

**NOTE to students in 2014/15:** This rubric reflects the new writing guidelines for 2014/15: see points 14 – 16. Rubrics for 2014/15 will also reflect differences in the topics and weights of various topics. For example, last year, students did not have the “Logarithms in Regressions” handout: expectations will be higher this year. However, this rubric still conveys the important point that you should study for this test like usual: focus on mastering the course concepts and skills.

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|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------|
| <b>1. Explains happiness/GDP data observational</b>                                                                                                                                                                                                                                                                 | <b>0 1</b>                                 | <b>2</b>                                                                           | <b>3</b>                                                               | <b>4</b>                                 |
| <ul style="list-style-type: none"> <li>Demonstrates understanding of why these data are observational</li> <li><i>Applies</i> concepts to happiness/GDP context</li> </ul>                                                                                                                                          | Not addressed or serious conceptual errors | Familiarity with concepts but difficulty applying                                  | Good discussion of observational data and applies it fairly well       | Clear understanding and full application |
| <b>2. Understands cross-sectional and panel data</b>                                                                                                                                                                                                                                                                | <b>0</b>                                   | <b>1</b>                                                                           | <b>2</b>                                                               | <b>3</b>                                 |
| <ul style="list-style-type: none"> <li>Demonstrates understanding of cross-sectional and panel data and correctly <i>applies</i>: while underlying data are panel, Regressions 1, 2, and 4 based on cross-sectional data; can argue either panel or cross-sectional for Regression 3</li> </ul>                     | Not addressed or serious conceptual errors | Some familiarity with concepts                                                     | Correct abstract descriptions but not applied or not applied correctly | Clear understanding and full application |
| <b>3. Flags non-linearity violation</b>                                                                                                                                                                                                                                                                             | <b>0</b>                                   | <b>1</b>                                                                           |                                                                        | <b>2</b>                                 |
| <ul style="list-style-type: none"> <li>Recognizes that the important violation of underlying conditions is the non-linearity in Regression 1</li> </ul>                                                                                                                                                             | No violations recognized                   | Misses non-linearity but spots symptoms (apparent outliers and heteroskedasticity) |                                                                        | Clear understanding                      |
| <b>4. Understands non-linearity: DMRs</b>                                                                                                                                                                                                                                                                           | <b>0 1</b>                                 | <b>2</b>                                                                           | <b>3</b>                                                               | <b>4</b>                                 |
| <ul style="list-style-type: none"> <li>Demonstrates understanding of the non-linearity: evidence consistent with DMRs to wealth and that wealth and happiness are associated (not correlated) b/c of non-linearity; Log transformation does <i>not</i> get rid of DMRs.</li> </ul>                                  | Not addressed or serious conceptual errors | Some familiarity with concepts                                                     | Some good discussion but not conclusive or complete                    | Full explanation                         |
| <b>5. Fully interprets slope in a linear specification</b>                                                                                                                                                                                                                                                          | <b>0 1</b>                                 | <b>2</b>                                                                           | <b>3 4</b>                                                             | <b>5</b>                                 |
| <ul style="list-style-type: none"> <li><i>Interprets</i> a slope correctly in a linear-linear specification</li> <li>Specifies units of measurement, clear on causality, recognizes scatter (e.g. says “on average”), and names the x and y variable. (Regressions 1 &amp; 3 are linear specifications.)</li> </ul> | Not addressed or serious conceptual errors | Some familiarity with concepts                                                     | Fair to good interpretation but not complete or not entirely correct   | Full interpretation                      |
| <b>6. Fully interprets intercept (when appropriate)</b>                                                                                                                                                                                                                                                             | <b>0 1</b>                                 | <b>2</b>                                                                           | <b>3</b>                                                               | <b>4</b>                                 |
| <ul style="list-style-type: none"> <li><i>Interprets</i> an intercept correctly: only in Regression 1 is a value of 0 outside the range of data (and non-linear), for other 3 <i>can</i> interpret intercept. Units and scatter must be recognized.</li> </ul>                                                      | Not addressed or serious conceptual errors | Some familiarity with concepts                                                     | Fair to good interpretation but not complete or not entirely correct   | Full interpretation                      |
| <b>7. Fully interprets the <math>R^2</math></b>                                                                                                                                                                                                                                                                     | <b>0 1</b>                                 | <b>2</b>                                                                           | <b>3 4</b>                                                             | <b>5</b>                                 |
| <ul style="list-style-type: none"> <li><i>Interprets</i> an <math>R^2</math> correctly</li> <li>Unit-free, no direction, measure of strength of linear relationship, not causal, and what percent of variation in LHS variable explained by variation in RHS variable</li> </ul>                                    | Not addressed or serious conceptual errors | Some familiarity with concepts                                                     | Fair to good interpretation but not complete or not entirely correct   | Full interpretation                      |
| <b>8. Interprets coefficient in logged specification</b>                                                                                                                                                                                                                                                            | <b>0</b>                                   | <b>1</b>                                                                           |                                                                        | <b>2</b>                                 |
| <ul style="list-style-type: none"> <li>Correctly interprets the “slope” in Regression 2 or 4 (linear-log specification). In Regression 2, a one percent increase in GDP per capita is</li> </ul>                                                                                                                    | Not addressed or serious conceptual errors | Otherwise correct but did not divide by 100                                        |                                                                        | Full interpretation of Regression 2 or 4 |

|                                                                                                                                                                                                                                                                                             |                                                                  |                                                                             |                                                                 |                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------|
| associated with an increase of 0.007 in happiness as measured on a 0 to 10 scale                                                                                                                                                                                                            |                                                                  |                                                                             |                                                                 |                                                           |
| <b>9. Points out similarity in Regressions 2 and 4</b>                                                                                                                                                                                                                                      | <b>0</b>                                                         | <b>1</b>                                                                    | <b>2</b>                                                        |                                                           |
| <ul style="list-style-type: none"> <li>Recognizes that Regressions 2 &amp; 4 are very, very similar</li> </ul>                                                                                                                                                                              | Not addressed or incorrect                                       | Somewhat implied but not clearly pointed out                                | Clear recognition                                               |                                                           |
| <b>10. Compares Regressions 3 and 4</b>                                                                                                                                                                                                                                                     | <b>0</b>                                                         | <b>1</b>                                                                    | <b>2</b>                                                        | <b>3</b>                                                  |
| <ul style="list-style-type: none"> <li>Points out that Regression 3 shows an extremely weak relationship whereas Regression 4 shows a clear positive relationship.</li> </ul>                                                                                                               | Not addressed or serious conceptual errors                       | Some familiarity with concepts                                              | Somewhat implied but not clearly pointed out                    | Clear recognition and good discussion                     |
| <b>11. Discussion of observational data and causality</b>                                                                                                                                                                                                                                   | <b>0 1 2</b>                                                     | <b>3 4</b>                                                                  | <b>5 6</b>                                                      | <b>7</b>                                                  |
| <ul style="list-style-type: none"> <li>Demonstrates understanding that “does increased wealth lead to increased happiness?” is a causal question that cannot be answered with these observational data</li> <li>Gives valid examples of lurking/unobserved/confounding variables</li> </ul> | Not addressed or serious conceptual errors                       | Some familiarity with concepts and identifies at least one lurking variable | Fair to good discussion and identification of lurking variables | Full explanation that directly addresses causality issues |
| <b>12. Explains the paradox</b>                                                                                                                                                                                                                                                             | <b>0 1 2</b>                                                     | <b>3 4</b>                                                                  | <b>5</b>                                                        | <b>6</b>                                                  |
| <ul style="list-style-type: none"> <li>Explains the apparent paradox: Regression 3 shows the countries that become richer do not seem to become happier even though Regression 4 shows that richer countries tend to be happier than poorer ones.</li> </ul>                                | Not addressed or serious conceptual errors                       | Indirect discussion of the paradox or mix of correct and incorrect          | Good discussion of paradox referencing Regressions 3 and 4      | Full explanation that directly addresses paradox          |
| <b>13. Observational data and paradoxical results</b>                                                                                                                                                                                                                                       | <b>0</b>                                                         | <b>1</b>                                                                    | <b>2</b>                                                        | <b>3</b>                                                  |
| <ul style="list-style-type: none"> <li>Recognizes that relying on observational data can yield paradoxical results like these</li> </ul>                                                                                                                                                    | Not addressed or serious conceptual errors                       | Some familiarity with concepts                                              | Implied but not directly addressed                              | Clear recognition and direct                              |
| <b>14. Writing is concise</b>                                                                                                                                                                                                                                                               | <b>-3</b>                                                        | <b>-2 -1</b>                                                                | <b>0</b>                                                        | <b>1</b>                                                  |
| <ul style="list-style-type: none"> <li>Uses a concise writing style to enable a deep and full analysis within the suggested 1.5-page length (p. 4 – 5)</li> <li>Avoids wordiness and unnecessary repetition</li> </ul>                                                                      | Revision could shorten ≥20% without loss of substance or clarity | Revision needed in multiple places to fix wordiness and repetition          | Fairly modest revisions could improve concision                 | Meets all criteria for conciseness                        |
| <b>15. Writing is clear</b>                                                                                                                                                                                                                                                                 | <b>-2</b>                                                        | <b>-1</b>                                                                   | <b>0</b>                                                        | <b>1</b>                                                  |
| <ul style="list-style-type: none"> <li>Easy for reader to understand exact meaning of each sentence (even if incorrect)</li> <li>Written for understanding; not vague or open to multiple interpretations</li> </ul>                                                                        | Reader cannot follow some key sentences or passages              | Reader can follow sentences but with effort                                 | Fairly modest revisions could improve clarity                   | Meets all criteria for clarity                            |
| <b>16. Writing is coherent</b>                                                                                                                                                                                                                                                              | <b>-2</b>                                                        | <b>-1</b>                                                                   | <b>0</b>                                                        | <b>1</b>                                                  |
| <ul style="list-style-type: none"> <li>Well-structured paragraphs and transitions between paragraphs</li> <li>Effective use of linking words (e.g. in addition, for example, yet, however, hence, etc.)</li> <li>Ideas reinforce each other: no contradictions</li> </ul>                   | Substantial revision needed throughout                           | Some parts need substantial revision                                        | Fairly modest revisions could improve coherence                 | Meets all criteria for coherence                          |