



The Hon Justice Giudice
President
Australian Industrial Relations Commission
Nauru House
80 Collins Street
MELBOURNE VIC 3000

Dear Justice Giudice

Safety Net Review 2004

Further to the position reached in the Safety Net Review hearings from 22 to 26 March 2004, I enclose for the Full Bench 7 copies of a Supplementary Statement by Dr Don Harding, co-author of the *Minimum Wages in Australia* (MWA) report.

In the supplementary statement Dr Harding deals essentially with two matters, namely:

- the detailed new material that was put to him in the course of cross-examination and which he indicated he would need to further examine and consider
- his response to the commentary on the MWA report provided by Dr Ian Gordon. The ACTU supplied this commentary to the Commission and the parties on 7 April 2004.

To avoid any delay that might result from asking that Dr Gordon be called for cross-examination, the Commonwealth's position is that Dr Harding's response speaks for itself. In the circumstances the Commonwealth does not seek to make any further submissions. However, if required Dr Harding is of course still available to assist the Full Bench in connection with the MWA report.

On a separate matter, at PN 2984 the question was asked, with reference to Chart 3.5 in the Commonwealth's Submission, whether the Wage Cost Index commenced from September 1997.

In this regard, the explanatory notes attached to the ABS Wage Cost Index publication at paragraph 33 indicate that the September quarter 1997 was the first quarter for which the WCI data are available. This quarter is used as the base period for the WCI series. Consequently Chart 3.5 is consistent with the starting period for the WCI series.

I am forwarding copies of this letter and enclosure to the other parties to the SNR.

Yours sincerely

Ted Cole
Advocacy Team Leader
15 April 2004

ABS Email

1. The email tendered by the ACTU (Exhibit ACTU 10) suggested that the respondents to the EEH 2002 survey did not understand the concept of the 'Safety Net'. The email from Mr Garth Bode who is the Assistant Statistician responsible for labour statistics to Mr Watson provides further relevant information. The ACTU forwarded this email to the Commission and the parties on the 7 April 2004. Mr Bode, who is authorised to speak about labour statistics, provides a rather different picture to that presented by the ACTU during cross examination. Mr Bode's email suggests that respondents to the EEH survey had difficulty with question 32 of that survey. This is an entirely different thing to suggesting that they did not understand the concept of the 'Safety Net'. The relevant part of the text of Mr Bode's email to Mr Watson reads as follows,

“ABS Employee Earnings and Hours (EEH) survey The ABS did not release information about employees' entitlements to safety net wage adjustments collected in the 2002 EEH survey, because of data quality concerns. These concerns were raised during the processing of survey questionnaires, when it became evident that a significant number of survey respondents were incorrectly reporting this information. This was confirmed during the subsequent post enumeration survey, which showed that many respondents had difficulty understanding the survey question.”

2. Against that background, I suggest that there are at least six reasons why one cannot use the problems encountered with q32 in the ABS EEH to make any inference about the level of understanding of the Safety Net among businesses. These reasons are as follows:

- That the target respondents for the EEH 2002 questions were not specified. My understanding is that the EEH survey is likely to be filled out by someone in the payroll area of the business. The MWA questionnaire, in contrast, was put to persons who had declared that they could speak authoritatively for the business as a whole. This difference in the target respondent means that nothing can be inferred from the responses to EEH 2002 q32 about how well respondents would understand the concept of the safety net as defined in the MWA survey.
- That there is a substantive difference between introducing the notion of a Safety Net in the preamble to q11 in the MWA survey as compared with the ABS EEH 2002 survey where the concept of the safety net is introduced at q32.
- That q32 of EEH 2002 is put in terms of the employees "entitlement" to the safety net adjustment and this may have caused two kinds of problem for the respondent. First, the respondent may not have been willing, or authorised, to state that the employee had such an entitlement. Second, where an employee is covered by an agreement but paid at an award wage rate a possible confusion arises since, in law, the employee is not entitled to a safety net adjustment. But, de facto such an entitlement might exist if, for example, the business is unwilling to pay those on agreements at less than an award wage rate. Since the MWA survey questions did not use the term entitlement, a reasonable statistician could not infer from the problems with responses to q32 that businesses would not understand the concept of the Safety Net in the MWA questions.

- That after the preamble to q11 in the MWA survey, respondents are asked at q12a, 13a and 14a about how many of the businesses' full-time part-time and casual employees have their wage set at exactly the minimum award wage rate. That at question 12b, 13b and 14b businesses are asked about how many of the businesses' over award employees are covered by agreements that provide for automatic pass-on of the safety net adjustments. And that at q12d, 13d and 14d businesses are asked to confirm how many have their wages set at above the minimum award wage rate, are not covered by automatic pass on under an agreement and thus it is at the businesses' discretion as to whether the safety net adjustment is passed on to these employees. Then, at questions 15 to 17 businesses are asked to quantify the number of businesses who have received or might receive discretionary pass on of the safety net adjustment. And finally at question 18 businesses that provide a discretionary pass on of the SNA are asked why they do so. When viewed against the preamble, this structure of questioning leads each business through the concept of the safety net in a way that is relevant to their particular business's situation.
 - That the MWA survey was administered by CATI and thus the respondent had the opportunity to seek clarification from the interviewers in regard to the meaning of the term safety net. Since the EEH 2002 was a self administered mail out questionnaire the respondents to that survey had a limited opportunity to clarify the meaning of the term safety net at the preamble to q32.¹
 - That in the MWA survey the respondents had the option to respond 'don't know' to all of the relevant questions whereas the respondents to the EEH 2002 survey did not have the option to respond 'don't know'. Thus in the EEH survey some of the confused responses are in fact attributable to the poor design of the ABS survey question which did not provide an opportunity to respond 'don't know'.
3. For all of these reasons I maintain that it is evident that:
- one cannot draw any inference about the MWA survey from the responses to the poorly designed question 32 in the ABS EEH survey;
 - businesses had a very good idea of what the term 'Safety Net' referred to in the MWA questionnaire (If businesses had been confused about the meaning of the term 'Safety Net' we would have observed respondents dropping out of the survey and we would have observed a large proportion responding don't know. Neither of which occurred); and
 - for the purposes of eliciting information about the 'Safety Net', the extent of its effect on wage setting, and its implications for employment, the MWA questionnaire is superior to the problematic q32 in the ABS EEH survey.

¹ The EEH 2002 survey did provide a 1800 number that respondents could call if they required assistance filling out the survey. Even if there was an immediate response to queries on the 1800 number, this is hardly the same as speaking to the CATI interviewer that has taken the respondent through the earlier part of the questionnaire.

Measurement Issues

4. Much of the ACTU's cross examination was based on the assertion that the fundamental unit of measurement in the Minimum Wages Report is employees. This is not correct. The fundamental unit of measurement in the Minimum Wages Report is closest to the concept of **jobs held by employed persons**. This is a concept that is broader than employed persons because there are multiple job holders. This means that there will always be more jobs than employed persons. The most recent ABS statistics on multiple job holdings, of which I am aware, are in *Employment Arrangements and Superannuation*, Cat No., 6361.0 which relates to the period April to June 2000. Table 1 page 19 of that document suggests that 7.3 per cent of employed persons hold two or more jobs. Thus, since some people will hold three jobs and some may even hold four jobs it is reasonable to conclude that the number of jobs in the economy will exceed the number of employed persons by more than 7.3 per cent. Thus, in October/November 2003 there will have been at least 700,000 more jobs in the economy than there were employed persons. The ABS numbers are somewhat dated since they relate to a period before the major tax changes occasioned by the introduction of the GST. Some indication of the extent to which the ABS number underestimates the current state of multiple job holding is provided by the results of a survey of 1200 Australian households that I designed while at the Melbourne Institute and which was administered in mid 2001 by OZINFO. That survey found that 10.26 percent of employed persons held two or more jobs. Specifically, 8.59 per cent held two jobs, 1.25 held three jobs, 0.14 per cent held four jobs, 0.14 held five jobs and 0.14 per cent held six jobs. Thus, I estimate that the number of jobs held will exceed the number of employed persons by 12.77 per cent. Thus, I estimate that the number of jobs in the economy will exceed the number of employed persons by 1.23 million jobs.

MWA and ABS Statistics

One possible coding/editing mistake may have been made for businesses in the Communication/Property and Business Services sector

5. I have re-examined the data set and have identified one possible coding error of a significant magnitude. This needs to be identified as a possible coding error since only the survey company can confirm whether it is an actual coding error. This may require that the survey company recontact the respondent. One business in the Communications/Property and Business Services sector that reported at q2d2 that it currently has 250 casual employees but at q2d1 it reported having 100 casuals in an average week and at question q2d2d3 it reported having 150 casuals three months ago. This seems likely to be a potential coding error and it seems likely that the correct entry for q2d2 is 150 rather than 250 casuals. Because this business has a weight of 1828 it contributes 457,000 casual job places to the estimated number of casuals for this industry group.

6. Leaving aside the issue of coding errors, this business has a very unusual structure in that it has just 4 full-time permanent employees. Given this unusual structure it would be unsafe to assume that the business is representative of 1828 businesses. The most straightforward option is to give this business a weight of one so as to reflect the extent to which its structure is unusual. This would mean reducing the estimated number of casual jobs in the Communications/Property and business services sector by 456,750 job places. This would have a number of consequent changes in other places in the report. Most notably, because this business said that it would provide discretionary pass on of the 2003 SNA to all its casuals, it is necessary to reduce by 456,750 the number of casuals estimated to have received discretionary pass on of the 2003 SNA.

7. It is important to note that I have checked that there are no implications for either the estimated number of job losses from the 2003 SNA or from the hypothesis of no change to the Safety Net for Five years. Nor are there implications for the estimated number of casuals paid the award rate.

Benchmarking of the Minimum Wages Report

8. In the cross examination, the ACTU focused attention on benchmarking the Minimum Wage Report against published ABS statistics. The first point to make here, which may not be clear from my evidence, is that I support such benchmarking, where it is feasible and valid, as a test of the accuracy of a survey.

9. During the cross examination I took issue with the validity of the benchmarks chosen by the ACTU advocate and indicated that I would provide more information on my reasons. Those reasons are set out below and draw on the information given above.

The comparison of part time employees with leave entitlements

10. The ACTU sought to compare the 702,000 part-time employees (in main job) with leave entitlements from exhibit ACTU12 with the estimated 788,000 part-time job places held by employed persons in the Minimum Wages Report.² There will be more part-time job places with leave entitlements than there are part-time employees in main job with leave entitlements. This is because of multiple job holding. This invalidates the comparison proposed by the ACTU and renders invalid the criticisms of the MWA report flowing from that comparison.

The comparison of total employees by industry from EEBTUM with table 7.9 from the Minimum Wages Report

11. First, I need to correct the error identified earlier by subtracting the 455,000 casual jobs from the Communications/Property and Business Services Sector. Once this correction is made the remaining differences are readily explained by the differences between the narrow concept of employees in main job (used in EEBTUM) and the broader concept of job places held by employed persons which is used in the Minimum Wages Report.

² The ACTU data is sourced from the labour force survey and the Employee Earnings Benefits and Trade Union Membership (EEBTUM) survey which is a supplement to the labour force survey. The EEBTUM survey uses the concept of employee in main job.

The comparison of the number of employees on awards

12. Here the ACTU suggested that in May 2002 there were about 1.5 million employees on awards and paid an award wage rate. The ACTU compared that figure with the estimate in the MWA report of 1.8 million jobs held by employed persons paid at a minimum award wage rate. The first point to make here is that factoring in employment growth, which has been much stronger for part-time employees than full-time employees, suggests that by October/November 2003 the number of award only employees was more likely to be closer to 1.6 million than 1.5 million. The more important point to make is that if one looks at the EEH 2002 questionnaire it is evident that the awards only figure quoted by the ACTU comes from responses to q24. But if one looks over the page at q26 there is a question related to agreements that are certified, approved or registered with an industrial relations tribunal. Q29 asks about these agreements "Is an award also used to set the main part of this employee's pay in conjunction with this agreement?" I have not been able to obtain the number of employees affected by awards in this way but it points to the fact that it is plausible that some businesses can work under an agreement in which the employee's wage is set at a minimum award wage rate. Employees of such businesses would be identified in q12a, q13a and q14a of the MWA survey. Against that background, I maintain the ABS estimate of the number on an award paid the award wage rate from the EEBTUM underestimates the number of jobs held by employed persons where the wage paid is determined by the 'Safety Net'. Moreover, I maintain that the best available estimate of the latter quantity is the number 1.8 million provided in the MWA report. This is because the MWA questionnaire does not get distracted by the award versus agreement red herring. But rather the MWA report focuses on the central economic issue of whether the person in the job is paid at a minimum award wage rate.

13. Once put onto comparable terms, so that like is compared with like, the benchmarking suggested by the ACTU serves to provide evidence that our survey can match the comparable ABS employment aggregates. Thus, when implemented properly, the ACTU benchmarking exercise suggests that the response rate of 20-22 per cent obtained in our survey did not materially reduce the capacity of the survey to provide estimates of important population characteristics. This is a finding that is consistent with the finding of the study entitled "Response Rates in Surveys by the New Media and Government Contractor Survey Research Firms" by Professor Jon Krosnick of the Department of Psychology, Ohio State University. I referred to this study under cross examination. The key finding by Professor Krosnick was that, "In sum, although response rates vary considerably due to the procedures employed, lower response rates do not seem to be associated with meaningfully lower data accuracy."

Question 31 in MWA Questionnaire

14. At PN1091 to PN1127 the ACTU focused on question 31 whereby I sought to establish whether the MWA survey questionnaire was complete and comprehensive in its description of the effects of the 'Safety Net' adjustments on small and medium sized businesses. The ACTU suggested that it was unusual that the respondents did not mention the effect of SNA's on productivity, profits and prices. Then, at PN1117 I am asked "Is there a single question in your survey which asks for the impact of the Safety Net adjustment on productivity prior to question 31" And at PN1118 I am asked "Is there a single question in your survey which asks for the impact of the Safety Net adjustment on profits prior to question 31". In both cases I responded "no". These responses were correct in regard to the questions that I designed (ie questions 11 to 31) but they do not provide a complete answer in terms of the whole survey. In fairness to the ACTU, they could not have known this since the questions are proprietary to Sensis and could not be revealed in the MWA report.

15. Without revealing the exact wording of the question it is possible to say that prior to q11, the Yellow Pages survey asks about eight questions that are either specifically about prices, profitability or productivity or which allow the respondent to mention the effects of government regulation on these aspects of their business. Thus, a respondent would interpret q31 against the background of those previous questions as well as against q11 to q31.

16. We did not include responses from these questions in the MWA report for two reasons. First, the Commonwealth does not own the data from those questions. Second, and more importantly, we as consultants would have been extremely reluctant to include information from those questions in the report since we reject the notion that statistically valid statements can be made about responses to open ended questions. Responses to such questions may serve to indicate what is top of mind for the respondent but they do not indicate the relative importance of the thing mentioned. To get at that one needs to use closed ended questions.

17. The ABS has not yet responded to other matters I have raised and should that material become available in the next few days then I will forward it to the Commission via DEWR.

REPLY TO COMMENTS BY DR IAN GORDON

18. The following responses relate to comments by Dr Ian Gordon Director Statistical Consulting Centre University of Melbourne. The comments are in a document dated 7 April 2004 with the title "Commentary on a survey conducted in relation to the Safety Net case 2004". To make it easier to reply to Dr Gordon's comments I have added paragraph numbers to his document – I have not changed his document in any other way. His paragraph numbered comments are at Attachment A to this document.

Response rate issues (paragraphs 5 to 40 of Attachment A)

19. First, let me correct a misapprehension that may have been created in my evidence. I do not disagree that, other things being equal, a high response rate is desirable.³ We were disappointed when we discovered that the survey had a response rate of 20 to 22 per cent. We note that this response rate was entirely a function of the survey administration which was out of our control. We were gratified that there were no partial responses as this suggested that the survey instrument (which was under our control) was well designed. This feature of the survey will be relevant later in replying to issues raised by Dr Gordon.

20. The issue that we faced then was this, was the response rate too low to provide valid inference about the extent and effect of the Safety Net? In making our decision on this question we faced a choice between absolute standards of the type given in Gordon paras 13 to 19 or the standards of current statistical practice. To inform ourselves of the latter we examined the available literature on statistical practice. The article by Timothy Johnson and Linda Owens, "Survey Response Rate Reporting in the Professional Literature" provides a useful reference; the article is at Attachment B; note that I have added page numbers to the original article to facilitate referencing, I have not altered it in any other way.⁴

³ The qualifier "other things equal" is used because there has been some discussion in the statistical literature as to whether compulsion and or persistent follow up of non respondents might reduce the quality of responses and thus be counter productive.

⁴ Johnson and Owens are at the Survey Research Laboratory, University of Illinois Chicago. The document is available from that organization's web page. It is quite recent as it was published after May 2003.

21. The first point to note from the Johnson and Owens (see Table 1) is that when judged against the professional literature our reporting of response rates is at best practice. Specifically, we report the full final disposition of cases and used measures of the response rate that are consistent with the American Association of Public Opinion Research (AAPOR). We feel that Dr Gordon should have acknowledged this.

22. The second thing to note from the Johnson and Owens survey is that none of the journal editors reported having an established minimal standard and several journal editors explicitly stated that they make judgements about response rates on a case by case basis. This suggests that journal editors are either not aware of, or do not agree with, the consensus among statisticians that Dr Gordon refers to at para 20.

23. The third thing to note the Johnson and Owens survey is that for more than one-half of the journal articles that they surveyed, there was either no information, insufficient information to calculate a response rate or an undefined response rate reported. This means that one cannot say what is the lowest response rate in a published survey. That is Dr Gordon's statements about this matter cannot be supported by the evidence.

24. Moreover, Johnson and Owens do comment that

About one in five of the papers examined (21.1%) provided a complete accounting of sample dispositions. In one paper, the author reported a complete set of sample dispositions sufficient to allow the reader to track the sample from starting sample size to completed interviews. In this paper, a final AAPOR response rate of 20% was reported (with a footnote referencing the AAPOR Web site) and confirmed in our calculations. This is an excellent example of a survey being published in a high quality journal despite a low, and thoroughly documented response rate (Masset et al., 2002). Source Johnson and Owens p.5.

25. At para 20 of his comments Dr Gordon expresses surprise that I did not accept (PN 801) that a response rate of 20% to 22% is too low to publish the results of a survey. He says that "in my opinion, this view is contrary to the consensus among statisticians". This, as I have shown above, is not correct. Firstly, for the reasons stated at para 23 one cannot say what is the range of practices regarding response rates because a large number of journal articles do not publish survey response rates. Second, as identified in para 24 one can identify articles published in high quality journals where the response rate is 20%.

26. I was a little surprised that Dr Gordon did not draw on his publications to explain the basis for his opinions regarding response rates. For example, it is instructive to examine "Randomised factorial trial of falls prevention among older people living in their own homes" by Leslie Day, Brian Fildes, Ian Gordon, Michael Fitzharris, Harold Flammer and Stephen Lord (henceforth DFGFFL) that was published in the *British Medical Journal*, Volume 325, July 2002 – a highly regarded medical publication; see attachment C. Inspection of Figure 1 entitled "Flow chart showing stages in study protocol and numbers of participants" on page 2 of Attachment C suggests that that study faced problems will low response rates. For example, Figure 1 shows that 11,120 letters were mailed out and 1967 responses were obtained of these 1107 received baseline assessment, some 971 persons completed the first stage of the study and 442 persons reached the reassessment stage. There is some mention of some respondents not meeting eligibility criteria but it is all a bit vague. No AAPOR response rates were calculated so it is difficult to know how low the response rates were in that study. Given his extensive experience it would have been most helpful if Dr Gordon, in his comments, had indicated how this recent experience had shaped his opinions regarding

response rates. Also, since Dr Gordon is listed on the last page as having “selected the factorial design, performed the higher level statistical analyses and provided overall statistical advice” it would have been helpful if he had provided reasons as to why it is his opinion that the DFGFFL study is suitable for informing decisions about the prevention of falls among older people while our *Minimum Wages In Australia* study, even though it has higher response rates, is alleged to be unsuitable for informing decisions about the impact of the minimum wage in Australia.

27. At para 10 of his comments Dr Gordon provides an example of where he decided not to publish the results of a survey because the characteristics of those surveyed differed substantially from the known characteristics of the population. It would have been helpful if he had followed this up by discussing the DFGFFL study referred to in para 26 above. That study had low response rates and the authors undertook a benchmarking study commenting that,

When compared with data from the national census and health survey for Australians aged over 70 living at home, the study group differed as follows: a higher proportion (46% v 42.8%) were aged 70-74 years and a lower proportion (7.3% v 9.8%) aged over 85 years old; a higher proportion (77.3% v 66.7%) were Australian born; a higher proportion (53.8% v 32.7%) were living alone; and a lower proportion (46.8% v 52.3%) were married. **Study participants rated their health status considerably higher (very good to excellent 62.6% v 30.7%), and a higher proportion (13.8% v 9.0%) reported taking antidepressant and hypnotic medication.** (Emphasis added) Source: DFGFFL study page 2 of Attachment C.

28. Unlike the ACTU’s questions in cross examination, the authors of the DFGFFL study benchmark everything with reference to the total population. This prevents the percentages being distorted where there is a small denominator. When put on this basis and after making the corrections identified in paragraphs 8 through 13 above, it is evident that the *Minimum Wages in Australia* survey is much closer to the relevant benchmarks than the DFGFFL survey was to its relevant benchmarks. It would therefore have been useful if Dr Gordon had provided some discussion as to why the results of the DFGFFL study were sufficiently reliable to be suitable for publication but it was his opinion that the response rate in the *Minimum Wages in Australia* study meant that its results could not be regarded as reliable.

29. At paragraph 36 Dr Gordon raises some issues about our comments about the bias. First he questions our statement that the sign and magnitude of biases in each strata are unknown. If this were not the case we could form an estimate of the bias and thus reduce both the bias and the mean square error of our estimates. He claims at para 37 “hence I consider it possible and likely in some circumstances, that a non-response bias will operate across all strata, and therefore have the same sign in all strata”. While I agree that this is possible I do not agree that it can be described as likely or in any way that suggests a probability might be attached since if this were the case we could use that information to construct an estimate of the bias. That was the point we were making in the report. Dr Gordon says that it is likely **in some circumstances** that all of the biases would be of the same sign. He doesn’t say what those circumstances are and nor does he indicate whether they are relevant.

30. At paragraph 38 Dr Gordon raises the issue of what respondents were told and suggests that this may be a source of bias. Two-thirds of respondents were panel members and thus were continuing with a panel survey they had previously agreed to participate in. The other third were new recruits to the panel and the main issue discussed with them was participation

in the panel – at this stage they were not informed that the survey would contain questions about the safety net. As we stated in the report it is very hard to see why (un)willingness to participate in a panel survey would be correlated with any of the variables related to the safety net. This is the reason that we gave in the report as to why non-response in this case is best characterised as missing completely at random. Dr Gordon characterizes this as a bald assertion. We disagree. Neither Dr Gordon nor the ACTU have identified any reason why unwillingness to participate in a panel survey might be correlated with variables related to the safety net. In the absence of any evidence to the contrary, they should accept that the respondents are best described as missing completely at random as stated in the report.

31. Dr Gordon states at para 38.1 that “whether or not someone responds may be associated with safety net issues” this is a truism rather than a reason. It could lead either to the survey understating or overstating the effect of the safety net. In short, it is not a logical argument as to why this particular survey is biased or invalid.

Precision of estimates (paras 41 to 53)

32. First let us be clear about the reasons for not providing standard errors. By way of background, our view is that one of the worst things a statistician can do is provide confidence intervals that are too small. Against that background it is not the case that we could not calculate the standard errors of our estimates. Rather we were concerned that two aspects of the survey could leave us open to a charge of estimating standard errors that are unjustifiably small.

33. The first of these reasons is that in mail out surveys the number surveys sent out is fixed and the number of completed responses is variable, depending on the probability of non response. In telephone surveys, by way of contrast, the number of completed responses is fixed and the number of telephone calls is variable depending on the probability of non response. All the formulas for estimating standard deviations with which we are familiar relate to the statistical design used in mail out surveys. We felt that when calculating standard errors for data collected via a telephone survey some allowance might need to be made for the particular design where the number of respondents is a variable. We have not yet fully resolved this yet but note Dr Gordon’s comment at para 50 that this is not a problem.

34. The second, and in our view potentially more serious problem, is that the survey has a very high degree of stratification. This is a good thing in the sense that it reduces the scope for non response bias. But it is a problem for the calculation of standard errors in the sense that increasing the number of strata will result in estimates of standard errors that are too small. Thus, in writing the report we were on the horns of a dilemma. Reducing the number of strata would increase the extent to which we could be subject to criticism regarding non response bias. With the number of strata used in estimation we could be subject to criticism for ‘over fitting’ and thereby producing standard errors that are too small.

35. In the academic environment we believe that our hesitation to calculate standard errors would be seen as a virtue rather than as a vice as it demonstrates a desire to be particularly careful about how statistical analysis is undertaken. In this regard we were particularly disappointed that Dr Gordon, however, went so far as to say at para 52 that our caution and carefulness should result in any subsequent provision of standard errors by us being subject to ‘careful scrutiny’. Why carefulness and adherence to best statistical practice should cause us to be subject to even more scrutiny is beyond our comprehension.

36. Given Dr Gordon's comments at paras 48, 49 and 53 we feel that we have little option. We must select a method and present an estimate of the number of jobs lost because of the 2003 SNA together with an estimate of the relevant standard deviation and confidence intervals. We have chosen to construct the estimate using the unweighted mean and unweighted standard deviation. As this method makes no use of stratification it is unlikely to leave us open to the charge of calculating a standard error that is too small. Indeed, with some stratification the true standard error will be smaller than that calculated here. The results are in Table 1 and suggest that almost 13,000 jobs were lost, or not created, because of the 2003 SNA. The estimated standard error is just under 3000 jobs and thus the 95 per cent confidence interval is (7067 jobs lost to 18,807 jobs lost).

Table 1: Estimate of jobs lost due to 2003 SNA, together with estimated standard errors and 90 and 95 per cent confidence intervals.

	Estimate
Sample mean (jobs lost per businesses)	0.0543
Standard deviation of sample mean	0.0126
Population estimate (jobs lost in businesses that employ at least one person on a minimum award wage). Calculated by multiplying the sample mean by the number of businesses with at least one employee paid the minimum wage ie 238,109.	12937
Standard deviation of population estimate. Calculated by multiplying the standard deviation of the estimate of the sample mean by the number of businesses with at least one employee paid the minimum wage ie 238,109.	2995
Lower 90 per cent confidence band	8011
Upper 90 per cent confidence band	17863
Lower 95 per cent confidence band	7067
Upper 95 per cent confidence band	18807

Note: the estimates in this table are obtained using the simple (unweighted) sample mean and standard deviation. The estimated standard error is therefore biased upwards and the estimated confidence intervals are biased towards being too large.

37. The main point to emerge from Table 1 is that the job loss is statistically significantly different from zero.

38. The difference between Table 1 and Table 3.3 of the Minimum Wages in Australia report arises because of the differences in weighting patterns used. This is not an unusual thing in statistics since different estimation methods produce different estimates. Such is a fact of life and does not invalidate one or all of the statistical methods used.

Knowledge of the Safety Net (paras 54 to 59)

39. We have already adequately covered the issues raised by Dr Gordon here.

Other matters (paras 60 to 61)

40. At paras 60.1 to 60.3 Dr Gordon focuses on what are in reality very minor quibbles about wording of questions. At each stage respondents who were confused had an opportunity to respond "don't know". The absence of such responses indicates that the wording issues he raises were not of practical significance. At para 60.4 he raises the issue of businesses capacity to respond to questions such as q24 which ask the to say how they would react if given a guarantee that the safety net would not be increased for five years. Again we make the point that any respondents who were confused had an opportunity to respond "don't know". The absence of such responses indicates that the wording issues he raises were not of practical significance. We maintain that q24 is a legitimate and useful way of obtaining information on the long run effects of the safety net.

Summary (paras 62 and 63)

41. In the summary Dr Gordon expresses several adverse opinions about our report on *Minimum Wages in Australia*. We have shown that in the case of response rates these opinions seem to deviate from the practice that Dr Gordon and his co-authors followed in the 2002 British Medical Journal article. We have shown that Dr Gordon's claims that we are at variance with accepted statistical practice are not supported by the evidence. Indeed, the evidence that we have presented in this regard suggests that our report is consistent with best statistical practice in what are difficult circumstances. In summary, there is nothing in Dr Gordon's comments that would cause us to change our view that the questionnaire we designed is valid and useful and that our report is accurate, careful and prepared in accordance with best statistical practice. We suggest that the evidence that we have presented should lead the Full Bench of the AIRC to place little, if any, weight on Dr Gordon's statement.

Dr Don Harding

15 April 2004