

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Immigrant mothers and access to prenatal care: evidence from a regional population study in Italy.
<b>AUTHORS</b>	Chiavarini, Manuela; Lanari, Donatella; Minelli, Liliana; Pieroni, Luca; Salmasi, Luca

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Martina Celidoni University of Padua - Department of Economics and Management
<b>REVIEW RETURNED</b>	15-Jul-2015

<b>GENERAL COMMENTS</b>	<p>This paper investigates differences in access to prenatal use between native and immigrant mothers using data from the Umbria Region, accounting for possible endogeneity via a bivariate probit model.</p> <p>In my opinion, this study addresses an interesting and important research question.</p> <p><b>Remarks</b></p> <p>page 1: I'll drop from the title 'estimates from Italy' or I'll change it to 'from an Italian Region'</p> <p>page 5 line 37: 37.000 observations.</p> <p>page 6 lines-5-6: why self-employed and white collar grouped together?</p> <p>page 8 lines 41-48: are there other studies supporting the evidence that father's characteristics are not directly relevant for PNC use?</p> <p>page 8 section 3: do results change controlling also for health?</p> <p>page 10 line 40: I think <math>\rho = -0.63</math></p> <p>page 11 lines 26-28: I'll rewrite this sentence, it's not clear to me.</p> <p>page 11 line 37-38: what does 'LPV is not directly comparable to LFV' mean exactly?</p> <p>page 11 lines 48-56: I suggest to rephrase this paragraph.</p> <p>page 12 line 16: delete 'On the other hand'.</p> <p>page 12 line 18: WHO (2009).</p> <p>page 12 lines 18-22: it's not clear.</p> <p>page 12 lines 28-29, 38: is it studied population?</p>
-------------------------	---

<b>REVIEWER</b>	Eleonora Mussino Stockholm University, Sweden
<b>REVIEW RETURNED</b>	12-Oct-2015

<b>GENERAL COMMENTS</b>	<p>Dear Authors,</p> <p>My summary recommendation is REVISE. The topic is relevant and the way that it is presented is clear. However, there are some major remarks that have to be considered before it can be published.</p> <p>a) The Italian literature is underrepresented. I believe you have to</p>
-------------------------	--

	<p>integrate the theoretical background and consequently specify what your paper will add to the literature and discuss if you fulfill your task in the discussion.</p> <p>b) From lines 53 page 3 to line 30 on page 4: You have to improve the presentation of these different hypotheses and explain which are tested in your paper.</p> <p>c) You have to discuss the limitations of the study better, e.g. you use regional data. How do they represent the Italian context?</p> <p>d) Previous studies discuss the quality of the data that you are using but there is no discussion in your paper. Why? How did you solve all the issues?</p> <p>e) You do not discuss the difference between international and Italian recommendations and how this could affect your results</p> <p>Minor</p> <p>a) I strongly suggest to change your title as it reminds me of an earlier study.</p> <p>b) Provide the name of the data set in Italian as a footnote.</p> <p>c) Explain your assumptions on territorial differences better.</p> <p>d) The effect of age is not clear. Did you test any interactions?</p>
--	--

### VERSION 1 – AUTHOR RESPONSE

Reviewer: 1  
 Reviewer Name  
 Martina Celidoni

REFeree REPORT - bmjopen-2015-008802 - Differences in access to prenatal care use between native and immigrant mothers: estimates from Italy. This paper investigates differences in access to prenatal use between native and immigrant mothers using data from the Umbria Region, accounting for possible endogeneity via a bivariate probit model. In my opinion, this study addresses an interesting and important research question. Remarks:

page 1: I'll drop from the title 'estimates from Italy' or I'll change it to 'from an Italian Region'

Answer: As requested also by another reviewer, we changed the manuscript title, which now, in accordance also with your suggestion is: "Immigrant mothers and access to prenatal care: evidence from a regional population study in Italy."

page 5 line 37: 37.000 observations.

Answer: As general rule, we used the dot as decimal separator and comma as thousands separator.

page 6 lines-5-6: why self-employed and white collar grouped together?

Answer: We decided to group together self-employed and white collar women because the former category was composed by a very small number of observations. However, we checked that the aggregation did not affect our main results. These results are available from the authors upon request.

page 8 lines 41-48: are there other studies supporting the evidence that father's characteristics are not directly relevant for PNC use?

Answer: To the best of our knowledge, this is the first study using father's characteristics to predict access to PNC use. In principle father's characteristics can be used as additional control variables because we cannot exclude "a priori" their importance in explaining differences in PNC use. For example father's nationality and employment status may be very relevant, thus, when data are available as in our case, these characteristics should be included among covariates.

page 8 section 3: do results change controlling also for health?

Answer: Unfortunately we cannot answer to this specific question, given that we do not have measures of mother's or father's health status. But, we can control indirectly for this, given that as it is well known from the medical and economic literature socio-economic (i.e., occupation) condition and education are highly correlated with health status. However, in order to make this point clearer, we decided to add an explanation also in the main text. See last paragraph of Section 2.2, on page 7.

page 10 line 40: I think  $\rho = -0.63$

Answer: We thank the reviewer for the comment and changed the value of  $\rho$  to -0.63.

page 11 lines 26-28: I'll rewrite this sentence, it's not clear to me.

Answer: We cancelled the sentence and re-structured the entire discussion section in order to meet also the requirements of the second reviewer.

page 11 line 37-38: what does 'LPV is not directly comparable to LFV' mean exactly?

Answer: See previous answer.

page 11 lines 48-56: I suggest to rephrase this paragraph.

Answer: See previous answer.

page 12 line 16: delete 'On the other hand'.

Answer: We deleted the beginning of the sentence as requested.

page 12 line 18: WHO (2009).

Answer: We corrected the wrong reference.

page 12 lines 18-22: it's not clear.

Answer: We thank the referee for this point. We redrafted the sentence excluding "On the other hand".

page 12 lines 28-29, 38: is it studied population?

Answer: We corrected the sentence in accordance with the reviewer's suggestion.

Reviewer: 2

Reviewer Name

Eleonora Mussino

My summary recommendation is REVISE. The topic is relevant and the way that it is presented is clear. However, there are some major remarks that have to be considered before it can be published.

a) The Italian literature is underrepresented. I believe you have to integrate the theoretical background and consequently specify what your paper will add to the literature and discuss if you fulfill your task in the discussion.

Answer: We added some additional references from the Italian literature and made clearer the contribution of our paper in the Introduction (see first paragraph on page 4). In particular, this new version clarifies the discussion on unobservable confounders and on the interpretation of ORs estimates which are closer to causal effects than simple correlations. We also discuss in-depth this point in the Discussion section.

b) From lines 53 page 3 to line 30 on page 4: You have to improve the presentation of these different hypotheses and explain which are tested in your paper.

Answer: In this section, we clarified the different hypotheses tested in our paper, extending the discussion about the expected effects of unobservables which may be positively or negatively correlated to inadequate use of prenatal care services. We described more in-depth, which unobservables play a relevant role and the implications about the direction of bias (downward or upward) for the estimated relationships.

In order to make this point more clear, we included a paragraph in the Introduction (see pages 2 and 3) and in the Discussion (see last paragraph of section 4.1 on page 11) sections.

c) You have to discuss the limitations of the study better, e.g. you use regional data. How do they represent the Italian context?

Answer: The Discussion of this point is already included in Section 4.2, where basically we report all the limitations of the paper, including the impossibility to generalize results to the National context. In the revised version of the paper, we also discuss the difference between international and Italian recommendations and how this could affect your results in the Introduction (see also answer to point e, below).

d) Previous studies discuss the quality of the data that you are using but there is no discussion in your paper. Why? How did you solve all the issues?

Answer: We discussed the main limitations of our data in section 2.1, (see last paragraph on page 5)

e) You do not discuss the difference between international and Italian recommendations and how this could affect your results

We inserted a discussion about this point in the Introduction. In particular, we explained the effect of the difference in local and international rules on PNC use as a possible channel through which unobservable characteristics affect PNC use. Thus, using a bivariate specification we indirectly control also for this aspect.

Minor

a) I strongly suggest to change your title as it reminds me of an earlier study.

Answer: As also suggested by another reviewer, we changed the title to “Immigrant mothers and access to prenatal care: evidence from a regional population study in Italy”.

b) Provide the name of the data set in Italian as a footnote.

Answer: We included the name of the data set in Italian (see section 2.1 on page 5).

c) Explain your assumptions on territorial differences better.

In Section 2.3, page 7, we explicit why we include fixed effects as a specification of the assumption on territorial differences. In fact, inadequate access may be influenced also by territorial differences unrelated with immigrant status, as the distance or accessibility from the municipality of residence to health facilities. Including municipal level fixed effects we control for these differences and provide reliable estimates.

d) The effect of age is not clear. Did you test any interactions?

Answer: We did not test for this effects in this work, because it is difficult to use interactions in biprobit models. We consider it as a further development for our study. However, since age is included as a covariate in the model, the ORs of the effect of immigrant status on inadequate use of PNC are estimated netting out the age effect.

#### VERSION 2 – REVIEW

<b>REVIEWER</b>	Celidoni M. University of Padua - Italy
<b>REVIEW RETURNED</b>	08-Jan-2016

<b>GENERAL COMMENTS</b>	I appreciate the innovations in the revised version, thanks to the authors' effort to account for the referees' comments the paper improved compared to its initial structure.
-------------------------	--

	Addition minor Remarks page 5 line 10: (SCLB)of page 12 line 5: 'accesso to'
--	--

<b>REVIEWER</b>	Eleonora Stockholm University
<b>REVIEW RETURNED</b>	27-Dec-2015

<b>GENERAL COMMENTS</b>	<p>Contrary to what the authors claim there are studies that control for father characteristics, and they found that there is an effect. please discuss your results keeping this in mind.</p> <p>In a previous version of the data set missing values and no visits had the same label, please discuss this limitation if it is still present in your data.</p> <p>your way to present the reference is not in line with your written style, please adjust the text and control that you are consistent</p>
-------------------------	--

### VERSION 2 – AUTHOR RESPONSE

Reviewer: 1  
Reviewer Name  
Celidoni M.

I appreciate the innovations in the revised version, thanks to the authors' effort to account for the referees' comments the paper improved compared to its initial structure.

Addition minor Remarks  
page 5 line 10: (SCLB)of  
page 12 line 5: 'accesso to'

Answer: We included these remarks.

Reviewer: 2  
Reviewer Name  
Eleonora Mussino

1. Contrary to what the authors claim there are studies that control for father characteristics, and they found that there is an effect. please discuss your results keeping this in mind.

Answer 1: We included a discussion on how our results concerning the effect of variables that control for father characteristics relate with previous findings (see Discussion section).

2. In a previous version of the data set missing values and no visits had the same label, please discuss this limitation if it is still present in your data.

Answer 2: To the best of our knowledge this limitation is not present in the dataset of the Umbria region, we only found a discussion in ... where this problematic was highlighted for the variable "number of scans".

3. Your way to present the reference is not in line with your written style, please adjust the text and

control that you are consistent

Answer 3: We adjusted the text and controlled that whether the references are consistent with the written style.