Reply to Referee Report 2

First of all, we would like to thank to the Referee for his/her valuable comments. We are honored by the effort made to understand something that we tried to develop. Our responses are provided below.

Comments:

1. Specifically, it would be useful to use some of the Introduction and Section 2 to explain the sheepskin effect with reference to the seminal work of Layard and Psacharopoulos (1974).

R/. Thanks for the comment. We expanded the discussion of the sheepskin effects and the sheepskin equation in Section 2. With respect to Layard and Psacharopoulos (1974)[1], henceforth LP, the article refers to the screening hypothesis and is not specific to the sheepskin effect, as ours is. The equation of Layard and Psacharopoulos (1974) is very different from the sheepskin equation (1) in our paper [see Equation (4) in LP and Table (1) in Hungerford and Solon (1974) (henceforth HS)[2]]. Of course, the specification has effects on LP's finding that "rates of returns to dropouts are as high as to those who complete a course, which refutes the sheepskin version of the screening hypothesis" (p. 995) and HS conclude that this result "was premature" (p. 177).

2. The literature review is weak and there is no mention of which keywords were used in the search reported in section 3.

R/. **Thanks for the comment. We agree with the referee that we don't mention the specific keywords used in the search reports. However, throughout the article we refer to the Hungerford and Solon equation. For example, on page 2 we state, "HS-sheepskin is the estimated effect derived from equation (1)"; on page 8, "One of the instruments used to estimate the capability of a school diploma as a signal is the sheepskin equation. A review of the literature on this topic shows the relevance of the study of sheepskin effects worldwide." In the revised version we will mention the specific keywords that were used in the search reports.**

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[1] Richard Layard and George Psacharopoulos (1974) "The Screening Hypothesis and the Returns to Education" Journal of Political Economy, Vol. 82, No. 5 (Sep. - Oct., 1974), pp. 985-998.

[2] Thomas Hungerford and Gary Solon (1974) "Sheepskin Effects in the Returns to Education" The Review of Economics and Statistics, Vol. 69, No. 1 (Feb., 1987), pp. 175-177.

3. In addition, it is unusual for all studies found in the first search to be used in the subsequent meta-analysis. More usually, MRAs refer to the number of studies that are found initially, then why some of these are not subsequently used. Thus, were only 122 articles found or were only 122 of the found articles useful for the MRA? Author(s) and years of the included articles and their key parameters should be listed in an Appendix.

R/ Thanks for the comment. With respect to the number of studies, only 122 of the articles found were useful for the MRA because we used the specific sheepskin equation (1) to select these studies. In the revised version we will include an appendix with the articles included in the MRA.

4. Are these MRA data available on the Deakin University repository or other website?

R/. Thanks for the comment. The data are not on those websites but is available upon request.

5. An argument for the obsolescence of the sheepskin effect is not given (section 4).

R/. **Thanks for the comment. We agree with the referee that we don't offer an explanation for the obsolescence of the sheepskin effect. The main reason for the obsolescence is the sheepskin effect theory itself: initial pay is determined by certification, but eventually workers are sorted into the most appropriate jobs on the basis of productivity, so that qualifications become less significant over time; this is the obsolescence of the sheepskin effect. Another possible explanation is that the "educational signal (sheepskin effects) decline over time as employers learn about the true productivity of their workers" Habermalz (p. 125)[3]. Of course, it is possible that there are other reasons. For example, "the higher supply of more educated workers in the labor force reducing the importance of higher degrees as a signal of more productive workers" (Crespo and Cortes 2009).[4] In the revised version we will include a discussion of the obsolescence of sheepskin effects.**

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[3] Steffen Habermalz (2006) "More Detail on the Pattern of Returns to Educational Signals" Southern Economic Journal, Vol. 73, No. 1 (July 2006), pp. 125-135.
[4] Anna Crespo and Maurício Cortez Reis (2009) "Sheepskin effects and the relationship between earnings and education: analyzing their evolution over time in Brazil" Rev. Bras. Econ. vol.63 no.3 Rio de Janeiro July/Sept. 2009

6. There is no mention of Stanley et al.'s (2013) guidelines for the conduct of MRA.

R/. Thanks for the comment. In the revised version we will include a discussion of Stanley et al. (2013), "Meta-Analysis of Economics Research Reporting Guidelines," Journal of Economic Surveys (2013), Vol. 27, No. 2, pp. 390–394. However, we include other articles from Professor Stanley: Stanley, T. (2005). "Beyond Publication Bias" Journal of Economic Surveys, 19(3), pp. 309-345; Stanley, T. (2008), "Meta-Regression Methods for Detecting and Estimating Empirical Effects in the Presence of Publication Selection" Oxford Bulletin of Economics and Statistics, 70(1), pp. 103-127.

7.- Some of the references are dated.

R/. Thanks for the comment. We checked all references.

8.- See more recent studies reporting wage equations, MRA and publication bias.

R/. Thanks for the comment. For the wage equations, we don't include more articles; we stopped at 2011 because that is the 25th anniversary of the first HS estimation. With respect to the MRA, we will include other references such as Stanley et al. (2013).