adding a random component with mean zero and standard deviation equal to the standard error in the estimating equation:

$$\begin{aligned}
P_LnIncQ = & FAEDYR2Q * .025630 + FASTATQ * .003600 + FASUPER3Q * .236724 \\
& + FaSelfEQ * .017019 + FaOwn2Q * .103667 + FaGovtQ * -.065521 \\
& + LnUrb14Q * .006583 + mEdXWrkQ * .031160 + 10.222974 \\
& + .38213 * NORMAL(1)
\end{aligned}$$

The result then reflects what parents' income would have been if they had lived under the economic conditions of 1984-2001, in year 2000 dollars. That will somewhat over-estimate parents' incomes (because of productivity growth in the interval between the reference year for parents' characteristics and the survey date), but nonetheless put parents in roughly their correlative relative income rank. The distribution:

Variable	Mean	Std Dev	Label
P_LNINCQ	10.84	.47	Est parent ln income, R age 14 (w random)

An alternative would be to use a measure based on the possessions (house, car, VCR etc) which we have in several of our surveys. We did not do that because, other things being equal, older families are much less likely to have these possessions than younger families (cars, for example, were rare in the past and VCRs non-existent). Since age is linked to education and other key variables, that produces a serious bias.

WEALTH

Wealth is a self-rating of the value of house, car, superannuation, and other assets.

OCCUPATION

OCCUPATIONAL DATA

Occupations were initially coded into the 4-digit Australian Standard Classification of Occupations; and thence recoded into Kelley's worldwide status scores which are conceptually similar to Duncan's SEI scores and, in the United States, interchangeable with them (Kelley 1990: 344-346). Scores range from 0 to 100. The questions are based on ABS prototypes and require detailed, written answers.

Occupation refers to present occupation for those currently employed, or to past occupation for those not now employed, or to spouse's occupation if no other information was available. This procedure typically leaves under 10 percent of respondents with missing data on occupational status. We have regularly found that including a "no occupation" dummy variable in an analysis makes little difference to the substantive results and so, for simplicity, we omit it.

OCCUPATIONAL STATUS SCORES

The measure of occupational status we use Kelley's Worldwide Status Scores (Kelley 1990: 344-346; Kelley and Evans 2002), which are conceptually similar to Duncan's SEI scores and, in the United States, interchangeable with them. It is based on Treiman's (1977: 203-208) 14 category classification, in turn based on the major groups of the International Labour Office's International Standard Classification of Occupations (ILO, 1968) with further distinctions within major groups based on Treiman's prestige scores. Occupational status refers to present occupation for those currently employed, or to past occupation for those not now employed, or to spouse's occupation if no other information is available.³ Occupations were initially coded into the 4-digit Australian Standard Classification of Occupations; and thence recoded into Worldwide Status Scores. These scores range from 0 to 100.

In constructing the status scores, we assume that the true status of an occupation is intimately related to the education of incumbents (well educated people get the best jobs), to their income (high status jobs command larger rewards), and to the success of their children in the next generation (high status jobs provide resources that can be used to give children a head start in life). If so, and if Treiman's 14 categories give groups of occupations with similar status, then it follows that a scoring scheme (applied to the 14 categories) that maximizes the correlation between them and education, or income, or occupation in another generation would reflect the true status of occupations in each group. This scoring scheme can be found from a canonical (or, equivalently, discriminant) analysis -- for example, Klatzky and Hodge's (1972) procedure using only occupation in two generations. Rather than relying on a single pair of variables, we prefer a variant of Duncan-Jones' (1972) procedure predicting respondent's occupation (treated as a set of dummy variables without assumptions about rank) from education, income, and father's occupation (also scored as a set of dummy variables without assumptions about rank). We applied this procedure to individual level data from 16 countries, obtaining entirely independent scores for each. As the resulting scores are invariant under a linear transformation, there is no natural unit nor zero point; we have therefore (arbitrarily but conveniently) normed them from a low of zero to a high of 100.

These results suggest that occupational status hierarchies are much the same throughout the world. Table B1 shows the (product-moment) correlations between

³ This procedure typically leaves under 10 percent of respondents with missing data on occupational status. We have regularly found that including a "no occupation" dummy variable in an analysis makes little difference to the substantive results and so, for simplicity, we omit it.

hierarchies in 16 societies. The correlations are high, averaging 0.84. Indeed, this is slightly higher than the correlation Treiman found among prestige scores around the world. Furthermore, the similarity holds not just for western industrial societies but is equally apparent for the developing societies of Latin America, Africa, and Asia; correlations between industrial and developing societies average 0.82. Poland, though communist, is little different from the rest of the world. By far the lowest correlations involve Finland but since the other three Scandinavian countries are in no way unusual and the Finnish sample is the smallest analyzed (N=345), we attribute this to sampling error.

Since occupational status is essentially the same throughout the world, it is reasonable to construct a single scale for use throughout the world. We did this simply by averaging the scores for each country and norming the result to range again from zero to 100. These worldwide status scores are given in the text below.

Higher professionals -- the traditional free professions -- are clearly at the top of the hierarchy. Administrators are well behind, closely followed by technical employees, with higher clerical and higher sales employees coming next. Then there is a distinct gap; below that, the bottom of the white collar hierarchy overlaps with skilled manual workers. Ordinary semi-skilled workers follow next, then unskilled. As is well known in many developed nations, farmers and farm labourers are at the bottom (Treiman 1977; for evidence on Australia, see below for their mean education and income).

Table B1. Correlations among socioeconomic status scores for 16 societies; decimals omitted.[1]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Industrial Nations															
1. USA															
2. Australia	82														
3. Denmark	86	91													
4. Finland	63	28	73												
5. Germany	90	89	91	63											
6. Britain	92	91	93	43	99										
7. Netherlands	93	84	96	61	84	91									
8. N. Ireland	79	53	81	60	75	92	87								
9. Norway	88	82	90	67	87	89	92	78							
10. Poland	84	87	91	89	89	86	89	99	98						
11. Sweden	91	91	97	69	99	99	95	79	99	94					
Developing nations															
12. Bolivia	94	87	94	84	91	96	99	87	94	92	95				
13. Kenya	92	90	84	44	83	79	88	97	96	94	94	99			
14. Malaysia	79	63	72	70	62	77	80	93	84	93	78	84	96		
15. Philippines	89	70	81	57	73	84	92	94	93	93	93	98	97	89	
16. Taiwan	82	69	69	78	51	65	84	88	82	78	76	98	93	82	92

[1] Computed over occupational groups, not individual respondents.

Table xx. Occupational status scores

<i>Status</i>	<i>Group (Definition: ISCO major group; Treiman prestige)</i>
100	Higher professionals (ISCO 0 or 1; prestige 58 or more) -- lawyers, doctors, dentists, pilots, engineers, accountants, academics, secondary school teachers, economists, etc.
75	Administrators and managers (ISCO 2; any prestige) -- managing directors of companies, sales managers, bank managers, parliamentarians, high ranking bureaucrats, etc.
70	Technical employees (ISCO 0 or 1; prestige under 58) -- computer programmers, nurses, primary school teachers, librarians, artists, social workers, etc.
60	Higher clerical employees (ISCO 3; prestige 41 or more) -- clerks, secretaries, bookkeepers, bank tellers, etc.
51	Higher sales employees (ISCO 4; prestige 40 or more) -- owners of retail stores, sales representatives, insurance agents, wholesale managers, etc.
38	Routine clerical workers (ISCO 3; prestige under 41) -- filing clerks, postal clerks, telephone operators, etc.
37	Skilled manual workers (ISCO 7, 8 or 9; prestige 38 or more) -- mechanics, machinists, master craftsmen, foremen, television repairmen, locomotive drivers, etc.
33	Skilled service workers (ISCO 5; prestige 27 or more) -- restaurant managers, policemen, cooks, hairdressers, etc.
32	Routine sales workers (ISCO 4; prestige under 40) -- shop assistants, sales clerks, etc.
24	Ordinary semi-skilled workers (ISCO 7, 8 or 9; prestige 26 to 37) -- carpenters, plumbers, sheet metal workers, drivers, painters and decorators, bricklayers, etc.
18	Unskilled service workers (ISCO 5; prestige under 27) -- waiters, bartenders, cleaners, etc.
14	Unskilled manual workers (ISCO 7, 8 or 9; prestige under 26) -- labourers, porters, garbage collectors, etc.
10	Farmers (ISCO 6; prestige 34 or more) -- farm owners, farm foremen, etc.
0	Farm labourers (ISCO 6; prestige under 34) -- farm workers, tractor drivers, fishermen, etc.

Frequencies:

Value	Label	Value	Percent
0	Farm worker	0	.9
10	Farm owner	10	3.2
14	Unskilled worker	14	2.5
18	Routine service	18	5.4
24	Semi-skilled worker	24	11.7
32	Routine sales	32	5.1
33	Higher service	33	3.9
37	Skilled workers	37	5.6
38	Routine clerical	38	6.9
51	Higher sales	51	5.0
60	Higher clerical	60	13.2
70	Technical (low prof)	70	14.0
75	Admin, managerial	75	8.8
100	Higher professional	100	11.7
		Total	100.0
Mean	51.474	Std dev	26.598

The mean educational levels of Australians in each of these occupations is:

Value	Label	Years of education		
		Mean	Std Dev	Cases
0	Farm worker	9.9	2.4	182
10	Farm owner	10.3	2.6	646
14	Unskilled worker	9.4	2.2	505
18	Routine service	10.0	2.5	1086
24	Semi-skilled worker	9.7	2.2	2355
32	Routine sales	10.5	2.3	1025
33	Higher service	10.9	2.1	787
37	Skilled workers	10.3	2.1	1139
38	Routine clerical	10.8	2.1	1397
51	Higher sales	11.1	2.5	1012
60	Higher clerical	11.0	2.0	2689
70	Technical (low prof)	13.1	2.5	2840
75	Admin, managerial	12.5	2.9	1781
100	Higher professional	15.1	2.3	2375

And their mean family income:

Value	Label	Family income		
		Mean	Std Dev	Cases
0	Farm worker	35852	26647	163
10	Farm owner	43828	37309	562
14	Unskilled worker	34330	22974	426
18	Routine service	33818	23251	934
24	Semi-skilled worker	39596	25368	2044
32	Routine sales	35630	25502	889
33	Higher service	44433	28218	689
37	Skilled workers	43646	26453	1017
38	Routine clerical	42322	27380	1255
51	Higher sales	53689	35167	911
60	Higher clerical	47838	30507	2407
70	Technical (low prof)	60373	39542	2607
75	Admin, managerial	76634	56193	1623
100	Higher professional	70120	48814	2198

TYPE OF OCCUPATION (BLUE COLLAR/ WHITE COLLAR/ FARM)

Blue-collar occupations are major groups 5, 7, 8 and 9 of the 1968 International Standard Classification of Occupations; white-collar occupations – usually the reference group in our analyses – are major groups 0, 1, 2, 3 and 4; and farm occupations are major group 6.

LABOUR FORCE PARTICIPATION, EXPERIENCE

IN LABOUR FORCE, SPOUSE IN LABOUR FORCE

Labour force participation and **spouse's labour force participation** were measured by direct questions. In some analyses, we use a dichotomous version (working versus all other); in others a version distinguishing not in labour force (=0), part-time (=0.5), and full-time (=1.0) or the equivalent in approximate hours worked (none=0; part-time=20; full-time=40). In other analyses, we distinguish those working long or very long hours (as defined below).

HOURS5Q Hours worked: Tabular		
Value Label	Value	Percent
Not working: 0-4	1.00	38.5
Part time: 5-34	2.00	14.4
Full time: 35-48	3.00	34.9
Long: 49-59	4.00	7.0
Very long: 60+	5.00	5.2
	Total	100.0

MOTHER WORKED WHEN RESPONDENT WAS YOUNG

Mother worked was asked directly, in most surveys with three questions referring to key stages in respondent's life-cycle: when respondent was under school age (5 or under); when respondent was age 6 to 9; and when respondent was age 10 to 14. In many analyses, we averaged these three items to make a summary scale of mother's employment.

MOWKPREQ Mother work when R age 0-5		
Value Label	Value	Percent
Not working	.00	76.0
Yes, Part time	.50	9.9
Yes, Full time	1.00	14.1
	Total	100.0
Mean	.190	Std dev .359
Valid cases	21800	

MOWK6Q Mother work when R age 6-9		
Value Label	Value	Percent
Not working	.00	66.8
Yes, Part time	.50	15.7
Yes, Full time	1.00	17.5
	Total	100.0
Mean	.253	Std dev .387
Valid cases	17628	

MOWK10Q Mother work when R age 10-14		
Value Label	Value	Percent
Not working	.00	60.7
Yes, Part time	.50	17.2
Yes, Full time	1.00	22.1
	Total	100.0
Mean	.307	Std dev .412
Valid cases	23026	

MO_WORK\$ Mother work when R young (scale averaging the items above)		
Mean	Std dev	
.252	.344	

DEMOGRAPHIC VARIABLES

AGE, PARENTS' AGE

Age at the time of the survey is measured in years, based on date of birth.

Parents' age is the average age of respondent's mother and father when respondent was born. There is some evidence in other countries that older parents do a somewhat better job of raising their children than do younger parents

Variable	Mean	Std Dev	Label
AGEQ	44.25	16.00	AgeQ (at time of survey)
PNTAGEQ	29.58	6.22	Parents age when R born (mean).

SEX

Male is scored 1 for men and 0 for women.

MALEQ	MaleQ =1, female=0		
Value Label		Value	Percent
Female		.00	50.5
MaleQ		1.00	49.5
		Total	100.0

MARRIED, DE FACTO, DIVORCED; PARENTS DIVORCED

Marital status was asked in a direct question. In most analyses we use it to distinguish three marital states: currently **married**, currently **de facto**, and everything else.

MARRIEDQ	Married (not defacto)		
Value Label		Value	Percent
No		0	28
Yes		1	72
		Total	100
Valid cases	26126		

DEFACTOQ	De facto (living together)		
Value Label		Value	Percent
No		0	95
Yes		1	5
		Total	100.0
Valid cases	25915		

DIVORCEQ	Divorced or separated now		
Value Label		Value	Percent
No		.00	93.2
Yes		1.00	6.8
		Total	100.0

Parental divorce is also measured by a direct question. This refers to whether or not your parents ever got divorced, including those who divorced and then married someone else, so many respondents with divorced parents would have spent part of their childhood in a family with a step-parent.

PNTDV14X	Parents get divorced		
Value Label		Value	Percent
No		0	90
Yes, Divorced		1	10
		Total	100
Valid cases	26467		

NUMBER OF SIBLINGS

Number of siblings is derived from direct questions on number of brothers and number of sisters (save for one year when we asked brothers and sisters combined).

NSIBSQ		Number of siblings	
Value	Label	Value	Percent
		0	5
		1	21
		2	25
		3	19
		4	11
		5	7
		6	4
		7	3
		8	5
		Total	100
Valid cases	22754		

URBAN RESIDENCE

Urban residence is the natural log of the approximate population size of the place of residence, based on a direct question. In some analyses, it is dichotomised, with urban areas (population 500,000 and over) scored 1 and all others 0.

LNURBANQ		ln size of city now	
Value	Label	Value	Percent
	Farm, property	2.30	6
	Village (under 1,000)	6.21	5
	Town (to 20,000)	9.26	17
	Mid-sized city	11.00	17
	City (to 500,000)	12.61	13
	Metropolitan (500,000+)	14.73	42
		Total	100
Mean	11.709	Std dev	3.461

Urban residence at age 14 is measured similarly.

ETHNICITY AND MIGRATION

Place of birth is coded from a direct question into the ABS 4 digit code. For reasons of space, the full distribution of origin countries is not given here.

First generation migrants are defined as those born abroad. **Second generation migrants** are those born in Australia but whose parents were born abroad.

MIG1GENQ		1ST generation migrant: Foreign born	
Value	Label	Value	Percent
	No	0	79
	Yes	1	22
		Total	100
Valid cases	26467		

MIG2NDQ		2nd generation: Oz born of 2 foreign par	
Value	Label	Value	Percent
	No	0	93
	Yes	1	7
		Total	100
Valid cases	26467	0	

RELIGION

CHURCH ATTENDANCE

Church attendance is the log of number of services attended per year (counting one per year for the lowest category). The raw figures are from a direct question, coded into approximate number of services attended per year:

CHGOX	Church attendance now (# days/year)		
Value	Label	Value	Percent
Missing: Ask, no ans		-1.00	2
Never		.50	31
< 1 year		.75	15
Once a year		1.50	13
Several times yr		4.00	15
Once month		12.00	3
2-3 per month		30.00	3
Each week, nearly		45.00	5
Every week		52.00	10
Several times week		140.00	3
		Total	100

CHRISTIAN BELIEF

Christian belief is a reliable 4 item question covering belief in god, heaven, hell, and life after death (Kelley 1988; Kelley, Evans, and Headey 1993).

Correlation Matrix

	GOD1Q	AFTLIFEQ	HEAVENQ	HELLQ
GOD1Q	1.00			
AFTLIFEQ	.60	1.00		
HEAVENQ	.75	.72	1.00	
HELLQ	.58	.59	.73	1.00

Reliability Coefficient Alpha = .89

Variable	Mean	Std Dev	Label
CBELIEF\$	55	30	Christian belief scale

DENOMINATION

Denomination is based on a direct questions, usually scored as a set of dummy (indicator) variables. The exact dummy variables depend on the level of detail required in the analysis and the subject matter. In some analyses, we distinguish **Catholic** from all others. In other analyses, others we distinguish four groups: Catholic, **Protestant**, **Atheist**, and **Others**. And in yet other analyses we make further distinctions, for example separating **Anglicans** (Church of England) from other Protestants.

MEASURES OF SOCIAL CAPITAL

“Social capital” is a term that has been used in various ways in sociology. The past decade’s focus of research on the topic usually stems from one of two sources, (1) Coleman’s social-networks based definition (Coleman 1988:S98; Schneider and Coleman 1993) or (2) Putnam’s (1993; 2000) organisational participation/ community-group engagement definition. It seems likely that both definitions may be relevant to well-being. For example in relation to the Putnam definition, the positive effect of church attendance found earlier in the report can

be seen as evidence of the impact of organisational participation on well-being, and, moreover, some volunteer work is formally organised, so the positive impact of volunteer work on well-being noted earlier may also partly reflect the impact of organisational/ community group participation. Our data to hand involve measures developed in light of the Coleman definition (Kelley and Evans 1990), as has also been true of much work on the topic overseas (e.g. Ross and Mirowsky 1999; Ross, Reynolds, and Geis 2000; Skogan 1990; Warner and Rountree 1997).

A future project could involve collection and analysis of much more extensive data relevant to the Putnam definition.

From the IsssA data, we developed multiple-item measures of neighbourhood social capital. These multiple-item ratings of course reflect some intangibles as well as the objective characteristics of the neighbourhood. One interesting question we answer in the analysis is the degree to which the Census-measured characteristics are an adequate proxy for the intangibles, and how much the intangibles make an independent contribution to well-being.

The results on these items should be of particular importance to FaCS, because they allow us to discover the degree to which neighbourhood social capital affects subjective well-being. That in turn, is an important input into issues of resource allocation for FaCS, especially the balance between investing communities or in individuals and families.

Specifically the IsssA developed measures of three aspects of social capital, working in 1989 from the Coleman definition (e.g. Kelley and Evans 1992), and has replicated these episodically since then. The multiple-item indices were designed into the data, so confirmatory factor analysis was again justified. We conducted these, together with extensive data-quality checks and with correlational assessments. These measures of neighbourhood quality net of socioeconomic level also bear on issues of resource allocation between families and communities.

SOCIABILITY OF THE NEIGHBOURHOOD

When neighbours do things together and assist each other, rather than behaving more atomistically, it makes for a very different place to live than neighbourhoods where this does not happen (Coleman 1988:S98; Schneider and Coleman 1993; Taylor 1996; Warner and Rountree 1997). We will discuss this in more detail later (in connection with the confirmatory factor analysis in Table 4.2).

FRIENDS IN THE NEIGHBOURHOOD

Prior research tends to find that having friends increases subjective well-being (e.g. Pinqart and Sorensen 2000), so it is reasonable to hypothesize that the number of local friends increases life satisfaction.

. Prior research in Australia and the US shows that, empirically, the presence of young people at leisure on the street in groups pursuing no evident purpose is associated with aggression, rudeness, and threats (Kelley and Evans 1992; Ross and Mirowsky 1999; Ross, Reynolds, and Geis 2000; Skogan 1990; Warner and Rountree 1997). This is not a logical necessity, or an imposition of an arbitrary definition, but an empirical finding. As a result, it makes sense to test items involving “hanging around” for inclusion in the neighbourhood incivility index or scale. Note that the wording of the IsssA items is based on extensive qualitative work eliciting the language that Australians in general use to discuss these issues; as a result, the language is not necessarily “politically correct”. Using popular language enhances the accessibility of questions to respondents, especially less educated respondents (e.g. Dykema and Schaeffer 2000; Sheatsley 1983) The IsssA neighbourhood incivility scale is based on a series of questions:

```

" How common are these in this area -- within a 15 minute walk ...

d. Older children - aged 13 or 14 or so - hanging around on the streets?
    Very common
    Fairly common
    Not common
    Very rare
    None at all

e. Teenagers - age 17 or 18 or so - hanging around?
    [answers as above]

k. People being rude to you for no reason - how common is that that in this
area?
    [answers as above]

l. Louts hanging about the streets?
    [answers as above]

m. People being hostile and aggressive?
    [answers as above]

```

Analysis shows a clear, unidimensional structure, with an alpha reliability of .86. These items are all well-correlated with the average correlation among them being about .60. Note that these high correlations reflect frequent co-occurrence of these various neighbourhood features in respondents’ minds, not anything forced onto them by the questions or by the analysis.⁴

We will discuss measurement properties of these items in more detail later (in connection with the confirmatory factor analysis in Table 4.2).

⁴ Note that these items are not context sensitive. Over the past decade, we have experimented with a number of ordering and imbedding differences in developmental pretests, none of which materially alter the correlations.

GEOGRAPHIC CONTEXT (POSTCODES)

This merges postcode level data from the census with unit-record data from IcssA surveys, selecting (on the basis of theory, past research, and preliminary analysis) key variables measuring neighbourhood context

From the ABS postcode data, we developed objective measures of neighbourhood quality. To this end, we winnowed the wide variety of affluence measures that are available in the ABS postcode data to find those that best discriminate among neighbourhoods. We also examined the other traditional elements of socioeconomic status measures – placement in the occupational hierarchy, educational level, engagement in work. To evaluate the various possible measures, we assessed descriptive statistics and listings of cases to check data quality, and examined data structures to see whether items that we hoped to combine into multiple-item indices (because they are theoretically linked and because combining into multiple-item indices reduces random measurement error) have the kinds of relationships that permit us to do this. For these purposes, we used Pearson correlations and exploratory factor analysis: Combining items into a multiple item index or scale is only justified if they are really multiple measures of the same thing. In addition to conceptual similarity, this means that they should all be highly correlated with each other, that exploratory factor analysis should find that they all belong on a single “factor” or “dimension”, and that their correlations with criterion variables should be proportional to their factor loadings. The multiple-item indices constructed in this way are our objective socioeconomic measures of neighbourhood quality. They are needed to address such issues as how much neighbourhood characteristics matter compared to one’s own human capital characteristics and other relevant causal factors.

POSTCODE SOCIOECONOMIC STATUS

ABS data include a variety of possible indicators of the socioeconomic status of postcodes, from which we have harvested a set that cover important dimensions of socioeconomic status – the percentage of postcode residents who hold university degrees, the percentage who left school at 14, the percentage who work in professional occupations, the percentage who work as labourers, and the earnings of prime age men. These variables are shown by factor analysis to cohere well, substantiating our expectation that the various indicators are all measures of a single, uni-dimensional underlying construct [see Appendix table A].

Appendix Table A. Factor analysis of postcode socio-economic characteristics, 1996. N= 2,364 postcodes.[1]

Panel A: Variables		Mean	s.d.		
1. % left school at age 14		8.4	6.3		
2. % university educated		17.6	6.3		
3. % labourers		14.2	7.5		
4. % professional		10.8	5.4		
5. Earnings, prime age men	\$595 week		199		
Panel B: Correlations		(1)	(2)	(3)	(4)
1. % left school at age 14		1.00			
2. % university educated		-0.58	1.00		
3. % labourers		0.50	-0.56	1.00	
4. % professional		-0.53	0.92	-0.58	1.00
5. Earnings, prime age men		-0.66	0.70	-0.54	0.65
Panel C: Maximum likelihood factor analysis (preferred) [2]		Factor loading	Factor scores		
1. % left school at age 14		-0.60	-0.03		
2. % university educated		0.97	0.62		
3. % labourers		-0.60	-0.03		
4. % professional		0.94	0.30		
5. Earnings, prime age men		0.72	0.05		
Panel D: Principal axis factor analysis (alternative)		Factor loading	Factor scores		
1. % left school at age 14		-0.69	-0.13		
2. % university educated		0.92	0.46		
3. % labourers		-0.66	-0.12		
4. % professional		0.88	0.19		
5. Earnings, prime age men		0.80	0.21		
Panel E: Correlations among alternative factor scores		Maximum likelihood	Principal axis		
Maximum likelihood		--	0.977		
1. % left school at age 14		-0.686	-0.680		
2. % university educated		0.867	0.747		
3. % labourers		-0.604	-0.566		
4. % professional		0.823	0.697		
5. Earnings, prime age men		0.959	0.997		

[1] Postcode socio-economic characteristics are from the 1996 Census: Australian Bureau of Statistics, *1996 Census of Population and Housing: Basic Community Profile*. Canberra: Commonwealth of Australia 2000.

[2] Scale reliability: standardized item alpha = .89.

OTHER POSTCODE BASED MEASURES OF COMMUNITY CHARACTERISTICS

- o *Neighbourhood prosperity and local opportunity structure:* The separate items we examined here included (in addition to the Postcode socio-economic status index discussed above); % Unemployed in postcode; % Left school by age 14; % University

graduates among the population aged 15+ in postcode; % Unskilled labourers in postcode labour force; % Professional in postcode labour force; and Average weekly earnings of men 45-54.

- o *Family structure*: As measures of family structure, we examined: % of postcode households containing a father, mother, and children; % of postcode households containing a couple without children; % of postcode households that are single parent with child(ren) under 15; % of postcode households containing a lone person.
- o *Stability*: As a measure of the stability and temporal depth of neighbourhood social networks, we examined the % of postcode households at same address 5 years ago.
- o *Male age structure*: High concentrations of adolescent boys and young men in particular neighbourhoods has been thought to stimulate crime and public incivility, and a dearth of prime-aged men may contribute to that effect: % males aged 10-14 in postcode; % males aged 15-19 in postcode; % males aged 20-24 in postcode; etc through % males aged 50-54 in postcode.
- o *Industrial structure*: % Agriculture in postcode; % Mining in postcode; % Manufacturing in postcode; % Electricity, gas & water; % Construction; % Wholesale in postcode; % Retail in postcode; % Accommodation, restaurant; % Transport; % Communications services; % Finance & insurance; % Property, business services; % Government administration; % Education; % Health & community service; % Cultural & recreational; % Personal & other services.
- o From the ABS postcode data, we also developed measures of *neighbourhood ethnic diversity*: % Aboriginal & TSI in postcode; % Australian-born in postcode; % English-speaking immigrants; % Non-English speaking immigrants.

2. FAMILY EFFECTS ON WELL-BEING: MULTIVARIATE MODELS

Effects of the family of origin

The our modeling strategy is built around a causal order largely organised biographically, so it begins with enduring consequences of the family of origin on subjective well-being.

Parental divorce. Controversy in recent years has raged over the impact of divorce on children’s education (and indeed trends in the impact of divorce on children’s education form the focus of an MI project for FaCS for 2002). Recent research, particularly in the US, suggests that parental divorce has permanent, but not huge, negative consequences for the well-being of their offspring. If true, this is a striking result, because few childhood experiences have any discernible continuing impact on adult well-being. To our knowledge, this issue has not previously been researched on a large, representative nationwide sample in Australia.

In Australia, we find that parental divorce has a negative effect on their offspring’s subjective well-being in adulthood, a deficit of about 2 points out of 100 (Table 2.1). This effect is robust in sensitivity analyses using alternative specifications of the model. Nonetheless it is worth emphasizing that this is not a huge effect.

[Table 2.1 about here]

Table 2.1: Effects of family background on life satisfaction[1].
Ordinary least squares regression estimates. N=26,009 [2]

Variable	b	s.e.	Standardised	t
Male	-1.20	0.26	-0.03	-4.66
Migrant	-0.96	0.51	n.s.	-1.88
Parents' education	0.10	0.05	0.01	1.98
Father's status	0.66	0.55	n.s.	1.19
Parents divorced	-2.30	0.43	-0.04	-5.41
Number of siblings	0.01	0.01	n.s.	0.49
(Constant)	71.90	0.48		

[1] Equal interval scoring

[2] R-squared = .003

Nonetheless, it is remarkable to find such an effect, because relatively few childhood experiences have demonstrable enduring effects on adult well-being.

Could this be a proxy effect? In other words could it be that the effect is not caused by divorce, but rather by the social forces that give rise to divorce? A definitive answer is not available, because no existing large dataset has all the relevant variables, but we can make some educated guesses based on existing information. (1) Divorce, both here and overseas, appears to be largely random

with respect to social class, income, etc, so divorce's effect is unlikely to proxy those effects (many of which are explicitly included in the model). (2) Parental conflict is often suggested as the true hidden source of many of divorce's apparent deleterious effects, and it seems possible that it plays a role in the case of long term impacts on adult well-being (Amato, Loomis and Booth 1995; Demo 1992). Numerous studies of schoolchildren document negative effects of parental conflict on the children's well-being at the time (these are ably reviewed in Rodgers 1996), and several studies find negative effects on adult offspring who experienced parental conflict while growing up (e.g. Dixon, Charles, and Craddock 1998).

This issue could be examined in detail in the future, by pooling the 1996/97 and 2001 IcssA surveys which are independent samples, both of which contain all the information used in the model presented in this report plus the IcssA's "Family Relationships" module developed by Bruce Headey and Jonathan Kelley. While that possibility is intriguing, it should be noted that recent research suggests that parental conflict does not account for divorce's negative impact on children's education (Evans, Kelley, and Headey 2001).

Siblings. In contrast to the long-established negative effect of sibship size on stratification-related outcomes (e.g. Williams et al. 1980), The size of one's family of origin has no long term impact on one's subjective well-being in this model: The effect of size of family of origin is not statistically significant even in this large sample (Table 2.1).⁵ This has important future implications, because there are so many small families in the low fertility situation that has prevailed in Australia in recent years and probably will continue to do so into the future. For example, Australians clearly do not favour only-child families (Evans and Kelley 1999), but being an only child does not have a significant negative effect on life satisfaction. The fact that the impact of family size on subjective well-being is not significant suggests that, all else equal, the children growing up in these small families, will, as adults, experience levels of subjective well-being that are the same on average as those experienced by people growing up in otherwise similar large families.

The social class position of the family of origin does not seem to affect people's well being in adulthood. **Father's occupational status** – his place in the job hierarchy – has a non-significant effect. This is in contrast to the demonstrated, if not huge, effect of father's occupational status on children's educational attainment and occupational status (e.g. Broom, Jones, McDonnell, and Williams 1980; Crook 1997; Marks 1992).

By contrast, **parents' education** has a small, significant effect on their offspring's later adult well-being, in this model. Thus, for example, all else equal,

⁵ The continuous measure of number of siblings shown in Table 2.1 is to be preferred for parsimony when other, more elaborate definitions are not demonstrably superior, so should note that an extended specification in which each family size up to 4 or more siblings is represented by a dummy variable also fails to find any significant effect on adult well-being.

the adult offspring of a family in which the parents both exited the educational system after completing year 10 could expect to experience 0.5 of a point lower subjective well-being than people who grew up in an otherwise similar family where the parents completed 3-year university degrees.

Nor do **foreign origins** have a significant impact on subjective well-being in this model. Neutral effects of being a migrant on subjective well-being have also previously been reported (Headey and Wearing 1992: 80).

Finally, **gender** has a very small, but statistically significant, effect on subjective well-being in this model. All else equal, men are on average a little less satisfied with their lives than women, by about one point out of 100, on average. This is a result to be expected in light of prior research which normally finds no effect of gender or a slight male disadvantage, depending in part on sample size and other variables in the model (Argyle 1987; Headey and Wearing 1992: 60, 78; Veenhoven 1984).

Effects of current family situation and family formation history

To model the effects of family situation we take the single state – never married and not now de facto – as the reference category, and the effects of the other family arrangements are then estimated relative to it. Note that here, as elsewhere in the report, we distinguish de facto relationships from de jure marriages (which, for brevity, we call marriages). It is worthwhile assessing whether there are differences between them, because prior research suggests that de facto relationships are more like dating or courtship relationships than like marriages in terms of the behaviour of the partners (Bachrach 1986; Brown and Booth 1996; Clarkberg, Stolzenberg, and Waite 1995; Rindfuss and VandenHeuvel 1990). By incorporating the distinction, our models do not pre-judge any particular result – they allow us to discover a difference if it is there, but, equally, would clearly show if no difference were present.

In this model, people in intact first **marriages** experience higher subjective well-being than their single peers by about 4 points out of 100, net of other influences, a statistically significant difference (Table 2.2). That is not a surprising result in light of prior research, but prior research provides less guidance about subsequent marriages, in part because they have been too few to permit good estimates in small surveys. The results from the substantial IsssA database show that, all else equal, people in second (and later) marriages are also about 4 points more satisfied with their lives than are single people, on average and all else equal. In fact, the estimates of the amounts of happiness conferred by first and second marriages are not significantly different in this model, so we will hereafter simplify the model by combining them into a single “married” category. This is an important result, because it suggests (1) the deleterious effects of divorce on subjective well-being, documented below, are state-specific and do not continue to reduce the level of subjective well-being if a new marriage takes place, but that (2) the matches achieved by second

marriages enhance life satisfaction no more, on average and all else equal, than do the matches achieved in first marriages.

[Table 2.2 about here]

Table 2.2: Effects of marriage, divorce and family structure on life satisfaction. Ordinary least squares regression estimates. N=26,009 [1]

Variable	b	s.e.	Standardised	t
Male	-1.44	0.26	-0.04	-5.54
Migrant	-0.24	0.51	n.s.	-0.47
Parents' education	0.24	0.05	0.03	4.48
Father's status	0.88	0.55	n.s.	1.59
Parents divorced	-1.97	0.42	-0.03	-4.65
Number of siblings	-0.01	0.01	n.s.	-0.41
Marriage:				
Single (reference) [2]	--	--	--	--
First marriage	4.42	0.42	0.11	10.58
Second marriage	4.01	0.64	0.05	6.31
De facto	-0.76	0.62	n.s.	-1.22
Widowed	-0.49	0.80	n.s.	-0.61
Divorced	-4.50	0.63	-0.06	-7.16
Family size	0.19	0.10	n.s.	1.90
Age	0.03	0.01	0.02	2.99
(Constant)	66.23	0.69		

[2] R-squared = .02

[3] Never married and not de facto

People in **de facto** relationships are no more satisfied with their lives than are otherwise similar single people, on average. The finding that these relationships are significantly less satisfying than are marriages suggests that they are quite different from marriages to the people experiencing them.

Widows experience levels of subjective well being that do not differ significantly from those experienced by single people, all else equal.

By contrast, in this model, divorced people experience levels of subjective well-being that are, on average, significantly below those experience by married people. On average and all else equal, in this model the life satisfaction of divorced people is about 4 points below the level characteristic of single people, a substantial, statistically significant effect. Because, on average and all else equal, in this model married people are 4 points happier than are single people, and divorced people are about 4 points less happy than are the single, the difference in the well-being of married and divorced people amounts to about 8 points out of 100 in subjective well-being.

Thus the coefficients from the model suggest that subjective well-being during a not uncommon marital career would begin at the single baseline, climb 4 points for marriage, drop eight points for divorce, climb up four points as a de facto relationship is formed, bringing the person back where they were when the process began, back to the single baseline. For that sort of interpretation to be

valid, it would have to be true that the relationship forming and breaking process depends on things other than enduring traits of the person (that it is an exogenous switching process). So far as research shows today, for the mainstream population this is largely true – trends towards later marriage (and non-marriage) and towards divorce have swept the population at all social class levels, and, moreover, at the individual level social class and other structural characteristics of individuals have little impact on divorce at the individual level. Further, the analysis controls for some of the potential determinants of marital careers through our family background measures in the model. The point is that a diverse spectrum of people find themselves divorced, , experiencing, on average, depressed levels of subjective well-being, and possibly turning to FaCS for single parent benefits.

Table 2.2 also portrays the consequences of other features of one's family situation and life cycle stage. In particular, the model reveals no significant effect of **family size**. More concretely, one's fertility, the number of one's children, has no systematic impact on subjective well-being in this model on average and all else equal. We have tried a number of alternative specifications, to test the robustness of this finding and they largely reveal the same non-significant result, so it seem reasonable to take it as a working hypothesis that the number of one's children does not affect one's life satisfaction in Australia.

This could come about either (1) because people, for the most part, achieve the family sizes they desire, and so are equally contented with them or (2) because people are sufficiently adaptable that they come to be contented with the family sizes they happen to get. This is an issue warranting future research, because existing research shows that the actual level of childlessness is likely substantially to exceed the desired levels of childlessness in Australia for current (and quite possibly future) cohorts of adults (Evans, 2001). If the adaptability explanation of fertility's null effect on life satisfaction is correct, then the apparent unmet demand for children will vanish as people accommodate their desires to their situation. If, on the other hand, fertility merely appears to have no impact on subjective well-being because, heretofore, people have successfully sorted themselves into the family sizes that suited them, then the unmet demand for children is likely to reduce subjective well-being in the future.

Another life course feature that is evident in Table 2.2 is a small, positive effect of **age**, such that well-being grows by about .3 points out of 100 per decade. That is very slow growth indeed, amounting to an advantage of 1.5 points for someone age 75 over someone age 25. Nonetheless, it is consistent with a broad range of prior research (e.g. Headey 1988: 170; Hamarat, Thompson, Zabrocky, Steele, Matheny, and Aysan. 2001).

Finally, note that taking current family situation into account slightly ameliorates the deleterious effect of parents' divorce on offspring's later subjective well-being. More specifically the path-analysis interpretation of the coefficients (e.g. Alwin and Hauser 1975) would be that the total impact of parental divorce is 2.3 points, of which about 0.3 points operate though impacts

on offspring's marital arrangements, and about 2.0 points operate directly, independently of offspring's own family situation.

Another important question in issues of family effect on well-being is whether these differ by **gender**, for example, whether marriage is better for men than for women, a question pointedly raised by Jesse Bernard in her influential book *The Future of Marriage* (1982).

To answer this question, we re-estimated the model from Table 2.2 separately for men and for women (Table 2.3). The answers are readily seen in a small simulation that sets the variables other than those representing marital status to their means, and evaluates the regression equation for each marital status for each gender. Such a simulation is, of course, only justified on the assumption that marriage and divorce are exogenous switching processes.

[Table 2.3 about here]

Table 2.3: Gender differences in the effects of marriage, divorce and family structure on life satisfaction. Ordinary least squares regression estimates and predicted values.

Variable	b	s.e.	Standardised	t	Predicted values[1]	Gap: Women - men
A: Women. N=13,011						
Migrant	-0.63	0.73	n.s.	-0.86		
Parents' education	0.19	0.08	0.03	2.43		
Father's status	1.69	0.80	0.02	2.12		
Parent divorced	-1.50	0.59	-0.02	-2.52		
Number of siblings	0.02	0.02	n.s.	0.89		
<i>Marriage:</i>						
Single (reference)	--	--		--	71	2
First marriage	3.75	0.62	0.09	6.09	75	1
Second marriage	3.47	0.93	0.04	3.74	74	2
De facto	-2.34	0.86	-0.03	-2.71	68	-1
Widowed	-0.06	1.04	n.s.	-0.06	71	5
Divorced	-5.99	0.88	-0.08	-6.81	65	-1
Number of offspring	0.00	0.15	n.s.	0.03		
Age	0.01	0.01	n.s.	0.44		
(constant)	68.23	1.00				
B: Men, N=12,728						
Migrant	-0.01	0.72	n.s.	-0.02		
Parent's education	0.27	0.07	0.04	3.70		
Father's status	0.19	0.77	n.s.	0.25		
Parent divorced	-2.35	0.61	-0.04	-3.86		
Number of siblings	-0.03	0.02	n.s.	-1.51		
<i>Marriage:</i>						
Single (reference)	--	--		--	68	--
First marriage	4.71	0.57	0.12	8.21	73	--
Second marriage	4.11	0.88	0.06	4.69	73	--
De facto	0.86	0.90	n.s.	0.95	69	--
Widowed	-2.34	1.43	n.s.	-1.63	66	--
Divorced	-3.04	0.92	-0.04	-3.30	65	--
Number of offspring	0.40	0.15	0.03	2.75		
Age	0.05	0.01	0.04	3.54		
(constant)	63.34	0.95				

[1] Predicted value for marriage groups based on the regression equation, for a person average in other respects.

[2] R-squared = .02 for women and .03 for men.

In the simulation, single women's life satisfaction averages 71 points out of 100, all else equal (Table 2.3). That is two points higher than their male peers. A first marriage, elevates women's subjective well-being to 75 points out of 100, which is one point higher than their male peers. But if she enters a de facto relationship rather than a marriage, her life satisfaction is 68, actually slightly lower than had she remained single. For men, those in de facto relationships averaging 69 points out of 100 in life satisfaction. They are not significantly worse off than had they remained single, albeit clearly, and significantly worse off than had they married. Divorce drops women's life satisfaction to 65 points

out of 100 which is one point worse off than their male peers. A second marriage can raise a woman's life satisfaction back up to 74, one point higher than the average for a man in the same situation. But if divorce is followed by a de facto relationship, that leaves women slightly below where they began as spinsters and brings men back to the same level of life satisfaction they experienced as bachelors. It is in widowhood that the gender differences are greatest. In general, widows experience levels of subjective well-being similar to never-married women, *ceteris paribus*, but widowers average 5 points less life satisfaction than their female peers. Except for this, the differences by gender are not large or systematic. This is consonant with prior research on other countries. According to Headey and Wearing (1992: 81), "Contrary to Bernard, all quality of life surveys show that marriage is good for both sexes."

The importance of marriage to life satisfaction makes it worth inquiring into this matter more deeply. Accordingly, we turn to a subset of the data for which we also have available the IsssA Marital Quality Index based on people's ratings of how warm and affectionate their spouse is. The items for this index come as part of a battery asking about many different spouse characteristics, with answers on a five-point scale ranging from "definitely yes" to "definitely no". Their exact wording:

Do you enjoy their company?
Do they understand you?
Are they close to you?
Are they warm and loving?

These items are very closely linked, as shown by the fact that their inter-item correlations average .75, and the reliability of the 4 item index, as measured by Cronbach's alpha, is excellent, .92. Their face validity is good, and they factor analyse well (results not shown). Taken together, the positive results of these diagnostics suggest that we are justified in combining these 4 items into a single index (Bollen 1989: 179-184).

We re-estimate the model from Table 2.3 just for married people (and so omitting the indicator variables for marital status) augmenting it with the IsssA Marital Quality Index. We estimate this for the whole married population and for men and women separately (thus allowing all possible interactions with gender).

The results show that the quality of the marital relationship has a large and statistically significant effect on subjective well-being (Table 2.4). Every additional point of marital quality (one a points out of 100 basis) is associated with about one half a point higher life satisfaction for all married people, and by that same amount for both women and men.

[Table 2.4 about here]

Table 2.4: Effects of having a warm, affectionate marriage on life satisfaction. Ordinary least squares regression estimates. Married people only; N=2,518 [1]

Variable	b	s.e.	Standardised	t	Predicted life satisfaction by quality of marriage	
					Lowest quintile	Highest quintile
A: All, N=2,518					66	83
Male	-2.22	0.67	-0.06	-3.34		
Migrant	-1.32	1.40	n.s.	-0.94		
Parents' education	0.15	0.14	n.s.	1.06		
Father's status	0.51	1.43	n.s.	0.36		
Parents divorced	-2.02	1.11	n.s.	-1.83		
Number of siblings	0.01	0.04	n.s.	0.36		
Number of offspring	0.87	0.25	0.07	3.43		
Age	0.01	0.03	n.s.	0.59		
Quality of marriage	0.48	0.02	0.47	25.84		
(constant)	32.59	2.28				
B. Women, N= 1,299					67	85
Migrant	-1.88	1.97	n.s.	-0.96		
Parents' education	-0.05	0.20	n.s.	-0.24		
Father's status	3.30	2.03	n.s.	1.63		
Parents divorced	-1.67	1.54	n.s.	-1.09		
Number of siblings	0.05	0.05	n.s.	0.88		
Number of offspring	1.01	0.36	0.08	2.80		
Age	0.01	0.04	n.s.	0.25		
Quality of marriage	0.49	0.02	0.50	20.12		
(constant)	31.75	3.17				
C. Men, N= 1,209					65	82
Migrant	-0.85	2.02	n.s.	-0.42		
Parents' education	0.32	0.19	n.s.	1.65		
Father's status	-2.26	2.04	n.s.	-1.11		
Parents divorced	-2.29	1.61	n.s.	-1.42		
Number of siblings	-0.02	0.05	n.s.	-0.41		
Number of offspring	0.65	0.36	n.s.	1.80		
Age	0.03	0.04	n.s.	0.74		
Quality of marriage	0.47	0.03	0.43	16.22		
(constant)	30.85	3.39				

[1] The questions on affection were asked only in two recent surveys. R-squared = .21 in Panel A, .24 in Panel B, and .18 in Panel C.

How does this compare to other marital statuses? To find out, we conducted a simulation using the regression model from Table 2.4, setting the values of the other variables to their means, and evaluating the equation for different levels of marital quality.

In the simulation, people in relationships towards the low end of marital quality – the twentieth percentile -- average 66 points out of 100 in life satisfaction, all else equal. That is similar to the level of life satisfaction experienced by people in de facto relationships (68, on average) or by people who are divorced (65, on average). Moreover, there is little or no gender difference, with women averaging 67 and men averaging 65 in bad marriages.

Continuing with the simulation, people in relationships of fairly typical marital quality, the 50th percentile, average 74 points in subjective well-being. That is substantially higher than any of the other marital statuses we examined. Again, there is no substantial gender difference, with women in these typical or “garden variety” marriages averaging 76 points out of 100, and men in such marriages enjoying 73 points of subjective well being.

Finally, the simulation suggests that people with good marriages, in the 80th percentile of the marital quality distribution average 83 points out of 100 for men and women combined, and, separately, 85 points for women and 82 points for men. These results suggest that a good marriage is a very important source of well-being, but that those in bad marriages are no better off than the divorced or than those in de facto relationships. It is interesting that divorce, supposedly the remedy for bad marriages, produces levels of life satisfaction no higher than those observed in the bad marriages.

Another important feature of Table 2.4 is that, for the first time in this series of models, the effect of parental divorce on offspring’s life satisfaction in adulthood has dwindled to statistical insignificance. Recall that the effect of parental divorce is clearly present in the “family background” model (Table 2.1), and shrinks but remains statistically significant in the augmented model introducing the effects of marital status (Table 2.2 and 2.3). A path-analytic interpretation of this combination of effects (Alwin and Hauser 1975) would be that part of the deleterious effect of parental divorce on offspring’s subjective well-being comes about because parental divorce tends to deter people from marriage, so they are more likely that the adult offspring of intact families, on average and all else equal to be in the less satisfying single and de facto states. The fact that the remaining impact of parental divorce dwindles to insignificance when we enter marital quality into the model strongly suggests parental divorce may be less developed relationship skills (although the evidence here, is, of course, indirect, so we are suggesting an inductive hypothesis derived from the findings rather than reporting a finding).

The remainder of the report reverts to the larger sample because of the advantages that offers in precision of estimates. As a result, the subsequent models use the indicator variables of marital status as controls. (That is, we omit the marital quality index from subsequent models because the items are not available in the larger dataset.) This is necessary, so that the analysis can revert to the IsssA-Pool dataset in order to obtain the maximally precise estimates of the effects of the variables the analysis of which occupies the rest of this report.

Community engagement: Religion and charity/volunteer work

Civic engagement is at the heart of Putnam’s organisationally oriented definition of social capital (1993: 163-176). One of the important ways that Australians engage with their communities is through their churches (Bouma and Dixon 1986; Evans and Kelley 2000a; Hughes and Blombery 1990). Moreover, prior research has abundantly documented the salience of religion to subjective well-

being (Headey and Wearing 1992: 82-83). Accordingly we augment our basic model of life satisfaction with a measure of frequency of church attendance and with indicators for denominational differences.

Table 2.5 shows that the model detects a highly significant positive effect of church attendance on subjective well-being. The importance of this effect is highlighted by its standardised regression coefficient – an indicator of the relative importance of different variables which is useful because it enables us to compare the impacts of variables measured in different units – which is the second largest in the model, being second only to marriage in importance.

[Table 2.5 about here]

Table 2.5: Effects of religion and charity work on life satisfaction.
Ordinary least squares regression estimates. N=26,009 [1]

Variable	b	s.e.	Standardised	t
Male	-0.95	0.51	n.s.	-1.84
Migrant	-0.15	1.01	n.s.	-0.15
Parent's education	0.25	0.11	0.04	2.43
Father's status	0.83	1.09	n.s.	0.76
Parent divorced	-1.79	0.84	-0.03	-2.15
Number of siblings	-0.01	0.03	n.s.	-0.42
First marriage	4.69	0.82	0.12	5.70
Second marriage	4.93	1.26	0.06	3.93
De facto	0.19	1.22	n.s.	0.16
Widowed	-0.14	1.58	n.s.	-0.09
Divorced	-3.80	1.24	-0.05	-3.06
Family size	-0.01	0.20	n.s.	-0.06
Age	0.01	0.02	n.s.	0.43
Church attendance	0.92	0.16	0.09	5.64
<i>Denomination:</i>				
Anglican (reference)	--	--	--	--
Catholic	-0.92	0.72	n.s.	-1.28
No religion	-2.30	0.77	-0.05	-2.99
Non-Christian	-3.13	2.16	n.s.	-1.45
Other Protestant	-0.13	0.68	n.s.	-0.20
Charity work	0.31	0.09	0.05	3.50
(constant)	66.23	1.43		

[1] N=6,447 for charity work, a question asked only in recent surveys. R-square = .04

There are few differences among the various religious denominations (Table 2.5). None of the denomination effects is significant except for “no religion” which is about two points out of 100 less satisfying than the other options. The finding that Anglicans, Other Protestants, and Catholics are equally satisfied with their lives is a familiar one in this line of research. But this is the first research in Australia, so far as we know, to be based on a large enough sample to be able to assess the influence of adherence to non-Christian religions. In this model, members of non-Christian religions do not differ significantly from Christians in their levels of life satisfaction.

The model finds that engagement in charitable/ volunteer work has a significant positive effect on life satisfaction of about .3 of a point per hour worked, as shown by the metric regression coefficient (Table 2.5). Thus, for example, people who do 10 hours a week of charity work are about 3 points out of 100 more satisfied with their lives than are otherwise similar people who do no volunteer work, according to the estimates in this model. Insofar as volunteer/ charity work can be taken as an indicator of the Putnam-variant of social capital, this result suggests a positive association between social capital and subjective well-being.

 Individual level controls: Education and paid work, health, disability

In this section we discuss first an augmented model that adds measures of education and paid work into the previous model. Education, of course, is a major source of objective well-being (e.g. Broom et al 1980; Marks 1992). The results are shown in Table 2.6.

[Table 2.6 about here]

Table 2.6: Effects of education, income and labour force participation on life satisfaction. Ordinary least squares regression estimates. N=26,009

Variable	b	s.e.	Standardised	t
Male	-0.89	0.55	n.s.	-1.62
Migrant	-0.03	1.00	n.s.	-0.03
Parents' education	0.23	0.11	0.03	2.14
Father's status	0.37	1.10	n.s.	0.34
Parents divorced	-1.67	0.83	-0.03	-2.01
Number of siblings	0.00	0.03	n.s.	-0.12
First marriage	1.91	0.95	0.05	2.01
Second marriage	1.98	1.36	n.s.	1.46
De facto	-0.59	1.23	n.s.	-0.48
Widowed	-1.04	1.59	n.s.	-0.65
Divorced	-4.92	1.26	-0.06	-3.89
Number of offspring	0.01	0.20	n.s.	0.05
Age	0.03	0.02	n.s.	1.18
Church attendance (ln)	0.90	0.16	0.08	5.53
<i>Denomination:</i>				
Anglican (reference)	--	--	--	--
Catholic	-0.99	0.72	n.s.	-1.38
No religion	-2.52	0.77	-0.05	-3.26
Non-Christian	-3.12	2.16	n.s.	-1.44
Other Protestant	-0.12	0.68	n.s.	-0.18
Volunteer work (hours) [1]	0.36	0.09	0.06	3.98
Education	-0.06	0.10	n.s.	-0.57
Family income (ln)	2.50	0.42	0.10	5.93
Labour force participatio	-1.27	0.68	n.s.	-1.87
Spouse in LF	0.82	0.63	n.s.	1.30
(Constant)	42.80	4.07		10.52

[1] N=6,447 for volunteer work, a question asked only in recent surveys. R-square = .04

Despite the great efforts that families and governments put into schools and children's learning, education does not appear to have any effect on subjective well-being (Table 2.6). All else equal, The effect of education on life satisfaction is not statistically significant in this model. This is not an unprecedented finding: Headey and Wearing (1992:80) report a bivariate correlation of just 0.06 between years of education and subjective well-being, and Pinguart and Sorensen's (2000) literature review finds education effects to be generally small and often non-significant. Because the effect of education is such an important issue, we did abundant sensitivity analyses with different specifications, and substantially the most common result was a null effect, so it seems reasonable to take that the absence of an education effect as a tentatively established fact, to the best of our knowledge.

. The regression estimates in this model portray the family income effect as fairly large (Table 2.6). Moreover, this is a very robust result. We have done sensitivity tests, and find that the family income effect is very stable across alternative specifications. The correlation of family income with subjective well-being is higher than for most other social class measures, such as education, occupational status, or subjective social class (Headey and Wearing 1992: 78-79; Lykken and Tellegen 1996; Mullis 1992; Pinguart and Sorensen 2000;), so it is not unexpected to find a significant effect in this model.

Employment is another matter. People in the workforce and those out of it enjoy equally high levels of subjective well-being in this model, on average and all else equal (Table 2.6, above). Moreover, in this model, people are equally satisfied with their lives regardless of whether their spouse is in the workforce or not, on average and all else equal.

Next, we inquire more deeply into the matter of labour force engagement, by focusing on those in the labour force and examining the effects of unemployment, of time devoted to paid work, and of the kind of job one gets (Table 2.7).

[Table 2.7 about here]

Table 2.7: Effects of employment conditions on life satisfaction, for those in the labour force. Ordinary least squares regression estimates. N=16,295

Variable	b	s.e.	Standardised	t
Male	-0.88	0.67	n.s.	-1.31
Migrant	-1.54	1.14	n.s.	-1.35
Parents' education	0.11	0.12	n.s.	0.94
Father's status	0.78	1.24	n.s.	0.63
Parents divorced	-1.18	0.96	n.s.	-1.23
Number of siblings	0.00	0.04	n.s.	-0.10
First marriage	3.15	0.95	0.08	3.30
Second marriage	3.80	1.45	0.05	2.61
De facto	-0.23	1.23	n.s.	-0.19
Widowed	-2.09	3.11	n.s.	-0.67
Divorced	-3.16	1.38	-0.04	-2.29
Number of offspring	0.17	0.26	n.s.	0.65
Age	-0.04	0.03	n.s.	-1.38
Church attendance	0.74	0.19	0.07	3.85
<i>Denomination:</i>				
Anglican (reference)	--	--	--	--
Catholic	-0.64	0.81	n.s.	-0.79
No religion	-2.16	0.84	-0.05	-2.56
Non-Christian	-2.74	2.44	n.s.	-1.12
Other Protestant	-0.05	0.79	n.s.	-0.06
Volunteer work [1]	0.33	0.12	0.04	2.84
Education	-0.08	0.13	n.s.	-0.65
<i>Hours worked:</i>				
Part time	2.26	0.79	0.05	2.86
Full time (reference)	--	--	--	--
Long hours (49 - 59)	0.65	0.96	n.s.	0.68
Very long (60+ hours)	0.86	1.08	n.s.	0.80
Occupational status	0.02	0.01	n.s.	1.80
Job security	0.11	0.01	0.16	10.35
Earnings	0.00	0.00	0.05	2.72
Spouse in labour force	1.58	0.66	0.04	2.41
Unemployed	-5.64	1.43	-0.06	-3.93
(Constant)	60.56	2.22		

[1] N=4,653 for volunteer work, a question asked only in recent surveys. R-square = .07

First, note that in this model unemployment reduces subjective well-being even aside from the drop in income that normally accompanies it, on average and all else equal (Table 2.7). The metric regression coefficient suggests that the unemployed are almost 6 points out of 100 less satisfied with their lives than are otherwise comparable people in full-time paid work. This is a very robust effect, and may be slightly larger than in other countries (compare Veenhoven 1984).

This finding has very important policy implications because it suggests that, on the same income, the unemployed experience lower subjective well-being than do people with jobs, on average and all else equal. This provides evidence that the government's strong orientation towards moving people from unemployment into jobs may be in their best interest, and also suggests that Treasury's strong

orientation towards bringing down the unemployment rate should have a payoff in subjective well-being. But note that this only applies to those who are still in the labour force, still actively working in or seeking jobs (recall that labour force participation per se has no significant effect on subjective well-being in this model) .

Second, note that in contrast to the null effect of spouse's labour force participation among the population at large, among the working population, having an employed spouse enhances subjective well-being (Table 2.7).

In this model, earnings have a significant positive effect on subjective well-being (Table 2.7) as one would expect from prior research (e.g. Frijters 1999; Headey 1993).

Some aspects of jobs affect life satisfaction and others do not, in this model. Occupational status, or job quality, does not affect subjective well-being (Table 2.7). This is not an unprecedented finding. For example Heading and Wearing (1992: 79) report a bivariate correlation of just 0.09 between occupation and subjective well-being in their Victorian Quality of Life Survey. Occupational status has not formed the focus of research in subjective well-being over the past decade, but such findings as exist point to small or null effects (e.g. Lykken and Tellegen 1996; Marks and Fleming 1999; Pinguart and Sorensen 2000; see also Fuentes and Rosa's [2001] review of the literature)⁶, although some of this may reflect inconsistent and sometimes inadequate measurement of occupational and socioeconomic status (Smith and Graham 1995).

Job security has quite an important effect on subjective well-being, as shown by its large standardized regression coefficient of 0.16 (Table 2.7), larger than any other job-related effect in the table. The metric regression coefficient suggests that on a points out of 100 basis, each point of job security is worth about 0.1 of a point of subjective well-being, so someone moving from quite an insecure job with a rating of 30 points out of 100, to a largely secure job, say with a rating of 70 points out of 100 would gain about 4 points in subjective well-being, on average and all else equal. That is about as much of a gain in life satisfaction as comes with a single person marrying on average and all else equal in the model of Table 2.1. This large effect is consistent with prior research, which has also found that large income gains would be required to compensate for loss of job security, with for example, a secure job paying \$10 an hour being about as satisfying as an insecure job paying \$14 an hour (Kelley, Evans, and Dawkins 1998).

Turning to the degree of engagement in the workforce, the metric regression coefficients in this model suggest that part-time workers are more satisfied than are ordinary full-time workers (35 to 48 hours weekly), by about 2 points out of 100 in this model, on average and all else equal (Table 2.7). Both the direction and magnitude of the finding are consistent with prior research (e.g. Wooden

⁶ Note that occupational status may have a larger impact in developing countries (e.g. GITMEZ and MORCOL 1994).

2001). The positive effect of part-time work, in contrast to the negative effect of unemployment suggests that back-to-work programs for the unemployed combining part-time work with job search or training are likely to enhance the subjective well-being of participants.

At the other end of the spectrum, the non-significance of the effects of long hours or very long hours suggests that people working long hours (49 to 59 hours a week) and very long hours (60+ hours a week) are no happier, and no less happy, than people working ordinary full-time hours (35 to 48 hours weekly), on average and all else equal. This suggests no special stress among people working more than ordinary hours – the extra earnings will add satisfaction, and there is no indication here that the extra hours undercut that gain.

Individual level controls: Benefit history and health

For these questions, we turn to the smaller 2001 IcssA rather than the large pooled file, because it has an extended array of questions on benefit biography and on health. Prior research suggests that current health and unemployment have significant effects on well-being (e.g. Headey 1988: 172-173, see also the results above), but little is known about the potential long term effects of past disability and unemployment.

Although unemployment has a substantial negative effect on subjective well-being (Table 2.7, above), there is no statistically significant effect of the duration of past unemployment experience in this model (Table 2.8). Together with the results back in Table 2.7, they suggest that becoming unemployed causes a serious drop in life satisfaction, but becoming re-employed returns one fully to one's original level of satisfaction.

[Table 2.8 about here]

Table 2.8: Supplementary analysis of health and disability effects on life satisfaction. Ordinary least squares regression estimates. IsssA 2001 survey; N=1,506 [1]

Variable	b	s.e.	Standardised	t
Panel A.				
Subjective health: You	0.22	0.04	0.29	5.23
Subjective health: Spouse	0.11	0.04	0.14	2.62
Subjective health: Children	0.04	0.05	n.s.	0.77
Medical usage (# visits to GP or specialist)	0.27	0.24	n.s.	1.10
Disability: You	-0.44	0.36	n.s.	-1.22
Disability: Spouse	0.39	0.57	n.s.	0.69
Years unemployed: You	-0.80	0.51	n.s.	-1.59
Years unemployed: Spouse	-0.30	0.43	n.s.	-0.70
Age	0.21	0.06	0.18	3.31
Male	0.39	1.71	n.s.	0.23
Education	0.14	0.38	n.s.	0.38
Occupational status	-0.01	0.04	n.s.	-0.18
Family income	0.00	0.00	n.s.	1.05
(constant)	33.75	7.35		
Panel B.				
Psychological stress	-0.50	0.06	-0.40	-8.93
Subjective health: You	0.12	0.04	0.16	3.06
Subjective health: Spouse	0.11	0.04	0.14	2.93
Subjective health: Children	0.04	0.04	n.s.	1.00
Medical usage (# visits to GP or specialist)	0.44	0.22	0.09	1.96
Disability: You	-0.28	0.33	n.s.	-0.84
Disability: Spouse	0.40	0.52	n.s.	0.77
Years unemployed: You	-0.30	0.47	n.s.	-0.64
Years unemployed: Spouse	-0.24	0.39	n.s.	-0.61
Age	0.08	0.06	n.s.	1.30
Male	-0.36	1.57	n.s.	-0.23
Education	0.04	0.35	n.s.	0.12
Occupational status	0.02	0.04	n.s.	0.62
Family income	0.00	0.00	n.s.	0.50
(Constant)	51.70	7.05		

[1] These questions were only covered in the 2001 IsssA survey.

The picture is broadly similar with respect to health, except that the effect of health on well-being is much larger than unemployment's effect in this model, on average and all else equal.

Current health has a very large, statistically significant effect on subjective well-being in this model (Table 2.8). The metric regression coefficient suggests that those enjoying good health (say, of 75 points out of 100) are 11 points higher in life satisfaction than are those in poor health, (25 points out of 100), and the contrast is even more extreme among those with more extreme health conditions, reaching a 22 point spread between those in very poor health (0 points) and those in excellent health (100 points), on average and all else equal. Finding a significant effect of current health on well-being was expected in light of prior research (e.g. Headey 1988: 172).

Moreover, the health of one's spouse has an independent effect on one's subjective well-being (Table 2.8).

The model does not detect a significant effect of children's health, net of one's own and one's spouse's health and the other variables in the model, on subjective well-being. This is quite possibly, because, in these days of the concentration of ill health in old age, it is sufficiently rare for healthy parents to still be alive when their child experiences ill health that we do not find enough cases for a stable estimate in our sample of 1,500. So that remains an issue that will need to be pursued further in additional research when more data have been gathered.

Aside from the subjective assessment of health and other variables in this model, respondent's medical usage (visits to GP or specialist) does not have an independent significant impact on subjective well-being (Table 2.8).

The respondent's prior experience of disability, as indicated by their cumulative total number of years on the disability pension does not have a continuing negative impact of their subjective well-being, net of other factors in this model. Moreover, the disability history of someone's husband or wife has a non-significant effect on their well-being, net of the spouse's current health status and other variables in the model.

When it comes to health, the results suggest that current health status of one's self and one's spouse matters a great deal to subjective well-being, but that past health problems that have been cured have no residual negative effect on life satisfaction that have been detected in this model.

In this section thus far, we have covered both the "core" effects of family, plus a range of somewhat related issues of potential interest to FaCS, ranging from the impact of volunteer work on well-being, to the impact of unemployment, to the impact of health and disability.

Before proceeding to the assessment of neighbourhood effects, it is worthwhile to distill a basic model that incorporates the key effects we have found in the analyses of the large pooled sample thus far. That will give us a set of individual-level controls for the assessment of neighbourhood effects. Individual-level controls are essential to an adequate assessment of neighbourhood effects because otherwise one is at risk discovering apparent neighbourhood that really only reflect the persons individual-level characteristics. For example, we have seen, above, that an individual's age affects his or her subjective well-being. A model that included a neighbourhood-level measure of age composition, but omitted individuals' own ages would be likely to overestimate the effect of neighbourhood-level age composition, and thereby imply policy solutions directed towards neighbourhoods, when correct targeting would actually point towards individual-based solutions.

To this end, we present our basic model of family effects (Table 2.9). From family background, it includes parents' education, parents' divorce, gender and migrant

origins. (The last of these is not significant, but we retained it because some of the neighbourhood models include ethnic components.) For current family situation, we continue to use “single” (never married) as the reference category, and contrast it with “married” (combining first and subsequent marriages as we found no significant difference between them), and “divorced”. Because widows, widowers, and people in de facto relationships do not differ significantly from never married people, we do not differentiate them, but rather, fold them into the reference category. (So this becomes a “not currently married, except divorced” category. The divorced needed to be kept separate because of their significantly lower subjective well-being). We also include church attendance (which significantly enhances well-being) and pool all the religions except “no religion” (because there were no significant differences among the religions, but only a contrast between them and “no religion”). We include education even though its effect is not significant, because it plays a role in so many aspects of social life that it part of the standard general-purpose toolkit or general-purpose assay. Moreover, because some of the neighbourhood compositional measures are stratification-related it is theoretically important to include respondent’s own education in order not to risk an omitted variables problem. Finally, because of its significant effect and theoretical importance, we include family income.

The estimates from this basic model of family effects including just these variables is shown in Table 2.9. The point estimates are very similar to those in the exploratory models up to this point.

[Table 2.9 about here]

Table 2.9: Final model of effects of family variables on life satisfaction.[1] Ordinary least squares regression estimates. N=26,009

Variable	b	s.e.	Standardised	t
Male	-1.34	0.26	-0.03	-5.24
Migrant	-0.21	0.50	n.s.	-0.41
Parent's education	0.26	0.05	0.04	5.11
Parent divorced	-1.55	0.42	-0.02	-3.69
Married	2.84	0.36	0.07	7.84
Divorced	-4.52	0.57	-0.06	-7.96
Age	0.04	0.01	0.04	4.87
Church attendance	0.98	0.08	0.09	12.78
No religion	-2.25	0.35	-0.05	-6.34
Education	-0.02	0.05	n.s.	-0.42
Family income (ln)	2.11	0.19	0.09	11.10
(Constant)	44.70	1.94		

[1] Includes only key variables. Omits some important variables that apply only to a subset of the population (for example, quality of marriage, which applies only to married people; or job security, which applies only to the employed). Also omits some important variables that are measured in only a few surveys (for example, subjective health). Since first and second marriages have similar effects, the distinction between them is dropped. R-square = .04

3. COMMUNITY EFFECTS ON WELL-BEING: MULTIVARIATE MODELS

Postcode based measures of community characteristics

The motivation for investigation of the impact of objective community characteristics on life satisfaction stems both from hypotheses in both sociology and economics that our life worlds are composed of our neighbours as well as ourselves and that their resources may (to some degree) be assets to us, and from the practical standpoint that neighbourhood composition is a practical matter on which FaCS has considerable leverage through the design and management of housing programs for FaCS clients.

In the literature, the key social compositional arguments are that the prosperity or SES of one's neighbours matters, that opportunity is geographically constrained (e.g. Jacob and Willits 1994; Jencks and Mayer 1990; Piketty 2000; Schulz, Williams, Israel, Becker, Parker, James, and Jackson 2000); and that ethnic composition matters (e.g. Borjas 1992; Borjas 1995). Other arguments concerning neighbouring behaviour and neighbourhood public civility issues are discussed below, under the rubric of "social capital".

From the ABS postcode data (Australian Bureau of Statistics 1996), we developed objective measures of neighbourhood quality. To this end, we winnowed the wide variety of affluence measures that are available in the ABS postcode data to find those that best discriminate among neighbourhoods. We also examined the other traditional elements of socioeconomic status measures – placement in the occupational hierarchy, educational level, engagement in work.

To evaluate the various possible measures, we assessed descriptive statistics and listings of cases to check data quality, and examined data structures to see whether items that we hoped to combine into multiple-item indices (because they are theoretically linked and because combining into multiple-item indices reduces random measurement error) have the kinds of relationships that permit us to do this. For these purposes, we used Pearson correlations and exploratory factor analysis: Combining items into a multiple item index or scale is only justified if they are really multiple measures of the same thing. In addition to conceptual similarity, this means that they should all be highly correlated with each other, that exploratory factor analysis should find that they all belong on a single "factor" or "dimension", and that their correlations with criterion variables should be proportional to their factor loadings (Bollen 1989: 179-184).

The multiple-item indices constructed in this way are our objective socioeconomic measures of neighbourhood quality. They are important both (1) in their own right to address such issues as how much neighbourhood prosperity matters compared to one's own prosperity and other relevant causal factors and (2) as controls, so we can be as certain as possible that the neighbourhood "social

capital’ measures estimated from the survey represent separate effects rather than just standing in for unmeasured neighbourhood prosperity as they might do in models without the objective measures.

- o *Neighbourhood prosperity and local opportunity structure:* The separate items we examined here included: Postcode socio-economic status (factor score); % Unemployed in postcode; % Left school by age 14; % University graduates among the population aged 15+ in postcode; % Unskilled labourers in postcode labour force; % Professional in postcode labour force; and Average weekly earnings of men 45-54.
- o *Family structure:* As measures of family structure, we examined: % of postcode households containing a father, mother, and children; % of postcode households containing a couple without children; % of postcode households that are single parent with child(ren) under 15; % of postcode households containing a lone person.
- o *Stability:* As a measure of the stability and temporal depth of neighbourhood social networks, we examined the % of postcode households at same address 5 years ago.
- o *Male age structure:* High concentrations of adolescent boys and young men in particular neighbourhoods has been thought to stimulate crime and public incivility, and a dearth of prime-aged men may contribute to that effect: % males aged 10-14 in postcode; % males aged 15-19 in postcode; % males aged 20-24 in postcode; etc through % males aged 50-54 in postcode.
- o *Industrial structure:* % Agriculture in postcode; % Mining in postcode; % Manufacturing in postcode; % Electricity, gas & water; % Construction; % Wholesale in postcode; % Retail in postcode; % Accommodation, restaurant; % Transport; % Communications services; % Finance & insurance; % Property, business services; % Government administration; % Education; % Health & community service; % Cultural & recreational; % Personal & other services.
- o From the ABS postcode data, we also developed measures of *neighbourhood ethnic diversity:* % Aboriginal & TSI in postcode; % Australian-born in postcode; % English-speaking immigrants; % Non-English speaking immigrants.

Effects of neighbourhood socio-economic status

Let us begin with the socioeconomic status of one’s community. ABS data include a variety of possible indicators of the socioeconomic status of postcodes

(Australian Bureau of Statistics 1996), from which we have harvested a set that cover important dimensions of socioeconomic status – the percentage of postcode residents who hold university degrees, the percentage who left school at 14, the percentage who work in professional occupations, the percentage who work as labourers, and the earnings of prime age men. These variables are shown by factor analysis to cohere well, substantiating our expectation that the various indicators are all measures of a single, uni-dimensional underlying construct. The factor analysis is given in detail in the Appendix.

These indicators (rows 1 to 5, Table 3.1) are all highly correlated among themselves (columns 2 through 6), but have little or no connection to the level of unemployment (row 6).

[Table 3.1 about here]

Table 3.1: Correlations between life satisfaction and the socio-economic characteristics of the postcode in which one lives. N=16,903.

	Life satisfaction	Uni education	Left at 14	Professionals	Labourers	Earnings	Unemployed
1. % university educated	0.02	1.00	-0.63	0.95	-0.72	0.80	0.00
2. % left school at age 14	-0.03	-0.63	1.00	-0.60	0.67	-0.76	0.00
3. % professional	0.03	0.95	-0.60	1.00	-0.74	0.76	0.00
4. % labourers	-0.02	-0.72	0.67	-0.74	1.00	-0.72	-0.02
5. Earnings, prime age men	0.03	0.80	-0.76	0.76	-0.72	1.00	0.00
6. % unemployed	-0.05	0.00	0.00	0.00	-0.02	0.00	1.00
7. SES scale (items 1 to 5)	0.03	0.90	-0.76	0.89	-0.79	0.94	0.00

All these neighbourhood characteristics have little or no correlation with the subjective well-being of their inhabitants, either item by item or as the 5-item SES index (column 1, Table 3.1). It nonetheless remains possible that neighbourhood SES will have a significant impact on individual subjective well-being when potentially confounding individual characteristics are controlled in a multivariate analysis, a question that is addressed in Table 3.2.

The analysis in Table 3.2 shows that neighbourhood SES fails to have an impact on subjective well-being net of the individual-level characteristics included in this model. Including neighbourhood SES in the model leaves the pattern of individual-level family effects essentially unchanged, and adds nothing independent of them.

[Table 3.2 about here]

Table 3.2: Effects of postcode socio-economic status (SES) on life satisfaction. Ordinary least squares regression estimates. N=16,903 [1]

Variable	b	s.e.	Standardised	t
Male	-0.77	0.30	-0.02	-2.54
Migrant	0.26	0.58	n.s.	0.44
Parents' education	0.33	0.06	0.05	5.66
Parents divorced	-1.63	0.50	-0.03	-3.29
Married	3.10	0.44	0.07	7.10
Divorced	-3.27	0.66	-0.05	-4.92
Age	0.05	0.01	0.05	4.97
Church attendance	1.03	0.09	0.10	11.09
No religious affiliation	-2.19	0.40	-0.05	-5.50
Education	0.06	0.06	n.s.	0.93
Family income (ln)	2.23	0.22	0.10	9.93
Postcode SES	0.00	0.01	n.s.	0.11
(constant)	40.27	2.30		

[1] All surveys for which postcode data are available. R-square = .05

Although community SES has no significant effect on subjective well-being in this model, we retain it in the subsequent models to avoid omitted variables queries -- be certain that other effects we observe are not proxies for community SES.

----- Effects of family composition and residential stability of the neighbourhood

Concentrations of single parents may be a relevant neighbourhood characteristic, so we include them in the model, noting again that this does not pre-judge any result, because the model may or may not detect a significant effect, depending on the data.

It has long been argued that that high concentrations of single people and high residential instability inhibit community building and thereby lower quality of life (e.g. Sampson 1985; Shaw and McKay 1942). To find out, we augmented the basic model with postcode-level measures of these characteristics.

In fact, the model does not detect a significant effect of the degree of concentration of single mothers in one's postcode on the quality of life, net of the other variables in the model, as shown in Table 3.3.

[Table 3.3 about here]

Table 3.3: Effects of postcode family structure, ethnic composition and urban residence on life satisfaction. Ordinary least squares regression estimates. N=16,903 [1]

Variable	b	s.e.	Standardized	t
Male	-0.74	0.31	-0.02	-2.40
Migrant	0.41	0.58	n.s.	0.70
Parents' education	0.31	0.06	0.05	5.33
Parents divorced	-1.69	0.50	-0.03	-3.37
Married	3.07	0.45	0.07	6.88
Divorced	-3.35	0.67	-0.05	-4.98
Age	0.05	0.01	0.04	4.68
Church attendance (ln)	1.04	0.09	0.10	11.00
No religion	-2.20	0.40	-0.05	-5.47
Education	0.06	0.06	n.s.	1.02
Family income (ln)	2.26	0.23	0.10	9.96
<i>Postcode characteristics:</i>				
Postcode SES	0.01	0.01	n.s.	1.35
% single mothers	0.19	0.14	n.s.	1.35
% single person households	0.05	0.03	n.s.	1.84
Residential stability	0.00	0.02	n.s.	0.09
% Aboriginal or TSI	0.00	0.04	n.s.	0.13
% English migrants	0.01	0.04	n.s.	0.35
% Non-English migrants	-0.03	0.02	n.s.	-1.48
Urban (ln population size)	-0.13	0.06	-0.02	-2.23
(constant)	39.86	2.91		

[1] All surveys for which postcode data are available. $R^2 = .05$.

Moreover, the model does not detect a significant effect of the percentage of **single person households** in the postcode, net of the other variables in the model (Table 3.3).

In addition, **residential stability of one's neighbours** fails to have a statistically significant effect on subjective well-being net of the other variables in this model (Table 3.3).

However, there is a small, statistically significant effect of size of place or urbanicity, such that life satisfaction is lower among residents of larger towns and cities, all else equal in this model,

Effects of ethnic diversity in the community

The representation of **Aborigines and Torres Straits Islanders** in a postcode fails to have a statistically significant effect on residents' subjective well-being in this model (Table 3.3).

The percentage of postcode residents who are **immigrants from English-speaking countries** does not have a statistically significant effect on the subjective well-being of their neighbours in this model (Table 3.3). Importantly, and perhaps more surprisingly, the percentage of **immigrants from non-**

English-speaking countries also does not have a statistically significant effect on subjective well-being in this model.

Although the ethnic diversity indicators do not have significant effects, we carry them on into subsequent models to ensure that their contribution is kept independent, to make sure that there is no concern that they are creating “omitted variables” biases the effects of variables we do include in the models.

Effects of industrial composition

We augment the model with variables indicating the industrial composition of the postcode (the percentage of its workforce engaged in each industry) (Table 3.4)

[Table 3.4 about here]

Table 3.4: Effects of postcode industrial composition on life satisfaction. Ordinary least squares regression estimates. N=16,903 [1]

Variable	b	s.e.	Standardised	t
Male	-0.77	0.31	-0.02	-2.48
Migrant	0.49	0.59	n.s.	0.85
Parents' education	0.31	0.06	0.05	5.31
Parents divorced	-1.66	0.50	-0.03	-3.31
Married	2.99	0.44	0.07	6.72
Divorced	-3.37	0.67	-0.05	-5.02
Age	0.05	0.01	0.04	4.51
Church attendance (ln)	1.04	0.09	0.10	11.00
No religious affiliation	-2.14	0.40	-0.05	-5.30
Education	0.05	0.06	n.s.	0.89
Family income (ln)	2.31	0.23	0.10	10.13
Urban (ln population size)	-0.16	0.07	-0.03	-2.43
<i>Postcode characteristics:</i>				
Postcode SES	0.01	0.01	n.s.	0.56
% Aboriginal or TSI	0.04	0.04	n.s.	0.94
% Non-English migrants	-0.01	0.02	n.s.	-0.60
<i>Postcode industry:</i>				
% Agriculture	0.05	0.13	n.s.	0.40
% Mining	0.06	0.14	n.s.	0.47
% Manufacturing	0.11	0.13	n.s.	0.81
% Electrical	-0.14	0.21	n.s.	-0.68
% Construction	0.15	0.15	n.s.	1.01
% Wholesale trade	0.09	0.18	n.s.	0.49
% Retail trade	0.17	0.15	n.s.	1.14
% Accommodation	0.13	0.14	n.s.	0.88
% Transport	0.08	0.16	n.s.	0.49
% Communications	-0.59	0.26	-0.03	-2.25
% Financial services	0.13	0.20	n.s.	0.64
% Business services	0.07	0.16	n.s.	0.45
% Government	0.03	0.14	n.s.	0.20
% Education	0.13	0.15	n.s.	0.86
% Health	0.18	0.15	n.s.	1.21
% Culture	0.13	0.22	n.s.	0.62
% Personal services	-0.07	0.22	n.s.	-0.34
(constant)	32.04	13.07		

[1] All surveys for which postcode data are available. $R^2 = .05$.

The results show that industrial composition does not have a statistically significant effect on subjective well-being in the model. There is only one apparently significant effect, a negative effect of the percentage of employment in communications, but because this is not part of any larger pattern and is a solitary effect in a large group of indicator variables, we are inclined to dismiss it as an anomaly.

National trends: Effects of the national context

As a preliminary to investigating the effects of inflation, economic growth, and national-level unemployment on subjective well-being, we examined their correlations (Table 3.5) and found that time, inflation and economic growth are

so highly correlated that it is difficult to disentangle their effects, even over a 17 year period. Basically the problem is that the variables are too highly correlated to enter separately in the model (or co-linearity would probably produce nonsense results), but they are conceptually distinct, so one isn't justified in making them into a combined index. As a result, it did not make sense to proceed with them in the model.

[Table 3.5 about here]

Table 3.5. Correlations among time varying characteristics of the nation, 1984 to 2001, and individuals' life satisfaction.[1] N=26,009

	Life satisfaction	Time	GDP	Inflation	Unemployment
Time [2]	-0.08	1.00	0.97	-0.87	0.10
GDP per capita (at PPP)	-0.07	0.97	1.00	-0.77	-0.01
Inflation (%) [3]	0.02	-0.87	-0.77	1.00	-0.38
Unemployment (%)	0.00	0.10	-0.01	-0.38	1.00

[1] GDP, inflation and unemployment in the nation as a whole at each year, 1984-2001. Source: World Bank World Development Indicators 2001.

[2] The life satisfaction question was asked with 10 answer categories in the 1984 and 1985 surveys, and with 8 in subsequent years. We have rescaled both to range from a low of zero to a high of 100, with other categories at equal intervals inbetween, making them broadly comparable. However other evidence leads to reservations about the exact comparability of the top few categories, so trends over time must be viewed with caution.

[3] The correlation between time, national levels of GDP, and inflation in the short period between 1984 and 2001 is very high, too high to allow stable estimates of their effects on individual level variables.

We did proceed to assess the effects of national-level unemployment trends, because they were somewhat independent of time, being correlated with it only 0.1. To assess this effect, we enter the national-level unemployment rate into the model and (retaining, and thereby controlling for the individual-level and community-level variables we have already discussed).

[Table 3.6 about here]

Table 3.6. Effect of national level of unemployment, 1984 to 2001, on individuals' life satisfaction.[1] Ordinary least squares regression estimates. N=26,009

Variable	b	s.e.	Standardised	t
Male	-1.14	0.31	-0.03	-3.65
Migrant	-0.12	0.61	n.s.	-0.20
Parents' education	0.24	0.06	0.03	3.83
Parents divorced	-1.52	0.51	-0.02	-2.98
Married	2.81	0.45	0.07	6.30
Divorced	-4.47	0.69	-0.06	-6.47
Age	0.03	0.01	0.03	2.89
Church attendance (ln)	0.97	0.09	0.09	10.36
No religious affiliation	-2.22	0.43	-0.04	-5.14
Education	-0.03	0.06	n.s.	-0.47
Family income (ln)	1.78	0.24	0.07	7.47
Urban (ln population size)	-0.07	0.06	n.s.	-1.20
<i>Postcode characteristics:</i>				
Postcode SES	0.01	0.01	n.s.	1.93
% Aboriginal or TSI	0.03	0.04	n.s.	0.81
% Non-English migrants	-0.03	0.02	-0.02	-2.02
<i>Time varying characteristic:</i>				
% unemployed in nation	-0.07	0.12	n.s.	-0.60
<i>Individual characteristic:</i>				
Unemployed when surveyed	-7.98	0.93	-0.07	-8.60
(constant)	50.22	2.63		

[1] All surveys for which postcode data are available. $R^2 = .05$.

In fact, the national unemployment rate has no statistically significant effect on subjective well-being in the model, in contrast to the impact of one's own unemployment status (Table 3.6). The metric regression coefficient for personal current unemployment suggests that the unemployed are about 8 points out of 100 less happy than others, on average and all else equal.

Effects of social capital on well-being

It has long been argued that such a density of social networks forms a kind of fund of "social capital" that can be drawn upon to enforce community norms and to mobilise residents for community purposes (e.g. (Coleman 1988:S98; Schneider and Coleman 1993; Taylor 1996; Warner and Rountree 1997) . Does it also enhance the quality of life? To find out, we augment the model of subjective well-being with measures of neighbourhood sociability and of local friendships (Table 3.7).

[Table 3.7 about here]

Table 3.7. Effect of neighbourhood social capital and neighbourhood civility on individuals life satisfaction.[1] Ordinary least squares regression estimates.
N=12,265

Variable	b	s.e.	Standardised	t
Model A				
Male	-0.60	0.37	n.s.	-1.61
Migrant	0.51	0.71	n.s.	0.72
Parents' education	0.27	0.07	0.04	3.81
Parents divorced	-1.50	0.59	-0.02	-2.53
Married	3.00	0.54	0.07	5.54
Divorced	-2.98	0.82	-0.04	-3.64
Age	0.02	0.01	n.s.	1.60
Church attendance (ln)	0.93	0.11	0.09	8.14
No religious affiliation	-1.39	0.49	-0.03	-2.83
Education	0.04	0.07	n.s.	0.58
Family income (ln)	1.99	0.28	0.09	7.21
Urban (ln population size)	0.11	0.07	n.s.	1.69
<i>Postcode characteristics:</i>				
Postcode SES	0.00	0.01	n.s.	-0.24
% Aboriginal or TSI	0.05	0.04	n.s.	1.10
% Non-English migrants	-0.01	0.02	n.s.	-0.70
<i>Neighbourhood characteristic:</i>				
Social capital:Sociable	0.07	0.01	0.08	7.37
Social capital: Friends	0.10	0.01	0.10	9.55
Neighbourhood incivility	-0.12	0.01	-0.12	-12.27
<i>Postcode population structure:</i>				
% males, aged 10-14	-0.03	0.16	n.s.	-0.17
% males, aged 15-19	0.14	0.18	n.s.	0.78
% males, aged 20-24	-0.04	0.17	n.s.	-0.26
% males, aged 25-29	0.22	0.15	n.s.	1.46
(constant)	39.27	3.43		
Panel B: Model A, with "youth hanging about" replacing "incivilities"				
<i>Neighbourhood characteristic:</i>				
Youth hang about	-0.07	0.01	-0.10	-10.12
...other variables not shown				
Panel C: Model B with both "incivilities" and "youth hanging about"				
<i>Neighbourhood characteristic:</i>				
Youth hang about	-0.03	0.01	-0.05	-3.67
Neighbourhood incivility	-0.09	0.01	-0.10	-7.83
...other variables not shown				

[1] All surveys for which subjective neighbourhood data are available. R-square = .08 in Panel A, .07 in Panel B, and .08 in Panel C.

The generalised sociability of the neighbourhood has a small but statistically significant positive effect on subjective well-being in this model (Table 3.7). This is a moderately important effect, as shown by the standardised regression coefficient of 0.08. The metric regression coefficient shows that a one point gain in neighbourhood sociability is associated with a gain in life satisfaction of .07 of a point, on average and all else equal. Thus a ten point gain in neighbourhood sociability is associated with a rise in residents' life satisfaction by .7 of a point, on average and all else equal. The metric regression coefficient further reveals

that the difference between a fairly unsociable neighbourhood and fairly sociable neighbourhood which differ by 50 points out of 100 on the sociability scale would amount to 3.5 points in subjective well-being, on average and all else equal, assuming the model to be correctly specified.

Local friendships are just as important, or a little more so (Table 3.7), with a standardised regression coefficient of .10 just above the .08 standardised regression coefficient for the generalised sociability of the neighbourhood. The statistically significant metric regression coefficient of .10 shows, for example, that someone who has 10 local friends is one point out of 100 more satisfied with his or her life than someone who has no local friends, on average and all else equal.

Before examining the effects of neighbourhood incivilities, note that they are not closely related to the sociability of the neighbourhood, with a correlation of only -0.09. That suggests that quite a few uncivil neighbourhoods are sociable (see also Warner and Rountree 1997; Ross, Reynolds, and Geis [2000: Table 2] report a very small [-0.08] negative correlation between the postcode poverty rate and neighbourhood sociability in the US, albeit using different measures) and may also mean that quite a few civil neighbourhoods aren't sociable, and , as well as quite a few having the more obvious patterns. In other words, neighbourhood incivility is quite separate from neighbourhood sociability: they are different dimensions of community life.

Effects of incivility on subjective well-being

Slightly more important in this model are the deleterious effects of neighbourhood incivilities (measurement in the “Neighbourhood Incivilities” subsection of the “Measures of Social Capital” and in Table 4.2, below) on subjective well-being, as shown by their standardised regression coefficient of -0.12 (Table 3.7). From a slightly different angle, the metric regression coefficients show that on average, people living in a neighbourhood that is one point lower in civility, experience subjective well-being that is 0.12 of a point lower than otherwise comparable people in a neighbourhood that is one point higher in civility, all else equal, assuming that the model is correctly specified. So a 10 point difference in civility would, according to the model be associated with a 1.2 point difference in life satisfaction , all else equal. All else equal, the difference between a somewhat uncivil neighbourhood (say, 25 points out of 100) and a fairly civil neighbourhood (say, 75 points out of 100) would amount to a quite substantial 6 point difference in subjective well-being, on average, according to this model. This finding is not unprecedented: Ross, Reynolds and Geis (2000: Table 1) report a substantial positive effect of their “social disorder” measure on residents psychological distress.

One might suspect that this apparent effect of neighbourhood incivilities is merely a proxy for the presence of normally rambunctious teenagers, especially boys and young men. To check for such a possibility, we included in the model the representation of teenage boys and young men in the postcode. The measures

of the weight of male youth in the population composition of the community have no statistically significant effect on the life satisfaction of residents (Table 3.7).

It could be that “hanging around”, perhaps playfully or sociably, is unrelated to the more active threat of the incivilities. To explore this possibility, we substituted for our incivility measure an index measuring the extent of “hanging around” by younger teens, older teens, and young men in their twenties. This index has a statistically significant, substantial negative effect on subjective well-being in the model. If hanging around were socially neutral or pro-social, one would have expected to find a null or positive effect on respondent’s well being of living in a neighbourhood where loitering youth are common. The fact that the model detects a negative effect of loitering youth on respondents’ subjective well-being suggests that although it is logically possible for youth to hang around in a pleasant or pro-social way, this is in practice uncommon (Table 3.7, panel B).

This interpretation is strengthened by an alternative model in which we enter both the incivilities index and the loitering youth index into the model together. The results show that each of these variables has an independent, statistically significant negative effect on the subjective well-being of residents (Table 3.7, panel C), in this model. The fact that both are significant means that, to the extent that the model is correctly specified, even in communities where incivilities are rare, youth loitering is associated with lower subjective well-being of their neighbours, on average. That said, in this model, the standardised regression coefficients show that the degree of incivilities is about twice as important an influence on residents’ life satisfaction as is the prevalence of youth hanging around (.10 vs .05), on average and all else equal.

4. METHODOLOGICAL CONSIDERATIONS

Alternative estimates: Multilevel model

The exploratory estimates for postcode effects need to be corrected for the fact that they are aggregated variables attributed to individuals. Basically this means that the regression model is treating the postcode level data as though there were as many independent observations on them as there are individuals in the sample. Normally, in practice, the main problem is that the standard errors are too small, so one is in danger of thinking effects are statistically significant from the OLS estimates, when actually estimates that correct for sample size for the aggregate effects show they are insignificant. The standard correction is a multi-level random effects model. Given the fact that the postcode-level measures of community characteristics had insignificant effects in the OLS, this is unlikely to be a problem for this analysis, but, just to be on the safe side, we estimated two parallel models, an OLS model and a multi-level random effects GLS model focusing on the effects of neighbourhood SES (Table 4.1).

[Table 4.1 about here]

Table 41. Alternative estimates of postcode effects on life satisfaction with and without adjusting for variability in the sample of postcodes. (A) Ordinary least squares regression estimates with no adjustment; (B) Random effects [multilevel] model with adjustment. N= 8,674 [1]

Variable	b	s.e.	Standardised	t
Model A: OLS (R2=.077)				
Male	-0.50	0.39	n.s.	-1.29
Migrant	0.12	0.74	n.s.	0.17
Parents' education	0.24	0.07	0.04	3.20
Parents divorced	-0.69	0.62	n.s.	-1.12
Married	3.29	0.56	0.08	5.86
Divorced	-3.28	0.85	-0.05	-3.87
Age	0.01	0.01	n.s.	0.93
Church attendance (ln)	0.87	0.12	0.08	7.35
No religious affiliation	-1.73	0.50	-0.04	-3.47
Education	0.05	0.08	n.s.	0.61
Family income (ln)	1.73	0.29	0.08	5.91
<i>Postcode characteristics:</i>				
Postcode SES	0.002	0.008	n.s.	0.23
<i>Neighbourhood characteristic:</i>				
Social capital:Sociable	0.056	0.010	0.06	5.42
Social capital: Friends	0.103	0.011	0.10	9.04
Neighbourhood incivility	-0.117	0.010	-0.12	-11.62
(constant)	46.37	3.09		
Panel B: Random effects GLS regression (R2=.079) [2]				
	b	s.e.		z
Male	-0.40	0.39	--	-1.03
Migrant	0.15	0.74	--	0.20
Parents' education	0.24	0.07	--	3.17
Parents divorced	-0.60	0.62	--	-0.96
Married	3.28	0.57	--	5.80
Divorced	-3.37	0.85	--	-3.96
Age	0.01	0.01	--	1.01
Church attendance (ln)	0.88	0.12	--	7.33
No religious affiliation	-1.78	0.50	--	-3.55
Education	0.05	0.08	--	0.69
Family income (ln)	1.73	0.29	--	5.87
<i>Postcode characteristics:</i>				
Postcode SES	0.004	0.009	--	0.41
<i>Neighbourhood characteristic:</i>				
Social capital:Sociable	0.055	0.010	--	5.39
Social capital: Friends	0.101	0.011	--	8.78
Neighbourhood incivility	-0.117	0.010	--	-11.54
(constant)	46.19	3.11	--	14.85

[1] All surveys for which the relevant data are available.

[2] 1508 groups.

The results show that the conclusion of a nil effect of postcode SES on residents' life satisfaction in this model based on the exploratory result from the OLS is fully substantiated by the multi-level model.

Preferred model: Corrections for attenuation due to random measurement error

All measuring-sticks are approximate, only accurate to the nearest centimeter, or millimeter, or whatever, and this is also true in the social and economic measurements of surveys and Censuses. Known as “random measurement error”, it produces biased and inconsistent estimates of parameters unless one undertakes corrections for it (Alwin and Jackson 1979; Andrews 1984; Joreskog 1993). The appropriate framework of corrections for random measurement error is a structural equation model, a model which incorporates simultaneous equations with multiple endogenous variables and allows random measurement error both in the endogenous and exogenous variables (e.g. Bollen and Long 1993: 1; Joreskog 1979). Note that corrections for attenuation due to random measurement error do not always produce larger effects; on the contrary, these corrections tend to produce cleaner models with clarified strong effects and some borderline effects swept away. We begin with a table giving the confirmatory factor analyses of the multiple item indicators (Table 4.2).

[Table 4.2 about here]

Table 4.2. Confirmatory factor analysis of variables with multiple indicators. Maximum likelihood estimates. N= 8,418 [1]

Variable	Factor loading	s.e.	t	Standardised factor loading
Panel A: Factor analysis [2]				
<i>Life satisfaction:</i>				
Item #1 [3]	1.00*			0.88
Item #2 [4]	0.96	0.04	25.29	0.91
<i>Sociable neighbourhood:</i>				
Do things together	1.00*			0.82
Help each other	0.84	0.02	41.43	0.78
Go own way (reversed)	0.52	0.01	35.96	0.47
<i>Neighbourhood incivility:</i>				
Rude for no reason	1.00*			0.77
Louts hanging around	1.31	0.02	80.83	0.94
Hostile & aggressive	1.08	0.01	76.89	0.80
Panel B: Implied correlations				
<i>B1: Among true variables:</i>				
	Satisfaction	Sociability		
Sociability	0.142			
Uncivil behaviour	-0.163	-0.063		
<i>B2: Among observed variables:</i>				
	Satisfaction	Sociability		
Sociability	0.113			
Uncivil behaviour	-0.144	-0.086		
<i>B3: Ratio, true to observed:</i>				
	Satisfaction	Sociability		
Sociability	1.26			
Uncivil behaviour	1.13	0.73		

* By design

[1] All surveys for which the relevant data are available.

[2] Chi-square = 253.06, 17 d.f.

[3] Standard 'life as a whole' item asked by way of summary at the end of the battery of questions on life and job satisfaction.

[4] Standard 'life as a whole' item asked prior to other questions on life and job satisfaction.

The confirmatory factor analyses show that the multiple items designed to measure each index all work adequately, and most work very well indeed. Thus, the standardised factor loadings for the two indicators of subjective well-being are both over .85. Standardised factor loadings range from 0 to 1 in absolute value, so these are high loadings, indeed. On the Sociability Index, two of the items have excellent loadings, over .75 (“Doing things together,” and “Helping each other out”), but the third is a little low (“Going their own way”). It was “reversed” to make balanced items in the scale, a strategy which unfortunately often reduces interterm correlations. The items of the Neighbourhood Incivility Index all have excellent loadings, ranging from .77 for “Rude for no reason” to .80 for “Hostile and aggressive” to .94 for “Louts hanging around”. These results confirm that each of these indices is unidimensional, and is well measured by its indicators.

The correlations among the indicators (given in Panel B), show that with corrections for attenuation due to random measurement error, the true association between subjective well-being and neighbourhood sociability is about 25% larger than the correlation of the observed variables. The correction in the case of the link between neighbourhood incivility is smaller: the ratio of the true correlation to the observed correlation is 1.13. The corrections reduce the correlation between incivility and sociability from -.09 to -.06.

Next we turn to a structural equation (LISREL) model incorporating this measurement model and a structural equation model that parallels our earlier basic model plus key community variables (Table 4.3). This provides maximum likelihood estimates of the effects of family and neighbourhood characteristics that are corrected for attenuation due to random measurement error (Panel A), and, for comparison, an identical model estimated by OLS is given in Panel B.

[Table 4.3 about here]

Table 4.3. Structural equation (LISREL) model of the effects of family and neighbourhood characteristics on life satisfaction, correcting for attenuation due to random measurement error in multiple item scales. Full information maximum likelihood estimates. Panel B: OLS estimates without correction for attenuation, for comparison. N= 8,418 [1]

Variable	b	s.e.	Standardised	t
Panel A. LISREL				
Male	-0.47	0.35	n.s.	-1.34
Migrant	0.03	0.67	n.s.	0.04
Parents' education	0.17	0.07	0.03	2.51
Parents divorced	-0.34	0.57	n.s.	-0.59
Married	2.37	0.52	0.07	4.57
Divorced	-2.67	0.79	-0.04	-3.40
Age	0.04	0.01	0.04	3.19
Church attendance (ln)	0.94	0.11	0.11	8.48
No religious affiliation	-1.87	0.46	-0.05	-4.08
Education	0.10	0.07	n.s.	1.45
Family income (ln)	1.94	0.27	0.10	7.15
<i>Postcode & neighbourhood characteristics:</i>				
Postcode SES	0.00	0.01	n.s.	0.21
Social capital: Sociable	0.06	0.01	0.08	6.10
Social capital: Friends	0.09	0.01	0.10	8.45
Neighbourhood incivility	-0.13	0.01	-0.14	-11.17
Panel B: OLS [3]				
Male	-0.54	0.39	n.s.	-1.39
Migrant	-0.02	0.74	n.s.	-0.03
Parents' education	0.24	0.07	0.04	3.20
Parents divorced	-0.71	0.63	n.s.	-1.14
Married	3.31	0.57	0.08	5.82
Divorced	-2.96	0.86	-0.04	-3.43
Age	0.01	0.01	n.s.	0.99
Church attendance (ln)	0.89	0.12	0.09	7.33
No religious affiliation	-1.70	0.50	-0.04	-3.38
Education	0.07	0.08	n.s.	0.94
Family income (ln)	1.74	0.30	0.08	5.86
<i>Postcode & neighbourhood characteristics:</i>				
Postcode SES	0.00	0.01	n.s.	0.22
Social capital: Sociable	0.06	0.01	0.06	5.39
Social capital: Friends	0.10	0.01	0.10	8.86
Neighbourhood incivility	-0.12	0.01	-0.12	-11.55
(constant)	46.03	3.13		

[1] All surveys for which the relevant data are available. In several surveys, one life satisfaction item and one item from the neighbourhood incivility scale were not asked. To conserve cases answers were imputed on the basis, respectively, of domain specific life satisfaction items and other items in the incivility scale.

[2] Chi-square = 669.63, 82 d.f. Adjusted goodness of fit index = 0.979.

[3] R-square = .08.

In the structural equation model estimates, the effects of family background are mostly absorbed into the current situation and no longer directly affect

subjective well-being⁷ when that is taken into account. In particular, neither **gender** nor **parental divorce** has a significant direct effect net of one's own current marital situation, religion, prosperity, and neighbourhood sociability. The only exception is the small positive effect of **parents' education** which, years and even decades after one has left home, raises subjective well-being by about a sixth of a point per year of education, on average, in this model. So the difference between the grown offspring of early school leavers who exited the education system after year 8, and the grown offspring of university honours graduates would amount to about one and a half points on average, all else equal, if the model is correctly specified. That is not a great deal, but it is striking because it is such a long-lasting effect whereas most effects on life satisfaction appear in this model to be entirely temporary (like one's own divorce)⁸. Moreover, the effect of parent's education on offspring's subjective well-being in adulthood is significant in all the different estimation methods we have employed – the maximum likelihood estimates of the structural equation model (Table 4.3, panel A), the OLS methods (Table 4.3, panel B, for example), and the GLS estimates in Table 4.1.

Marriage has a positive, statistically significant effect on subjective well-being, according to the structural equation estimates (Table 4.3., Panel A), which accord with the findings from the exploratory OLS models earlier in the report. According to the estimated metric regression coefficients in this model, married people are about two and one half points happier than are the single, those in de facto relationships, or widows and widowers, on average, all else equal. By contrast, people who have **divorce** and not [yet] remarried report life satisfaction levels about five points lower than the married

Subjective well-being rises gently as people **age**, by about half a point a decade, according to the metric regression coefficients in this model, on average and all else equal (Table 4.3, panel A).

Turning to community participation, the social-capital-Putnam issue, **church-going** has a statistically significant positive effect on subjective well-being in this model.⁹

Education fails to have a significant effect on subjective well-being in this model.

⁷ The model of equation 1 and Table 2.1 estimate their total effects, and the fact that the direct effects are here found to be nonsignificant means that their effects are entirely indirect. On the decomposition of total effects into direct and indirect components see, e.g. (Alwin and Hauser 1975; Bollen 1989: 32-39).

⁸ Our model is not the only one to suggest that the effect of exogenous events and past experiences on life satisfaction for the most part decay quite quickly. Headey and Wearing (1992) have proposed an equilibrating model of subjective (their propositions 11.1, 12.1, and 12.2 on page 19).

⁹ This is quite an important influence, as shown by the fact that its standardised regression coefficient (which allows us to compare the importance of variables in different units) is about the same size as for family income. This effects is quite robust across different modeling strategies with the structural equation model estimates confirming those in our exploratory models. Even aside from their absence from church, people who declare that they belong to "no religion" experience lower levels of life satisfaction.

Income has a positive, statistically significant effect on well-being in this model. The standardised coefficient is 0.08.

Community social composition fails to have a statistically significant effect on subjective well-being in this model. Specifically, the structural equation model confirms the finding from the exploratory analysis that **postcode SES** does not have a significant effect on life satisfaction, net of the effect of one's own income in this model. We saw, earlier, that postcode **ethnic composition** and **age composition** also failed to affect subjective well-being.

By contrast, **sociable neighbourhoods** where people interact and do things together appear to enhance the subjective well-being of their residents. According to our model, the difference between people living in a fairly unsociable neighbourhood (say, 25 points out of 100) and a fairly sociable one (say, 75 points out of 100) would amount to about 3 points out of 100 in life satisfaction, on average an all else equal. This is a particularly important result for FaCS, because there is leverage for policy here to the extent that the model is correctly specified— policies encouraging neighbourhood interaction and cooperation could if successful, potentially enhance residents' subjective well-being.

Local friendships also have an independent statistically significant positive effect on subjective well-being, in this model. The standardised regression coefficient of 0.10 means that local friendships are tied with family income for third most important effect in the model.

By contrast, **public incivilities** have a statistically significant negative effect on subjective well-being in this model. Indeed, they are the most important influence on subjective well-being of all those represented in the model, as shown by the standardized regression coefficient of -0.14. This close similarity to the earlier results from the exploratory models indicates the robustness of this effect. In the literature, this finding is not unprecedented: Ross, Reynolds and Geis (2000: Table 1) report a substantial positive effect of their “social disorder” measure on residents' psychological distress.

Thus, there are substantial effects of family situation and of community on subjective well-being in this model. Some of them are in areas that would probably take decades to shift and where success is uncertain (e.g. improving relationship skills that help build lasting marriages), others are in areas where concentrated action could probably produce prompt results (reduction of public incivilities, encouragement of neighbourhood interaction and cooperation), but some of which would necessarily involve joint programs with state government, e.g. via policing.

Effects of neighbourhood characteristics on satisfaction with the neighbourhood

It is instructive to consider the effects neighbourhood characteristics on satisfaction with the neighbourhood itself . The motivation for this strategy

comes in part from the view that causal interpretations are strengthened or undermined when multiple predictions are involved. More concretely, if neighbourhood characteristics play a causal role in overall subjective well-being, we would expect them to have an even stronger role in their more proximate domain satisfaction – neighbourhood satisfaction. We modeled the impact of these variables on neighbourhood satisfaction, net of a wide variety of individual characteristics, using structural equation (LISREL) models that incorporate corrections for random measurement error (Table 4.4, and equation 22).

[Table 4.4 about here]

Table 4.4. Satisfaction with your neighbourhood: Structural equation (LISREL) model of the effects of family and neighbourhood characteristics on neighbourhood satisfaction, correcting for attenuation due to random measurement error in multiple item scales. Full information maximum likelihood estimates. N= 8,398 [1]

Variable	b	s.e.	Standardised	t
Male	-0.57	0.38	n.s.	-1.49
Migrant	-1.06	0.72	n.s.	-1.48
Parents' education	0.05	0.07	n.s.	0.69
Parents divorced	-0.24	0.61	n.s.	-0.40
Married	1.01	0.55	n.s.	1.84
Divorced	-0.51	0.84	n.s.	-0.61
Age	0.03	0.01	0.03	2.41
Church attendance (ln)	0.28	0.12	0.03	2.37
No religion	-0.78	0.49	n.s.	-1.60
Education	-0.05	0.08	n.s.	-0.69
Family income (ln)	0.62	0.29	0.03	2.17
<i>Postcode & neighbourhood characteristics:</i>				
Postcode SES	0.07	0.01	0.09	8.79
Social capital: Sociable	0.23	0.01	0.25	20.35
Social capital: Friends	0.08	0.01	0.08	6.90
Neighbourhood civility	-0.35	0.01	-0.30	-27.30

[1] All surveys for which the relevant data are available. In several surveys, one item from the neighbourhood incivility scale were not asked. To conserve cases answers were imputed on from other items in the incivility scale.

[2] Chi-square = 653.06, 64 d.f. Adjusted goodness of fit index = 0.975.

This model reveals a positive, statistically significant effect of neighbourhood sociability on neighbourhood satisfaction (a standardised effect of .25). The metric regression coefficient of 0.23 indicates, to the extent that the model is correctly specified, that residents of neighbourhoods which are 10 points out of 100 more sociable experience 2.3 points out of 100 higher levels of neighbourhood satisfaction, on average and all else equal.

The model also discovers a statistically significant negative of neighbourhood incivility on neighbourhood satisfaction. The importance of the effect is indicated by the standardised regression effect of -0.30 is clearly the largest in the model. The metric regression coefficient of -0.35 implies, to the extent that the model is correctly specified, for example, that residents of a neighbourhood that is 10 points out of 100 higher in neighbourhood incivility will, on average, have levels

of neighbourhood satisfaction that are 3.5 points lower in life satisfaction all else equal.

Both these effects are very large : to the extent that the model is correctly specified, residents of neighbourhoods that are sociable and, neighbourhoods that show no signs of public incivility¹⁰ report substantially higher levels of satisfaction, on average and all else equal, than do their peers in unsociable neighbourhoods or neighbourhoods where incivilities are common.

Importantly, in this model, the effect of living in a neighbourhood where one has a lot of friends is not large, although clearly positive. In the model of life satisfaction, it played a relatively larger role. This suggests that our measure was picking up two somewhat different aspects of friendship: one that has to do with neighbourhoods (the ostensible topic of the question) and another that reflects people's general level of friendliness and hence their number of friends in all, not just those living in the neighbourhood.¹¹ It is likely that having friends increases well-being even if the friends do not live in the immediate neighbourhood (and perhaps is linked into personality traits such as extraversion which have important effects on life satisfaction [Headey and Wearing 1992, especially p 85]. So questions about the number of friends in the neighbourhood probably tap into both processes that operate in the neighbourhood and ones that operate more generally as well.

¹⁰ The reason that these massive effects do not dominate life satisfaction is that neighbourhoods play only a small role on that large stage (sufficiently minor that Headey (1988) did not include neighbourhood satisfaction as one of the domains in his well-known analysis of the linkages of domain satisfactions with overall satisfaction). Far more important, according to the standardised regression coefficients in our model are satisfactions with marriage, income, and – by far the largest single factor – satisfaction with one's sense of purpose and meaning in life. .

¹¹ We did not ask directly about how many friends people have, or how easily they make friends, and so cannot control for this possibility directly.

Discussion

Summary

All the results described in this summary are derived from the multivariate models set forth in the text, above. The multivariate analyses work like filters, statistically isolating each effect, so they provide us with estimates of the separate, independent impact of a given variable. The results of an investigation like this are only as persuasive as the model that produced them. Each sentence of the summary should contain the cautionary phrases “to the extent that the model is correctly specified” and “on average” and “all else equal”, but, for brevity, we will not reiterate them, but will ask the reader to remember that these cautions apply throughout. All parameter estimates necessarily involve uncertainty; we will be mentioning only the point estimates here, but each model provides a range of effects, so the true effects could be a little larger or a little smaller. We will mention ranges of effects where they differ among models. To facilitate the exposition, we will sometimes say “Xs are just as happy as Ys” which should be understood to mean that the estimated effect of being an X rather than a Y on life satisfaction is not significantly different from zero. We use the word “suggests” and similar phrases to signal a transition from reporting of a statistical result to an ordinary language translation or interpretation.

This report investigated the effects of family and community influences on the quality of life – that is, people’s overall happiness or subjective well-being. It uses the largest dataset ever brought to bear on this topic in Australia, the pooled set of 13 IcssA surveys between 1984-2001 (IcssA-Pool) with over 26,000 cases. Methods of analysis included multinomial probit regression, OLS regression, multilevel analysis, and structural equation modeling. Our modeling strategy followed a biographical logic, beginning with the family of origin and then assessing the consequences of current family and community situation.

Effects of family background

As to lasting effects of childhood situation on the offspring decades later when the children have grown to adulthood, our model finds that **parental divorce** reduces their children’s life satisfaction by about 2.3 points out of 100. This comes about through two intermediate consequences of parental divorce: (1) a reduced likelihood of the offspring being married and (2) lower quality marital relationships among the offspring who do marry.

Parental education has a positive effect on their children’s life satisfaction. This effect is not mediated by any later influences. The effect amounts to 0.10 to 0.25 of a point per year of education, with the best estimate being 0.17. That implies a difference of a bit under one point out of 100 in life satisfaction

between people whose parents exited the education system around year 10, and people whose parents completed three-year university degrees.

Father's occupational status during one's childhood, a good indicator of prosperity in the family of origin, has no effect on one's life satisfaction as an adult.

Number of siblings has no significant effect on life satisfaction, with happiness and unhappiness being equally common in large and small families.

Gender differences are small or nil, depending on which other variables are included in the model. Our best estimate is that men are just as satisfied with their lives as women, but they could be as much as 1 point out of 100 less happy.

Migrants do not differ from the Australian born in life satisfaction.

Effects of current family situation

When it comes to the current family situation, compared to single people (never married people who are not in de facto relationships), people in de facto relationships *are no more satisfied with their lives*. do not differ significantly in their life satisfaction. Married people are happier, by about 2 to 4 points out of 100, than are single people or those in de facto relationships. People in second marriages are just as satisfied with their lives as are those in first marriages. Divorced people are substantially unhappier (unless they re-marry) by about 4.5 points out of 100, but this effect shrinks to about 2.7 points when finances, current friendship situation and the like are controlled. Widows and widowers are no less satisfied with their lives than are the single. These patterns of marital effects are essentially the same between men and women (although widowhood may have a greater impact of men than on women).

A simulation based on an analysis of the effect of quality of marital relationships on life satisfaction shows that people in relationships towards the low end of marital quality – the twentieth percentile -- average 66 points out of 100 in life satisfaction, all else equal. That is similar to the level of life satisfaction experienced by people who are divorced (65). People in relationships of fairly typical marital quality, the 50th percentile, average 74 points in subjective well-being, a means substantially higher than for any of the other marital statuses. People with good marriages, in the 80th percentile of the marital quality distribution, average 83 points out of 100. Gender differences in effects of marital quality are not statistically significant.

People with different numbers of children are equally satisfied with their lives.

Furthermore there is a small, significant, positive effect of age on subjective well-being of about .04 to .05 of a point a year, which amounts to about 1 point every twenty years.

Effects of social capital

Community engagement enhances subjective well-being in several ways. Engagement in volunteer/ charity work has a significant positive effect on life satisfaction of about .3 of a point per hour worked. Thus, for example, people who do 10 hours a week of charity work are about 3 points out of 100 more satisfied with their lives than are otherwise similar people who do no volunteer work. The only direct indicator of participation in community organisations available in the dataset, church-going, has a significant positive effect on life satisfaction.

The social composition of neighbourhoods has no effect on life satisfaction. Postcode characteristics related to social stratification are closely related to one another and, by standard criteria, they measure one concept which justifies making them into a multiple-item socio-economic status (SES) index. Multivariate analysis show that this index of community SES does not have a significant effect on life satisfaction, net of other things.

Moreover, the postcodes' percentage of single mothers has no effect on the subjective well-being of its residents, nor does the percentage of single-person households.

The residential stability of the postcode has no effect on residents' subjective well-being.

Subjective well-being decreases slightly with city size.

The ethnic composition of the neighbourhood has no impact on life satisfaction. Neither the percentage of Aborigines or Torres Straits Islanders, nor the percentage of migrants from English speaking countries, nor the percentage of migrants from non-English speaking countries has a significant effect on postcode residents' subjective well-being.

In sum, migration and the ethnic diversity that flows from it have no net impact on Australians' life satisfaction. This suggests that ethnic diversity is either irrelevant or (more likely) it has both good and bad points which in the end balance out.

By contrast, the conduct of your neighbours has an important impact on well-being. In some definitions, these would be considered indicators of social capital.

Neighbourhoods that provide friends enhance well-being, but the effect is small, amounting to 0.09 or .10 of a point of life satisfaction per local friend. This implies, for example, that someone who has 10 or 11 local friends is about 1 point more satisfied with their life than someone who has no local friends.

Neighbourhoods with an outgoing, sociable culture enhance well-being, with a metric regression coefficient of 0.06 to 0.07. This implies that residents of neighbourhood that are 30 points higher out of 100 on the neighbourhood sociability scale would tend to be about 2 points higher than their peers in the baseline neighbourhoods. Note that this is aside from the presence of personal

friends in the neighbourhood, being more an indicator of positive neighbourly interaction and cooperation.

People living in uncivil neighbourhoods – indexed by public rudeness, street hostility, and unruly loitering in the neighbourhood – experience lower levels of subjective well-being. The metric regression coefficient of about 0.12 implies that, for example, people living in a neighbourhood that is 10 points out of 100 more civil experience about 1.2 points higher life satisfaction than their peers living in the baseline neighbourhood. This is not a proxy for poverty: neighbourhood SES and individual family income are controlled in the analysis. Moreover, this effect is not a proxy for a high concentration of male youth; some of our analyses control that, too. The effects on neighbourhood satisfaction are even larger: the metric regression coefficient imply that a 10 point (out of 100) gain in neighbourhood civility.

Effects of paid employment are not a focus of this report, but several workforce-related variables were included for purposes of comparison. The analyses show that neither one's own, nor one's spouse's has a statistically significant effect on subjective well-being. Moreover, the effect of one's own education on life satisfaction is not statistically significant. By contrast, income has a substantial positive effect on life satisfaction.

Among those in the workforce, simulation based on the model reveals that part-time workers are more satisfied by about 2 points out of 100 than people in any other working arrangement. The model found no statistically significant differences in subjective well-being among people working ordinary full-time hours (35-48 hours), long hours (49 to 59), and very long hours (60 plus).

Occupational status – one's location in the occupational hierarchy – does not affect subjective well-being, aside from the income it brings. This is an important result because – to go beyond the data -- it suggests that low-skilled jobs can be satisfying to the right incumbents.

By contrast, job security has a substantial, significant, positive effect on life satisfaction. The metric regression coefficient suggests, for example, that on a points out of 100 basis, each point of job security is worth about 0.1 of a point of subjective well-being. If so, then someone moving from quite an insecure job with a rating of 30 points out of 100, to a largely secure job with a rating of 70 points out of 100 would gain about 4 points in subjective well-being, on average and all else equal.

People who are unemployed experience lower life satisfaction than their working peers. The metric regression coefficient suggests that the unemployed are almost 6 points out of 100 less satisfied with their lives than are otherwise comparable people in full-time paid work. This result buttresses the view that moving people from unemployment even into low-skilled jobs will probably substantially improve their quality of life, on average (inasmuch as people in low status occupations enjoy the same level of well-being as people in high status occupations).

Past receipt of unemployment benefits – either by one’s self or one’s spouse -- fails to have a significant effect on subjective well-being. To the extent that the regression coefficient represents a causal process, it suggests that re-entry into employment fully restores the normal respondent’s level of life satisfaction.

Health effects

Current health has a moderately large positive statistically significant effect on well-being. The metric regression coefficient suggests that those enjoying good health (say, of 75 points out of 100) are 11 points higher in life satisfaction than are those in poor health, (25 points out of 100). Psychological stress has a very large effect. Spouse’s health has an independent impact, fully half as large as that of one’s own health.

In our model, the effect of past receipt of disability benefits on subjective well-being, net of current health, is not statistically significant. Because benefit histories have only recently begun to be collected, much less is known about their measurement properties than is true of other variables in the model. As a result, we also estimated alternative models simply including an indicator variables representing past benefit receipt, but these effects did not reach statistical significance either. The same is true of spouse’s past receipt of disability benefits.

Implications: What can FaCS do to enhance well-being?

1. Income support.

The fact that family income has a positive effect on well-being in this as in all other analyses, suggests that providing income to those in need is an important contribution to well-being.

2. Strengthening marriages.

People are most satisfied with their lives when they are married, most dissatisfied when they are divorced. Moreover, divorce casts a shadow on the happiness of the next generation, the children of divorce. De facto relationships are significantly less happy than marriages. Strengthening marriage is not an easy task, because few marriages come into FaCS’s zone until the relationship is damaged beyond repair. This is an area where trial programs and evaluation research are needed. To the extent that our model correctly represents causal processes generating happiness, second marriages elevate subjective well-being to the same level of happiness that first marriages do. That provides support for policies encouraging re-marriage following divorce.

3. Moving people from unemployment back to work.

The evidence is clear that unemployed people are less satisfied with their lives than are working people in general. Perhaps more importantly, our simulation

reveals that the unemployed are less satisfied than are people in low ranking jobs, all else equal. Moreover, to the extent that our model represents causal processes rather than unmeasured heterogeneity in the population, the regression coefficient suggests that once the unemployed are back in work, their subjective well-being rebounds completely to their normal level.

4. Social and police policy to reduce public incivility

The model reveals that people living in uncivil neighbourhoods are substantially less satisfied with their neighbourhoods and also less satisfied with their lives as a whole. To the extent that this represent a causal process whereby incivility reduces neighbours happiness¹², Reducing incivility – public rudeness, street hostility, and rowdy loitering – could substantially increase well-being for other citizens.

5. Enhancing neighbourhood interaction and cooperation

The findings that sociable neighbourhoods increase the residents' life satisfaction and that volunteering increases life satisfaction also have policy implications. For example, funding support (and possibly short courses on organisational and bookkeeping strategies) for sporting groups, for volunteer rescue activities such as surf lifesaving and rural bush fire brigades, for craft and hobby groups, and similar 'sociable' organisations merits consideration as potentially enhancing residents' well-being. Successful support for other volunteering activities would be likely to have have similar benefits.

¹² The main alternative argument would be that people with low life satisfaction sort themselves into uncivil neighbourhoods, but this seems to us substantively unlikely. Another alternative explanation would be that an omitted variable – a social force not represented in the model – actually causes both depressed life satisfaction and neighbourhood incivility. This is more plausible. Some researchers would argue that incivilities and disorder are indicators of the breakdown of informal social control in neighbourhoods (e.g. Ross, Reynolds, and Geis [2000]). If so, it could be argued that it is the sense of powerlessness rather than the sense of danger that depresses subjective well-being, an empirical question that could be tested in future research. Alternatively, we are suggesting that it is the incivilities themselves that depress subjective well-being. This is by far the simplest hypothesis, so Occam's razor favours it, in the absence of evidence to the contrary. Moreover, Ross, Reynolds, and Geis (2000) find that incivility/disorder significantly increases psychological distress, even when feelings of powerlessness are controlled in the model. That is not conclusive evidence, because distress is not the opposite of subjective well-being (Headey and Wearing 1992) and because the research pertains to another country so it is conceivable that neighbourhood processes here might work differently. Nonetheless, it is the best evidence on the question, so far as we know, and it increases the plausibility of the causal interpretation.

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Appendix A: Data

Data Sources

The analyses in this project are largely based on data from the International Social Science Surveys Australia (IsssA), which we direct. The IsssA regularly collects extensive and detailed survey data on large, representative national samples of Australians, beginning in 1984 and repeated most years since then.¹³ There are now over 26,000 cases and many hundreds of variables. Some of the analyses also include aggregate data at the postcode-level from the ABS which we shall discuss below.

The IsssA

The IsssA surveys' particular strengths are that they offer:

- o Individual level data on a very large number of variables simultaneously, facilitating multivariate analysis and enabling one explicitly to control for many sources of selectivity.
- o Extensive measurement of public policy preferences, attitudes, and values, based on carefully pretested multiple-item scales for more reliable measurement.
- o Extensive information on family background and on current labour force involvement.
- o Cross-national comparisons on many variables, allowing one to discover what is unique to Australia; what is common to culturally similar nations such as Britain and the USA; and what holds for industrial nations generally.
- o Historical depth, with many items appearing regularly since 1984.
- o Panel components with some measures available for the same respondents at several points in time.

¹³ The first survey, then called the National Social Science Survey, was supported primarily by the Australian Research Grants Committee and research funds kindly provided by Don Aitkin, now vice-chancellor of the University of Canberra. Most, but not all, subsequent surveys through 1997 were mainly supported by the Research School of Social Sciences at the Australian National University. The IsssA is now core-sponsored by the Melbourne Institute of Applied Economic and Social Research, the University of Melbourne, being designed as an omnibus the survey episodically includes modules sponsored by other organisations. Merging all the surveys into a pooled, user-friendly file with consistent variable definitions was sponsored by an ARC-Research Infrastructure and Equipment grant to the Melbourne Institute.

Population sampled

The population sampled by the IsssA consists of citizens of Australia who reside at the address which they have provided to the Electoral Office, who can read English sufficiently well to answer a self-completion questionnaire, and who are not too cognitively impaired to answer a self-completion questionnaire. For simplicity, we refer to this population as “Australians”. The selection on citizenship should have little effect, since prior research shows that non-citizen immigrants differ from citizen immigrants principally in their duration of residence, with few or no differences in issues that would be more relevant to this report, namely marital status and stratification characteristics (Evans 1988)

A note on sample size

The IsssA, unlike most social surveys, is based on a simple random sample. This is the optimal type of sample for most purposes, and the type of sample implicitly assumed by most statistical packages, so ordinary standard errors based on it are correct and do not require the inflating factors that cluster samples do. Simple random samples such as the IsssA are more efficient than the cluster samples used in almost all face-to-face surveys.¹⁴

A reasonable rule of thumb for high quality cluster designs is that they are worth approximately two-thirds as much as simple random samples (NORC 1987: 435). Thus an IsssA sample of about 2,200 would provide as reliable information as a good cluster sample of around 3,300 cases.

Data collection procedures: IsssA

The IsssA surveys are from simple random samples of Australian citizens¹⁵ drawn by the Electoral Commission from the compulsory electoral roll, a public document.¹⁶ They are conducted by mail¹⁷ using a minor modification of Dillman's (1993) Total Response Method. First, a personally-addressed preliminary letter announces the survey; offers a free telephone contact number for queries; and provides information on how to decline to participate¹⁸. Then the

¹⁴ Travel costs make simple random samples unaffordable for most face-to-face surveys.

¹⁵ For the exact definition, see the section on “Population sampled”, above.

¹⁶ Most of the early surveys are repeated cross-sections (ie new samples drawn each time) but a few are panels (re-contacting previous respondents). Our current design is a permanent panel, augmented with some fresh respondents in each wave.

¹⁷ The first survey was mainly face-to-face interviews, with only the most rural quarter of the sample contacted by mail. Comparison of the face-to-face interviews with mail samples suggests that there are no systematic differences (Bean 1991), and similar results have been reported for the US (Goyder 1985). Mail surveys may be better than face-to-face or telephone surveys for sensitive issues, such as income, since there is no interviewer to create embarrassment (e.g. Babbie 1995: 272). Moreover, non-governmental surveys are more likely to detect participation in the gray economy and income derived from it. Probably the chief drawback to postal questionnaires is that because they are self-administered they are not suitable for questions requiring complex skip patterns (e.g. Babbie 1995: 272).

¹⁸ For our surveys of 1984-85 through 1996-97, we did not use a preliminary letter, but rather a cover letter. The transition to a preliminary letter was at the suggestion of Malcolm Mearns, principal of Datacol Research on the grounds that it would be likely to boost response rates and that it would make refusals cheaper (because the preliminary letter costs only ordinary letter postage, and people who refuse at that

survey booklet itself arrives in the post about two weeks later (together with its pre-paid return envelope and a further cover letter). These average around 64 pages, ranging from 32 to 84 pages, are attractively laid out, and are printed in black and white. The covers feature a map of Australia and are usually glossy white, with the map in a colour that varies from year to year¹⁹. For non-respondents, this is typically followed by four follow-up mailings, two with fresh copies of the questionnaire, over a 6 to 12 month period.²⁰

The data entry process is too elaborate to cover in detail here, because it changes over time²¹, but it is worthwhile giving a sketch of current practices. Because the IsssA relies almost entirely on closed-ended questions (because of their superior analytic properties), data processing is relatively straightforward. Upon receipt, the answers from the survey booklets are entered into a specialised computer program that flags out-of-range codes (usually keypunching errors), and has column location checks at the end of every page to guard against the keypuncher missing a question and thus punching answers to subsequent questions in the wrong fields, a problem sometimes known as “off-column” errors. Double answers (respondent circles two adjacent answer categories) are randomly assigned to one or the other answer (with special arrangements for a few unusual items). Experienced coders work with an automated occupation-coding program to transform open ended occupation questions into ABS 4-digit occupational codes. Experienced coders also convert open ended questions on industry educational qualifications into standard ABS codes. Throughout the data entry process, coders and data-entry personnel flag all confusing or unclear cases which are subsequently dealt with in problem-resolution sessions with experts. All personnel are carefully trained and supervised²² to maintain high standards of data-quality. With these procedures, we estimate that the data entry errors are substantially less than one per thousand questions (based on a sample of questionnaires that were entered twice, with different personnel performing the two entries).

stage are excised from the mailing list before the higher cost mailing of the questionnaire). Research is now in progress systematically to evaluate the impact of the preliminary letter.

¹⁹ Our assessment indicates that colour makes no difference to response rates, but varying the colour helps to keep track of multi-year surveys and was an important mnemonic device for questionnaire designers trying to locate questions from earlier survey booklets. The electronic age has made the last issue less relevant, so if one were starting a survey today, one might well prefer to choose one permanent “signature” colour-scheme.

²⁰ In some years we have experimented with telephone follow-ups and various other alternatives for the last contact, which proved neither demonstrably better nor demonstrably worse than standard practice. .

²¹ The data from the first survey were coded and entered by Reark Research, the data from the 1986-87 and 1987-88 surveys were coded by research assistants at the Australian National University and entered by data processing personnel at the Australian National University’s (former) Data Processing Unit, and the data from subsequent surveys are coded and entered by personnel at Datacol Research. Datacol Research also provides the foundational SPSS locating, identifying, and labelling variables.

²² Including random checks.

Non-response bias in surveys

Representativeness

A very important feature of samples is their representativeness, for it is on this basis that one can make generalisations to the large population which is a key goal of most survey research. Indeed, modern survey research textbooks generally emphasise that completion rates/ response rates are only of interest because a very low completion rate may be a symptom of non-representativeness (e.g. Babbie 1995: 262). The representativeness of IsssA achieved samples has been clearly established in prior research (Bean 1991; Sikora 1997), and analyses using IsssA data appear regularly in the world's leading sociology journals.²³

Here, we take two approaches to the issue of representativeness (also sometimes known as survey response bias): (1) comparisons of IsssA survey results with the Australian Census, and (2) comparisons of prompt respondents with tardy respondents (who would have been non-respondents if not for our extensive follow-up procedures).

Results for IsssA surveys conducted around the time of the 1991 Australian census show that the survey samples (1989-1993; 8234 cases) are representative of the population (Table A1).²⁴ Similar comparisons with the 2001 Census will be conducted in due course.

²³ For example: Evans, Kelley, and Kolosi (1992); Kelley and De Graaf (1997); Kelley and Evans (1993, 1995).

²⁴ More extensive comparisons show this as well (Bean 1991; Sikora 1997).

Table A1: Comparison of IsssA surveys with the census.

	Census 1991	IsssA 1989-93
Gender		
Male	49%	51%
Female	51%	49%
Age Groups		
18 - 24	15%	11%
25 - 34	22%	21%
35 - 44	21%	23%
45 - 54	15%	17%
45 - 64	12%	14%
65+	16%	14%
Education: Age Left School		
Under 15/none	18%	18%
15	24%	23%
16	22%	23%
17	19%	21%
18	11%	11%
19 and over	7%	3%
Employment Status		
Employed	58%	65%
Unemployed	7%	2%
Not in labour force	36%	33%
Occupation of employed persons		
Managers & admin	14%	13%
Professionals	14%	19%
Para-professionals	8%	11%
Tradespersons	14%	12%
Clerks	16%	16%
Sales, service	13%	12%
Plant & mchn operators	8%	7%
Labourers	13%	10%

Another line of insight into the representativeness question comes from comparisons of prompt respondents, who complete and return their questionnaires shortly after receiving them, with tardy respondents (who would be non-respondents had they not been contacted on multiple occasions). Note that our preliminary letter invites sample members to refuse if they do not wish to participate, and we do not re-contact anybody who refuses. So the non-respondents are people who have not indicated a desire not to participate. An analysis of characteristics of non-respondents compared to respondents is given below in the section on “Non-response”.

Survey non-response

Completion rates

Completion rates are one of the data quality issues that greatly concern survey researchers, because of the possibility that non-respondents may differ systematically from respondents, yielding and unrepresentative achieved sample, and thereby violating the assumptions that justify generalization from a sample to a population (e.g. Donald 1960; Brownlee 1975; Miller 1991: 145-155; Babbie 1995: 262). Completion rates (defined as completions divided by eligibles [refusals plus completions]) range between 60 and 65 per cent. Potential respondents are defined as “eligible” if they are currently living at the address given in the electoral roll, able to read English, and not seriously ill. The main uncertainty has to do with the addresses, a proportion of which are out of date, erroneous, or unoccupied and so ineligible. Following van Dijk, Mayhew and

Killias (1990) we define as ineligible addresses from which we have heard nothing after 5 or 6 contacts. The IsssA completion rate compares favourably with recent experience in Australia, the USA, and many other industrial nations. For example, the well-regarded International Crime Victim Survey averaged 41 per cent in 14 nations using a similar definition (van Dijk, Mayhew and Killias 1990).²⁵

However, diligent pursuit of non-respondents is expensive. In the IsssA, as in other mail surveys (Dillman 1993), the great majority of the completions come within a month or two of entering the field²⁶. But then things begin to get expensive. The IsssA typically sends a second questionnaire (expensive both in printing and in postage), followed by another reminder letter, followed by a third questionnaire, and often a final desperation contact of some sort. All this obtains relatively few responses. Much of the follow-up mail goes to “bad” addresses, mostly because the person we are seeking has moved house. So, much is spent, for little gain. At a rough guess, we spend two or three times more per completed questionnaire at this stage than at the first stage.

But is all this worthwhile? Since the budget is fixed, an attractive alternative is to draw a bigger sample in the first stage, but then cut the pursuit of non-respondents short, dropping the third questionnaire (and possibly even the second). That would produce a larger sample within the same budget – of course, bigger samples are unequivocally better. The danger is that the “difficult” respondents who initially refuse our requests to participate and only complete the questionnaire months later are different from the “good” respondents who answer right away. So by giving up on those who initially refuse, we might get an un-representative sample. That would be unequivocally bad.

So a key question is whether “good” (and inexpensive) respondents differ systematically from “difficult” (and expensive) respondents and, by extension, from non-respondents (who are presumably like “difficult” respondents, but even more extreme). Good arguments can easily be made on both sides of this question,²⁷ but in the end the question is an empirical one, and is an important tool in the assessment of sample representativeness (Babbie 1995).

Are those who initially fail to complete the questionnaire, eventually answering only after many reminders, in fact different from “good” respondents? The logistic regression analysis in Table A2 suggests that, in the main, they are not.

²⁵ The ICVS is an appropriate benchmark because it offers the same definition of response rate in all the countries taking part, whereas in many other international surveys each country defines the response rate in a way that is customary for them, so the reports are not comparable.

²⁶ For example, the University of Hawaii estimates that on its impressive panoply of student surveys, 40 percent of responses are returned within two weeks of receipt (Babbie 1995: 280).

²⁷ It might be that poorly educated respondents find our lengthy questionnaire daunting; or that the rich have no time for it; or that housewives find the focus on work uninteresting; or that right-wingers find it intrusive, or left-wingers find it threatening. Alternatively, it could be that none of these matter – that filling out a questionnaire depends on random things (such as happening to have some free time that week) or on things uncorrelated with the variables we are interested in (such as mood, personality, or cooperativeness).

At a simple descriptive level, nothing we have measured is strongly correlated with initially not answering the survey (column 1), a finding confirmed by the logistic regression (columns 2 and 3).²⁸ Demographic differences are minimal; status and political differences even smaller; and attitudinal differences negligible. There is only one statistically significant difference: younger people are very slightly more likely initially not to complete the questionnaire, all else equal.

Table A2. Analysis of non-response. Panel 1: Respondents who initially refused to complete the survey but eventually answered after many reminders (=1, all others=0). Panel 2: Item non-response (=number of individual questions not answered). Correlations (r), logistic regression coefficients (b), standardized partial regression coefficients estimated by OLS (beta), and significance tests. Australia IsssA 1994-95. N=1503.

	1. Initially refused to answer survey			2. Item non-response		
	r	logistic b	Wald χ^2	r	OLS beta	t
Male	-0.034	ns	0.45	-0.10	-0.07	-2.24
Age	-0.123	-0.02	12.91	0.11	ns	1.63
Parents' party	-0.014	ns	2.04	-0.04	ns	-1.12
Born in Australia	-0.026	ns	1.51	-0.05	ns	-1.35
Urban	0.012	ns	0.23	-0.01	ns	0.47
Education	0.017	ns	0.91	-0.13	-0.07	-2.08
Family income	0.001	ns	0.72	-0.07	ns	-0.40
Liberal or National Party	-0.013	ns	1.34	0.02	ns	1.33
In labor force	0.031	ns	0.01	-0.11	ns	-1.11
Catholic	0.023	ns	0.23	0.01	ns	-0.20
Christian belief (scale)	0.056	ns	1.23	0.04	ns	0.42
Pro-union (scale)	-0.003	ns	2.11	-0.01	ns	0.55
Govt regulate business (scale)	0.072	ns	0.99	0.00	ns	-0.43
Knowledge of science	-0.001	ns	1.04	-0.11	ns	-1.21
For genetically engineered food	0.001	ns	1.32	-0.08	ns	-1.59
Govt pay more on superannuation	0.036	ns	2.10	0.06	ns	1.23
Initially refused to answer survey	--	--	--	0.03	ns	1.20

ns – Not significantly different from zero, $p < .05$, two-tailed.

Item non-response

Item non-response is also a long-standing concern for survey analysts (Hyman 1972; Sudman and Bradburn 1974). Respondents' typically do not answer all the questions in a survey, and the concern is that those skipping an item are systematically different from those who do answer. On a few topics (for example, income) 10 percent or more may not answer, although generally item non-

²⁸ There are also statistical ways of getting some empirical leverage even on permanent non-response and adjusting for any resulting biases in the multivariate analysis (see Heckman 1979 and the literature flowing from that). But the cure often seems more dangerous than the disease, so conventional wisdom has generally turned against such corrections – a view with which we concur.

response tends to be closer to 5 percent in IsssA surveys. There is a large statistical literature how to handle item non-response, with implications that turn largely on how distinctive the non-responders actually are (e.g. Joreskog and Sorbom 1988, chapter 1: 12-17; Little 1992:1229-31). If they are very different, serious difficulties can arise in the analysis; conversely, if item non-response is more or less random with respect to the variables of interest, it is relatively easy to deal with.

So again it is an empirical question: how distinctive are those who do not answer particular questions? To get some insight on this, we selected some widely used items and counted how many each respondent failed to answer. A typical count, for eight demographic and background items in the 1994-95 IsssA is:²⁹

<i>No missing data, answered all</i>	74%
<i>Missed 1 question</i>	21%
<i>Missed 2 questions</i>	4%
<i>Missed 3 questions</i>	1%
<i>Missed 4 questions</i>	0.4%
<i>Missed 5 questions</i>	0.1%
<i>Missed 6 or more questions</i>	0%
	100% (1503 cases)

Thus, most people answered all these questions but 21 per cent skipped one, four per cent skipped two and a handful skipped more. We made similar counts for other sorts of questions, with similar results.

Who, then, are not answering? In all, there are no substantial differences between those who skip questions and those who do not,³⁰ at least for the variables we have measured (see Table !!!, panel 2):

The tendency not to answer is not strongly correlated with anything we have measured (first column of panel 2). Most of the correlations are near zero.

Multivariate analysis suggests that there are, however, a couple of significant, but small, differences (see the second and third columns of panel 2). Men are a little less likely than women to skip questions, and the well-educated less likely than the poorly educated. Both differences are small, with a standardised effect of only $-.07$. Interestingly, there is no relation between skipping questions and being a tardy respondent – that is, no statistically significant link between item non-response and survey nearly-non-response. Instead, we suspect that doing a survey involves a two-stage decision process: first one decides whether or not to do the survey, then after that and quite independently, whether or not to answer each particular question.

There seems to be a general tendency toward skipping questions in a survey, although not a strong one (Table A3). For example, those who tended to skip background items also tended to skip political attitude questions ($r=.32$), questions on science ($r=.21$), attitudes toward retirement income provisions

²⁹ Sex, age, parents' political party, place of birth, urban residence, education, family income, and party preference.

³⁰ Results on earlier IsssA data are similar Bean 1991

($r=.31$) and religious matters ($r=.19$). All these links are clear, but only moderately strong.

In some analyses, we have estimated the effects of item nonresponse using a variation of Heckman's (1979) method suggested by Kelley and Evans (1993:118-20) which uses nonresponse on related questions elsewhere in the questionnaire to give an independent indicator of the underlying propensity not to respond. However, our experience thus far is that these adjustments rarely make any practical difference.

In practice, we therefore generally use the pairwise present method for missing data, without any further adjustment. It is statistically preferable to the usual simple alternatives (Joreskog and Sorbom 1988, chapter 1: 12-17; Little 1992:1229-31).

Table A3. Correlations between initial refusal to complete the survey and non-response to particular items in the survey. Australia IcssA 1994-95. N=1503.

	Initially refused to complete the survey	Item non-response on:				
		Background items	Political attitudes	Attitudes to science	Attitudes toward retirement	Religious issues
Background items	0.06	1.00	0.32	0.21	0.31	0.19
Political attitudes	0.01	0.32	1.00	0.15	0.20	0.16
Attitudes to science	0.02	0.21	0.15	1.00	0.40	0.07
Attitudes to retirement	0.03	0.31	0.20	0.40	1.00	0.10
Religious issues	-0.03	0.19	0.16	0.07	0.10	1.00

General matters of question design

In general, scale types and formats matter little to the psychometric quality of questionnaire items, so long as the substance of the question is clear and respondents can tell which end is high and which is low (Sheatsley 1983; Milkovich and Wigdor 1991: 3), although the reliability of ratings drops if there are under 3 answer categories or more than 9 answer categories (Milkovich and Wigdor 1991: 3). As a result, 5 to 7 answer categories are often treated as ideal, although one may need to vary this for specific purposes, such as replication. Some degree of balance of topics is ideal to maintain respondent concentration (Sheatsley 1983). Comparisons of survey data with formal records indicate that factual questions tend to obtain more accurate answers when the questions are clear and not terribly complex (Dykema and Schaeffer 2000), so the IcssA routinely assesses new factual questions qualitatively in terms of respondents' experience of their clarity and complexity.

Data available in the I:sssA

Appendix Table A4. Data available. Variables available in I:sssA data for Australia, 1984-1997 (10 surveys) and ISSP data for 19 nations, 1987-1993.

	In how many I:sssA surveys? (10 Australian surveys)	In other nations? (19 nations)
Education & training		
Years of schooling and tertiary education; Primary/secondary/tertiary completion	Most	All nations
Highest educational qualification (ABS detailed code); Trade qualification? Year completed; Age left school	Most	--
School type: Primary (Government/ Catholic/ Other private); Secondary (Government/ Catholic/ Other private)	Most	--
Informal job training, professional development and other adult education: Computer courses taken (up to 3), including provider and course date; On the job training courses taken (up to 3), including provider and course date; Other job, professional courses taken (up to 3), including provider and course date; Foreign language courses taken (up to 3), including provider and course date;; Liberal arts courses taken (up to 3), including provider and course date; Basic literacy courses taken (up to 3), including provider and course date; HSC courses taken (up to 3), including provider and course date; Basic literacy course provider (up to 3 courses), including provider and course date; Personal development courses taken (up to 3), including provider and course date; Craft courses taken (up to 3), including provider and course date; Health courses taken (up to 3), including provider and course date; Any other courses taken (up to 3), including provider and course date.	Some	--
Labor force, employment		
Paid work: Hours per week	All	All nations
Charity work: Hours per week	Some	--
Weeks worked in last year	All	--
Unemployed in last year (weeks)	All	--
Unemployed in at any time in last few years?	All	Many nations
Labor force experience: Years worked full time; Years worked part time; Experience in present occupation (years).	Most	--
Years private employment; Years worked for government	Some	--
Current employment status: working for pay/ unemployed/ school or university/ Keeping house/ retired/ etc.	All	All nations
Occupation (ABS Australian Standard Classification of Occupations, International Standard Classification of Occupations, or national equivalent)	All	All nations
Occupational status (Kelley Worldwide scores)	Most	Many nations
Industry (ABS detailed code or national codes)	Most	Most nations
Supervision: You supervise others?	All	All nations
Total number of persons you supervise or those you supervise also supervise others?	Most	Many nations
Are you supervised? Does your supervisor have a supervisor?	All	--
Are you a top/ upper/ middle/ ... manager?	Some	--
Employer: Private vs public sector employment; Self-employed?	All	All nations
If self-employed: Number of employees	Most	Many nations
Firm size: Number of employees	Most	--
Trade union membership	Most	All nations
Income, wealth, assets		
Income: Earnings; Family income from all sources	All	All nations
Earnings from main job a year ago	Some	--
Wealth: Value of car, savings, investment; Value of business, farm; Value of superannuation.	Some	--

Assets now: Washing machine; Refrigerator; Microwave oven; Dishwasher; Colour television; Some High-fi; VCR; Telephone; Car; 2 nd car; Shares in the company you work for; Shares in other companies; Holiday cottage; Took holiday abroad in last year? Took holiday away from home in Australia in last year? Own/ rent/ buy own house now	--	
Assets 5 years ago: Same variables as for assets now. (Parent's assets while respondent was growing up: See "Family Background")	Some	--
Class and hierarchy		
Subjective social class: Self-rating (10 point scale; see Kelley & Evans, <i>American Sociological Review</i> , 1995); Middle class/ working class.	Most	All nations
Class position: Erickson-Goldthorpe (1992); Robinson-Kelley (1979); Wright (1985). (Elements for multi-dimensional measurement of class are in the "employment" section)	Most	All nations
Images of society (inequality diagrams): How unequal is society NOW; How unequal in PAST; How unequal in FUTURE; How much inequality OUGHT there be. Occupational position in the diagrams: Where unskilled workers fit in; Where farm laborers are; Where medical doctors are; Where corporation chairmen are. (Evans, Kelley & Kolosi, <i>American Sociological Review</i> , 1992)	Some	Some nations
Perception: Amount of conflict: Conflict between rich & poor, management and workers, middle class and working class, unemployed and those with jobs (see Kelley & Evans, <i>American Sociological Review</i> , 1995)	Some	All nations
Family background		
Father: Father's data of birth; Father still alive; Father's education (years); Father's schooling: Government/ Catholic/ Other private.	Most	--
Father's employment: Father's occupation (ABS code); Father's occupational status; Father supervisor; Number father supervised; Father self-employed? Father top manager? Father: Company size; Father private vs public sector employment; Father: Union member; Father class position	Most	--
Mother: Mother's date of birth; Mother still alive; Mother's education (years); Mother's schooling: Government/ Catholic/ Other private.	Most	--
Mother's occupation (ABS code); Mother's occupational status;	Some	--
Mother working for pay when respondent of pre-school age? Mother working for pay when respondent aged 6 to 10? Mother working for pay when respondent aged 10 to 14?	Most	--
Cultural capital (number of books in home when R aged 14)	Most	--
Living arrangements at age 14: Who? Living arrangements at age 14: Parents divorced? Single-parent?	Most	--
Parents' geography: Father's country of birth; Mother's country of birth; Year parents migrated to Australia	Most	--
Parents' assets when respondent 14: Refrigerator; Telephone; Car; House	Most	--
Parents' politics: Father's political preference; Mother's political preference.	Most	--
Parents' religion: Parents' religious denomination; Father's church attendance; Mother's church attendance.	Most	--
Demographic and background variables		
Year born; Age (years); Sex.	All	All nations
Marriage: Marital status; De facto? Date of 1 st marriage; How 1 st marriage ended (if it did); When 1 st marriage ended (if it did); De facto prior to 1 st marriage? (& how long); Spouse's marital status prior at time of your 1 st marriage; Date of 2 nd marriage; How 2 nd marriage ended (if it did); When 2 nd marriage ended (if it did); De facto prior to 2 nd marriage? (& how long); Spouse's marital status prior at time of your 2 nd marriage	Most	--
Children: Sex of 1 st child; Date of birth of 1 st child; Sex of 2 nd child (etc: up to 4 children); Date of birth of 2 nd child (etc: up to 4 children); Number of children ever born to you;	Most	--
Number of step-children living with you for 1 year or more; Number of other step-children who visited regularly	Some	--
Household composition: Spouse present? Number of children under age 6; Number of children age 6-17; Number of children 18 or older; Number of parents, in-laws, other adults	Most	Many nations
Geography: State of residence; size of community of residence	All	All nations
State or country of birth; year you migrated to Australia; Size of community of birth; State or country of residence at age 14; Size of community of residence at age 14. (Parent's geographical information is in "Family Background" section)	Most	

How long lived at this address? Expect to move in next few years?	Some	--
Spouse		
Marital status/ spouse present	All	All nations
Demography: Spouse's age; Spouse's date of birth	All	--
Education: Spouse's years of education; Completed primary/secondary/university.	All	All nations
Work: Spouse's hours paid work per week; a full-time/part time distinction is implicit in the employment status code for most nations.	All	Most nations
Spouse's Hours charity work per week	Some	--
Spouse's Weeks worked in last year; Weeks unemployed in last year	All	--
Spouse labour force experience: Years worked full-time; Years worked part-time	Most	--
Spouse employment status: Spouse currently working for pay full-time/part-time /unemployed/ school or university/ keeping house/ retired/ etc.	All	All nations
Spouse's occupation (ABS Australian Standard Classification of Occupations, International Standard Classification of Occupations, or national equivalent)	Most	All nations
Spouse's industry (ABS detailed code)	Some	--
Spouse supervision: Supervise others?; Those supervised also supervise others?	Most	--
Spouse's employer: Private vs public sector employment; Self-employed.	Most	--
Spouse: Trade union membership	Most	Some nations
Spouse: Political party preference; vote	Most	--
Utility (life satisfaction, subjective well-being)		
Overall Satisfaction: Life as a whole (repeated measures in Australia)	Most	--
Satisfaction with job: Overall (2 measures); Intrinsic values (multiple measures); Extrinsic values (multiple measures)	Most	--
Satisfaction with other domains: Standard of living; Leisure pursuits; Purpose in life; Marriage; Children	Most	--
Happiness: How happy are you?	Some	18 nations (ISSP 1991)
Policy preferences and political attitudes:		
Government ownership of business, policy preference (4 items)	Some	All nations
Government should redistribute income , policy preference (2 items)	Some	All nations
Government control wages, prices , spending, policy preference (3 items)	Some	All nations
Other economic policy preferences (5 diverse items)	Some	All nations
Government welfare spending: Health, aged, unemployed, policy preference (3 items)	Some	All nations
Government spending: Other issues, policy preference (5 diverse items)	Some	All nations
Government welfare responsibility (4 items)	Some	All nations
Taxes: Progressivity; preferred level for rich/ middle/ poor people (3 items)	Some	All nations
Attitudes to trade unions (multiple item measure, 4 questions); Australian big business (2 items); Multi-national corporations (2 items)	Most	--
Privatization of industry, policy preference (multiple item measure, 5 items)	Some	--
Migrants: Attitudes to English speaking migrants (multiple item measure, 3 items); attitudes to other migrants (multiple item measure, 5 items) (For links between prejudice and economic outcomes see Evans and Kelley <i>American Journal of Sociology</i> 1991)	Some	--
Punishment of criminals (multiple item measure, 2 items)	Some	--
Allow political protest demonstrations? (multiple item measure, 5 items); Personal participation in political protest (4 items)	Some	--
Legitimation of inequality -- Ideal earnings (Kelley & Evans <i>American Journal of Sociology</i> 1993):		
Perceived earnings: Of ordinary workers (4 items); of middle ranking occupations (2 items); economic elite (2 items); political elite (2 items); professionals (2 items)	Some	All nations
Legitimate earnings: Of ordinary workers (4 items); middle ranking occupations (2 items); economic elite (2 items); political elite (2 items); professionals (2 items)	Some	All nations
Political party, voting		
Party affiliation or vote in last election	All	All nations
Strength of party affiliation	Some	Some

(Parents' party is in "Family Background" section; spouse's party in "Spouse" section)		
Vote last election: House, 1 st preference; House, 2 nd preference; Senate, 1 st preference; Senate, 2 nd preference; Vote "if an election were held tomorrow"	Most	--
Vote last state or territory election	Some	--
Republican vs royalist head of state (two items)	All	--
Ratings of Political Parties: Liberal Party; Labor Party; National (Country) Party; Australian Democrats	Most	--
Ratings of Politicians: Bob Hawke; Paul Keating; John Howard; John Hewson; Cheryl Kernot; Kim Beazley; Simon Crean; Andrew Peacock; Tim Fisher; Carmen Lawrence; Peter Costello (Political party leaders are cycled in and out as they gain and lose position.)	Most	--
Rating: Environmentalists; Greens; Feminists; Poor people; Middle income people; Prosperous people; Australians	Many	--
Political alienation (multiple item measure, 2 items)	Some	--
Religion		
Denomination; Church attendance	Most	All nations
Religious belief (multiple item scale; Kelley and De Graaf <i>American Sociological Review</i> 1997)	Most	18 nations (ISSP 1991)

Appendix B: Measurement

Unless otherwise noted, our analyses use the following definitions. Attitude scales are described briefly here and in more detail in Kelley (1988) and other sources given below.

Exact question wording is given in the questionnaire. For some items, there were minor wording variations over the years. Some questions were not asked in all surveys.

RELIGX	Religion, denomination now		
Value	Label	Value	Percent
Missing: Ask, no ans		-1	2.4
Catholic		101	24.0
Church of England		103	25.9
Methodist		104	3.3
Orthodox		105	1.7
Presbyterian		106	7.6
Uniting Church		107	6.0
Armenian Apostolic		108	.0
Baptist		109	2.0
Bretheren		110	.1
Churches of Christ		111	.9
Congregational		112	.1
Jehovah's Witness		113	.2
Latter Day Saints		114	.2
Lutheran		115	1.3
Pentecostal		116	1.0
Salvation Army		117	.5
7th Day Advent		118	.2
Assembly of God		119	.0
Other Protestant		190	.4
Other Chrstn, not Pr		191	.8
Hebrew, Jewish		201	.5
Muslim		301	.3
Hindu		401	.0
Buddhist		501	.3
Other Non-Christian		900	.3
No Religion		997	18.3
Other not yet coded,		998	1.5
		Total	100.0

Appendix C: Bibliography of articles using IsssA data.

This is a partial list of articles, books, chapters and other papers using IsssA data. It includes those known to us as of early 2002. Past experience suggests that there are a good number of further publications of which we are not yet aware, but which will become known in time to be included later editions of this list. This listing is based on a bibliography maintained by the National Opinion Research Center at the University of Chicago.

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