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## Group of National Experts on the AHELO Feasibility Study

### ECONOMICS ASSESSMENT DEVELOPMENT REPORT

#### AHELO Feasibility Study

#### 8th Meeting of the AHELO GNE

*This document was prepared by the ACER Consortium.*

*It is a finalised version of the document presented at the 8th meeting of the AHELO GNE and is declassified with the GNE and Consortium's approval.*

*It is only available in PDF format.*

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**Economics Assessment  
Development Report**

**January 2012**



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## INTRODUCTION

### Overview

1. One of the discipline assessments selected for the OECD's Assessment of Higher Education Learning Outcomes (AHELO) Feasibility Study focuses on the development of an assessment in Economics (hereafter, the 'Economics Assessment'). This assessment is designed to measure the skills and knowledge of final-year first cycle (Bachelor degree) university students and to be suitable for translation and use in a range of countries and languages.
2. Development of the Economics Assessment Framework and Economics Assessment took place between July and December 2010 and this report details their evolution. The Assessment Framework defines the domain to be tested and specifies the expected learning outcomes for students in the target group. The Economics Assessment comprises both a constructed-response task and multiple choice items and is designed to be used in a 90 minute time period.
3. The development of both the Economics Assessment Framework and Economics Assessment was undertaken by the Educational Testing Service (ETS) and incorporated the expertise of Economics educators and specialists from around the world.
4. Sufficient materials have been developed to enable the rotation of tasks during Phase 1 (development and qualitative testing) of AHELO with final selections of materials to be informed by input from university students and faculty from participating countries in preparation for Phase 2 (implementation).

### Assessment scope and format

5. Economics is being tested in the AHELO Feasibility Study. The duration of the Economics Assessment is 90 minutes. The Economics Assessment includes a broad sample of items covering a range of difficulty that will enable the strengths and weaknesses of populations and key subgroups to be determined with respect to the components of Economics competency.
6. Two types of assessment tasks have been developed. The first type of task has a constructed-response format. In the Economics Assessment Framework, one of the learning outcomes specified is 'Effective Communication', which is defined as "the ability to communicate and explain effectively economic arguments both to those with disciplinary knowledge and non experts". The document states that such communication skills should be both written and oral and could involve the use of presentation technology. In the context of the AHELO Feasibility Study it is necessary to limit this to 'written' communications, but it is certainly clear that this key skill – the ability to communicate effectively about issues in Economics – cannot be measured directly with multiple choice items.
7. Constructed-response tasks have been developed through an evidence-centred design process to assess higher order integrative skills as well as communicative competencies. They assess all of the five learning outcomes identified in the framework: the ability to demonstrate subject knowledge and understanding; the ability to demonstrate subject knowledge and its application; the ability to make effective use of relevant data and quantitative methods; the ability to communicate to specialists and non-specialists; and the ability to acquire independent learning skills.

8. Each constructed-response task is designed to take students 30 minutes to complete, with the Economics Assessment including one of these tasks. In Phase 1 of AHELO, two constructed-response tasks are included and these will be rotated between focus groups.
9. The second type of task has a multiple choice format. These are designed to assess the same learning outcomes as the constructed-response task but in a different manner. They have been included to provide a fast and efficient way to collect data on students' Economics knowledge, understanding and skills and to compliment the constructed-response tasks.
10. To respond to multiple choice items, students need to select one correct response out of four possibilities. In total, 50 multiple choice items have been developed designed so that students can complete them in 60 minutes.
11. Both constructed-response tasks and multiple choice items have been designed to be suitable for either paper-based or computer delivery. In Phase 1 of the AHELO Feasibility Study, students will be presented with a paper version of the test and will be required to hand-write their responses to all items on the assessment form. This approach has been taken as the assessment materials are still in a developmental stage. In Phase 2 of AHELO, students will respond to both the constructed-response task and the multiple choice items through computer-based delivery.

#### **Assessment development team**

12. Experience from the development of other international assessment materials demonstrated the value of involving diverse teams in the creation of assessment materials for AHELO. This was to ensure that conceptually rigorous materials were created which are applicable in a range of cultural and linguistic contexts. Consequently, an international team worked together to develop the Economics Assessment.
13. Instrument development was led by Thomas Van Essen, Project Director, at ETS, who worked closely with his colleague, Claire Melican at ETS, and Professor Rae Jean Goodman from the United States Naval academy. Ms. Melican is an assessment development specialist with expertise in Economics, and has developed both multiple choice items and constructed-response tasks for various assessments at ETS. Dr. Goodman is Professor of Economics and has consulted with ETS in developing multiple choice items and constructed-response questions for a number of programs at ETS. She has also served as Chief Reader for the scoring of the constructed-response tasks for the Advanced Placement (AP) Microeconomics and Macroeconomics assessments.
14. An Economics Expert group drawn from participating countries and key international organisations was also heavily involved with item validation and revision and in supporting the AHELO Consortium. The Economics Expert Group was chaired by Professor Cecilia Conrad and included members from Italy, Japan, Mexico, the Netherlands, the Russian Federation and the United States. A full list of members is found in Appendix A.

#### **Assessment development timeline**

15. Development of the Economics Assessment Framework and Economics Assessment took place between July and December 2010. The Framework was initially drafted in July and August 2010 and was then circulated to members of the Economics Expert Group for feedback, with revisions made based on advice received. The constructed-response tasks were created between July and August 2010 and subjected to a rigorous development and validation process, including multiple content reviews, editorial review, and a bias and sensitivity review.
16. A face-to-face meeting of the Economics Expert Group was held in Paris in October 2010. The purpose of this meeting was fivefold:

- a. To review and revise the Economics Assessment Framework;
  - b. To review and revise a pool of multiple choice items to be used in constructing the feasibility study forms;
  - c. To confirm the mapping of the multiple choice items to the Framework;
  - d. To review and approve constructed-response tasks; and
  - e. To review and approve the scoring guides for the constructed-response tasks.
17. After the meeting of the Economics Expert Group, the recommended revisions were made to the Assessment Framework and Economics Assessment materials, with these circulated to members of the Expert Group for final approval. The newly developed multiple choice items and constructed-response tasks underwent additional content, editorial, and bias and sensitivity reviews and were provided to participating countries for review and feedback.
18. Overall, the timeline for the development of assessment materials for the Economics strand of AHELO was as indicated in Table 1.

**Table 1: Assessment development timeline for AHELO Economics strand**

<b>Activity</b>	<b>Period</b>
Initial framework development	July 2010
Contribution to study analysis plan	September 2010
Item development	July 2010 – November 2010
Expert group and NPM meetings	October 2010
Distribution of final source version	December 2010
Translation into national languages	January 2011 – March 2011
Qualitative testing in participating countries	March 2011 – May 2011

## ECONOMICS ASSESSMENT FRAMEWORK

19. The AHELO Economics Assessment Framework (“the framework” hereafter) was the guiding document during instrument development. Materials were developed in direct consultation with the learning outcomes and competencies specified in the framework. These learning outcomes and competencies are explained in more detail in the framework, paragraphs 18 – 35.
20. The framework was based on the ‘Tuning-AHELO Conceptual Framework of Expected and Desired Learning Outcomes in Economics’ and the ‘QAA Subject Benchmark Statement for Economics 2007 and the consensus of view of the Economics Expert Group. Subsequent drafts incorporated review comments from Economics Expert Group members.
21. The framework defines the domain to be tested:

The AHELO Economics Assessment does not focus on the recall of factual knowledge, but rather focuses on ‘above content’ skills including application of concepts, use of appropriate statistical and non-statistical tools, drawing conclusions, recommending policy, and being conversant with the ‘language of Economics’.

### *The learning outcomes*

22. The Economics Assessment framework is based on the following five learning outcomes, all of which specify outcomes which students should be able to achieve by the end of their bachelor’s degrees:
  - (i) Demonstrate subject knowledge and understanding;
  - (ii) Demonstrate subject knowledge and its application to real world problems;
  - (iii) Demonstrate the ability to make effective use of relevant data and quantitative methods;
  - (iv) Demonstrate the ability to communicate to specialists and non-specialists; and
  - (v) Demonstrate the ability to acquire independent learning skills.
23. These five learning outcomes are expanded below:

*Learning outcome I: Students should be able to demonstrate subject knowledge and understanding.*

Subject knowledge and understanding can be measured by asking students to demonstrate:

- i. consistent and coherent command of the language of Economics, including the ability to clearly define standard terms and explain basic concepts in both microeconomics and in macroeconomics; with recognition given to controversies;
- ii. consistent and coherent command of the principles of Economics, both microeconomics and macroeconomics, and the ability to structure economic arguments in a coherent and convincing way;
- iii. the ability to explain how economic agents (individuals, households, firms, governments, etc.) make decisions and make choices, and the ability to use this understanding to solve problems related to economic decisions;
- iv. the ability to explain the basic workings of an economic system and the role of policy in such a system; and
- v. the ability to articulate critical features and shortcomings in an economic model or in a method of analysis.

*Learning outcome II: Students should demonstrate subject knowledge and its application to real world problems.*

Subject knowledge and its application can be measured by asking students to demonstrate:

- i. effective application of economic reasoning and methods of analysis to specific topic areas (e.g., markets, public finance, environment, poverty, health, labor markets, international trade, economic development, etc.),
- ii. recognition of assumptions and their implications for analytical results and economic debates, and
- iii. use of economic reasoning to formulate and evaluate economic advice and policy in both the private and public sectors.

*Learning outcome III: Students should be able to demonstrate the ability to make effective use of relevant data and quantitative methods.*

The ability to make effective use of relevant data and quantitative methods can be measured by asking students to demonstrate significant knowledge of the sources of economic and social data, including an understanding of where and how to find such sources and the methods used to create or collect such data.

*Learning outcome IV: Students should be able to demonstrate the ability to communicate to specialists and non-specialists.*

The ability to communicate with specialists and non-specialists can be measured by asking students to demonstrate:

- i. effective communication and explanation of economic arguments, both to those with disciplinary knowledge and to non-experts. Such communication should be both oral and written, and might involve the use of computer projection technology as well as the Internet.

*Learning outcome V: Students should be able to acquire independent learning skills.*

The ability to acquire independent learning skills can be measured by asking students to demonstrate:

- i. the ability to think reflectively and critically about a range of issues in Economics, as demonstrated through expression of and understanding of the history of economic thought, the capacity and limitations of alternative approaches to modelling economic behaviour, or other means of analyzing or studying economic problems;
- ii. the ability to pose and carry out the investigation of a specific problem in Economics. This would involve (1) the formulation of a topic for study, (2) knowledge of previous research and results of the topic, (3) knowledge and choice of suitable methods for its investigation, and (4) the ability to draw conclusions from the investigation. Such conclusions might include areas for further investigation; and
- iii. information literacy (the ability to identify, find, acquire, understand, evaluate, and use information and data about a specific economic problem). Demonstration of information literacy would involve (1) determining the extent of information needed, (2) accessing information effectively and efficiently, (3) critically evaluating information and its sources, (4) integrating selected information into the learner's knowledge base, and (5) using information effectively to accomplish a specific purpose.

### *The competencies*

24. The assessment of these learning outcomes should require students to use the following competencies, as detailed below:
- (a) Abstraction;
  - (b) Analysis, deduction and induction;
  - (c) Quantification and design; and
  - (d) Framing.

#### *Abstraction*

From the study of economic principles and models, students should learn to see how one can (1) abstract the essential features of complex systems, and (2) provide a useable framework for assessment and evaluation of the effects of policy or other exogenous events. Through this, the typical student will acquire proficiency in how to simplify models while still retaining relevance. This is an approach that the student can then apply in other contexts, thereby becoming a more effective problem solver and decision-maker.

#### *Analysis, deduction and induction*

Economic reasoning is highly deductive, and logical analysis is applied to assumption-based models. However, inductive reasoning is also important. The development of such analytical skills enhances students' problem-solving and decision-making ability.

#### *Quantification and design*

Data and their effective organization, presentation, and analysis are important in Economics. The typical student will have some familiarity with the principal sources of economic information and data relevant to industry, commerce, society, and government, and have had practice in the organization and presentation of data. This skill is important at all stages in the decision-making process. It is a central and crucial skill for an Economics graduate because an employer will reasonably expect an Economics graduate to be able to structure, analyze, and explain information presented in some numerical form. The raw data are frequently presented as tables (or datasets with a tabular structure) and the processed data as a graph, an average, a correlation, and so on. Numerate, statistical, and computing skills are necessary to handle this sort of information.

Presentation skills are needed to communicate such quantitative information in usable ways and, particularly, to give critical and coherent summary representations of data that cannot be readily absorbed raw. In addition to forming manipulative and presentation skills required to deal with statistical data, economists learn not to be misled by numbers. Economists question whether the numbers represent what they claim (e.g., unemployment, price indices), understand statistical significance (e.g., the margin of error in a poll or survey), and are aware of at least some of the difficulties in sampling a population. In addition, with some understanding of econometrics, they recognize that conclusions drawn from data might be ambiguous.

#### *Framing*

Through the study of Economics, a student should learn how to decide what should be taken as given or fixed for the purposes of setting up and solving a problem, i.e., what the important parameters are in constraining the solution to the problem. Learning to think about how and why these parameters might change encourages a student to place the economic problem in its broader social and political context. This framing skill is important in determining the decision-maker's ability to implement the solutions to problems.

Economic principles apply not only to business and management, but also other social science fields such as government, history, psychology, sociology, geography, law, and anthropology. Economists depend on mathematical concepts and statistical analysis techniques to evaluate and solve problems. First cycle or bachelor degree students should be able to use the economic way of thinking and other analytical tools to evaluate problems/issues covering a wide and diverse range.

## **DEVELOPMENT OF MULTIPLE-CHOICE ITEMS**

### **Development of multiple choice items**

25. The multiple choice items (“MCQs” hereafter), were primarily extracted by ETS from the GRE Subject Test in Economics. This assessment is directed at approximately the same population as the AHELO Economics Assessment.
26. As far as practicable, each MCQ in the instrument focuses on a single component of competency. Accordingly, some items focus on macroeconomic concepts; others on microeconomic concepts; and others on basic economic concepts.

### ***Initial preparation***

27. After the framework had been developed, ETS staff audited the test items against the framework. Staff performed a triage to determine:
  - which items had appropriate content and sufficient cultural generality to be candidates for inclusion in the AHELO Feasibility Study;
  - which items could possibly be revised so as to be candidates for inclusion in the AHELO Feasibility Study; and
  - which items were outside the scope of the AHELO framework.

### ***Expert group meeting***

28. The final determination of the items to be used in the feasibility study in relation to items to be used from these previous instruments was made by the Economics Expert Group.
29. It was deemed that approximately two-thirds of the MCQs needed for the AHELO Economics Assessment could be drawn from the current ETS item pool. Some items were able to be used as they were, while others required small revisions. Some additional items were written by committee members to include in the Economics Assessment.

### ***Framework mapping***

30. Not all components of the five learning objectives were assessed in the Economics Assessment, in part due to the time constraint and the nature of a computer delivered assessment. For example, communicating with non-experts orally was not able to be assessed. Other learning objectives were applicable to constructed-response tasks rather than multiple choice items.

### ***Development of scoring guides***

31. MCQs can provide a fast and efficient way to collect data on students’ economic knowledge, understanding and skills. In the case of basic and economic sciences – which are assessed using items with a multiple choice format – the rubric is very simple. Thus, the scoring guide simply states the correct answer for credit to be given.
32. Marking guides or scoring rubrics for evaluating student responses to items were constructed based on the components of Economics competency identified in the Measurement section of the framework. The scoring rubric specifies the points allocated for each part of the task.

### *Obstacles and resolutions*

33. Due to the nature of Economics and the interdependency of content, it was not always possible to assess each component discussed in the framework separately from other content. That is, some items could potentially map to multiple framework competencies. Every item, though, was drafted to measure primarily a single component of economic knowledge and skill as specified in the framework. For example, an item asking about the impact of a change in imports or exports on a country's GDP could be classified as I.C.3 (International trade and finance) or I.C.2 (National income).
34. Economic principles are often divided into two major components: macroeconomics and microeconomics. While equal emphasis of these two components was not necessary, great care was taken in balancing the items such that one is not emphasized at the expense of the other.

## DEVELOPMENT OF CONSTRUCTED-RESPONSE TASKS

35. Each of the constructed-response tasks is designed to be “above content” and require students to demonstrate their ability to use the “language of Economics”. Each task includes stimulus material in substance and format to what the students might encounter in a first job or in graduate school.
36. The constructed-response tasks (CRTs) have been designed to require students to interpret stimuli - including quotations, charts and graphs - and to answer a series of questions about the stimuli. The CRTs incorporate real world data and require students to perform tasks similar to what they might be required to perform in employment or in studies at the graduate level.

### *Initial preparation*

37. Task-writers consulted Economics textbooks, published papers, books, and other sources for stimulus materials which had been written and/or published by economists in a range of countries.
38. Consistent with the framework, both short (10-15 minute) and long (25-30 minute) constructed-response tasks were developed for the Economics Expert Group review. These items were written by ETS Economics content experts and ETS consultants with expertise in Economics. They were also reviewed by other ETS Economics content experts. Each task consists of multiple parts and may require the student to use various tools used by economists in their work such as charts, graphs and equations.
39. While not all tasks include all types of potential stimulus materials, the initial set of CRTs prepared for the Economics Expert Group included equations, quotations, graphs, tables and charts. Some items included multiple stimulus materials.

### *Development of scoring guides*

40. Scoring guides were developed simultaneously with the CRTs. This was important so that reviewers of the CRTs could also review the scoring guides to ensure that the scoring guides were consistent with the task being asked of the student.
41. Points are assigned to each sub-task the student is asked to perform. Although the number of total points for CRTs may differ, each CRT will be equally weighted in the final “score” of the student.
42. Tasks are designed to measure varying levels of proficiency. Some sub-tasks are designed to measure the kind of competence which is generally associated with interpreting data. Other sub-tasks require students to use higher order skills to make policy decisions based on that data and justify that policy or predict the outcome of a certain policy, given a specified model. Other tasks may ask for benefits and costs of certain policy actions.
43. The CRTs used in the Economics Assessment require students to produce a range of responses, including performing statistical analysis, interpreting resulting statistics in an Economics context, making policy recommendations, and justifying those policy recommendations.
44. The scoring rubrics identify the correct response(s) as identified by the task writer and the Economics Expert Group to each sub-task.

45. As with any constructed-response assessment, the scorer must use his or her own judgment in some instances as to the correctness of a response. Rigorous training and monitoring of scorers will be used to ensure that this is done in a consistent manner across countries.

### ***Expert group meeting***

46. The Economics Assessment Framework calls for thirty minutes of constructed-response tasks in the Economics Assessment. These tasks could be two independent tasks with multiple sub-tasks or one task with multiple related sub-tasks.
47. At its meeting in Paris in October 2010, the Economics Expert Group reviewed several short and long constructed-response tasks and concluded that they preferred the long CRTs since they required students to perform several related sub-tasks. Approximately one-third of the meeting was spent in reviewing and revising the tasks and scoring guides.
48. After careful consideration of all tasks presented, the Economics Expert Group selected two long constructed-response tasks to be used in the AHELO Feasibility Study. In both tasks the student is presented with real-world economic stimulus material, followed by several sub-tasks. The student is asked to perform a variety of tasks, depending on the stimulus materials.
49. Great care was taken to ensure that even if students could not respond correctly to certain sub-tasks, they could be able to answer other sub-tasks.
50. Once the tasks were revised as requested by the Economics Expert Group, the tasks were posted on the AHELO Exchange for final review by the Expert group members.

### ***Final versions***

51. One of the final two CRTs selected for possible inclusion in the Economics Assessment included stimulus related to a quotation by a Chilean economist regarding world trade, and the second task included a statistical economic model purported to predict the affect of advertising on sales.

### ***Obstacles and resolutions***

52. Given the need for CRT's to assess the above-content learning of final-year Economics students worldwide, problems which arose from cultural specificities have been removed from the draft instrument. That is, the CRTs have been written in such a way as to not disadvantage students due to cultural factors.
53. Due to variations in Economics programs across different countries, it was important to uncover areas of essential commonality in different programs so as not to favour certain candidates over others. The emphasis on above content assessment, however, means that the CRTs were developed with an eye to assessing the Economics competencies and capacities of the student rather than to strictly assessing content knowledge.
54. As the CRTs themselves present authentic Economics contexts, issues may arise with copyright. It is important to ensure that materials used in the CRTs are available to be used without restrictions. It is necessary to gain permission to use data or other published information, especially when these are derived from official documents or reports.

## **PHASE 1: QUALITATIVE TESTING**

### ***Translation and Adaptation***

55. The process of translating materials for the Economics strand of the AHELO project is being managed by cApStAn – international experts in linguistic quality control. cApStAn prepared the AHELO Translation, Adaptation and Verification monitoring manual (ATAV), including guidelines for all individual items. The ATAV was sent to National Project Managers (NPMs) in January 2011.
56. During a NPM teleconference in February 2011, cApStAn trained NPMs on how to implement translation and adaptation in their countries.
57. Translation of the Economics Assessment materials took place in February/March 2011. In each country, two independent translators were sent the translation and adaptation guidelines. Both translators translated the instrument, without communicating with each other. One of these translators was also asked to translate the coding guide and focus group manual.
58. Reconciliation took place in February/March 2011. Reconciliation involved a committee consisting of at least one senior translator/editor, one domain expert and one lecturer in the domain. The translators involved were not the same people as those who translated the instrument.
59. The committee of reconcilers examined the two translations of the Economics Assessment and took the best elements of each in order to create the reconciled version. The committee also documented national adaptations from the international source in the ATAV monitoring workbook. Their records will be released together with the source version.
60. Verification took place in March/April 2011. After the reconciliation had been completed, NPMs sent the reconciled version of the Economics Assessment to cApStAn. Verification involved the reconciled translation being checked by a verifier and domain expert contracted by cApStAn. Verification feedback was also documented in the ATAV workbook.
61. At the conclusion of the verification process, NPMs decided whether to accept or reject the proposed corrections and suggestions. Once the finalised version of the Economics Assessment had been determined, NPMs arranged for the materials to be piloted in focus groups.

### ***Focus groups***

62. In the AHELO Feasibility Study, focus groups have been used to assist with the development of the Economics Assessment in Phase 1. The feedback from focus groups has been used to revise the Economics Assessment and only then will the assessment be ready for more widespread testing of students in Phase 2 of the Feasibility Study.
63. The focus groups gathered data on candidates' perceptions of the Economics Assessment. Feedback from students in the focus groups provided feedback on the Economics Assessment and will also inform the broader question of feasibility for AHELO.
64. Focus groups on the Economics Assessment have taken place in all of the countries which are participating in the Economics strand of the Feasibility Study. In each country, focus groups have been conducted at between 5 and 10 institutions with participants who have volunteered to take part. During the focus groups, participants have worked on a printed version of the Economics

Assessment which includes a number of tasks. Based on the data collected from participants, the Economics Assessment has been reviewed by the translator and assessment developers.

65. During the focus groups, the participants have been presented with either Form A or Form B of the Economics feasibility study. Each form consists of one long constructed-response task with multiple sub-tasks and twenty-five multiple choice questions to be completed in one hour. It is recommended that approximately one-half of the students in each focus group be given Form A, and one-half given Form B.
66. The final Economics Assessment will consist of one long CRT and approximately 50 MCQs. During Phase 1, the 2 long CRTs selected by the Expert Group will be tried out.

## PHASE 2: AHELO IMPLEMENTATION

### Overview

67. The ultimate objective post-Phase 1 is for the AHELO project to enter Phase 2. Phase 2 will see a full-scale online implementation of the Economics Assessment. It will not be possible to conclude this Economics Assessment Development Report until this quantitative phase is complete.

#### *Updating the multiple-choice questions*

68. In the summer of 2011, the continuing members of the Economics Expert Group were asked to review the 50 items used in the Phase I study. The purpose of this review was to confirm the correct answer, to ascertain the continued validity of the items for the population, and to review the wording of the items.

Committee members were sent a spreadsheet on which to note any comments. The committee members were asked to identify any items they felt needed to be revised, whether the revision was significant or slight, or whether an item needed to be deleted. If members felt an item needed to be revised they were instructed to suggest a revision. If a member felt an item should be deleted, the member was required to give an explanation for that recommendation. The committee members were given approximately two weeks in order to complete the task.

69. Statistical information based on the Phase 1 administration was provided to internal staff to help with the review. It should be noted that the statistical information was limited by the number of student participants. As such, the data was used as a tool in the decision-making process and not to make definite decisions about the items based on psychometric data alone. It is anticipated that with increased student participation, the psychometric data will be more robust and helpful in evaluating items.
  70. After coordinating all the comments, it was decided that two items would be deleted from the Phase 2 assessment. One item was deleted because it was determined that not enough information was given in order to arrive at the correct answer. These revisions would have led to a major rewrite of the item which was not possible at this stage of the process. Another item was deleted because it dealt with a topic that was covered in another item, a topic that some committee members felt might not be covered in all countries although topic is covered in the Framework. There was not sufficient evidence to suggest that the assessment was speeded and additional items needed to be deleted for that reason.
  71. The forty-eight remaining items were then divided into four “sub-tests”, each consisting of items covering the major content areas.
  72. By having four sub-tests, the different sub-tests could be assembled in multiple orders so that students taking the assessment at the same location and time would not receive the items in the same order.
  73. The items were entered into the computer system, reviewed, and some minor revisions made.
- #### *Updating the construction-response tasks*
74. Following the Phase 1 administration, countries provided feedback on the tasks, their various parts, and the scoring rubrics. In addition, the Economics Expert Group was asked to review the constructed-response tasks and scoring rubrics in a manner similar to their review of the multiple-choice items. Based on this feedback from those administering the tasks and the committee, minor revisions were made to the tasks and scoring guides.

75. Initially it was believed that Phase 2 would include only one of the constructed-response tasks. However, after the Phase 1 feedback, it was decided to include both, i.e. approximately half of the students would respond to each task.
76. The document, “Economics Scoring Guide” was updated to reflect some minor changes to the tasks and scoring rubrics and sample student answers at various score points were added. It is anticipated that the sample student responses will help the scorers understand the differences at the various score points.
77. The updated scoring guide was shared with the Lead Scorers for the economics assessment. During the NPM meeting in Paris in November 2011, the scoring rubrics were discussed and minor revisions to the scoring rubrics were made. This document will be updated and shared with the Lead Scorers prior to the scoring of the Phase 2 assessment.
78. This updated scoring guide will be discussed with the Lead Scorers in Paris in March 2012. It is expected that at least some of the countries will have begun administering the assessment. This discussion may lead to revisions to the scoring guide and the addition of sample responses.

#### ***Ongoing concerns***

79. The content of the assessment as described in the Framework is very broad and not every key concept in every learning objective can be covered by the assessment. Input from the committee will be critical in determining which concepts to include in future assessments.
80. Some key concepts included in the Framework may not be covered in every college/university in every country. Coverage of these content areas is necessary, but care should be taken so that these concepts are not overemphasized on any single assessment. For example, growth and growth models are included in the Framework, but not all countries may cover the same models.
81. Some content is covered more extensively in some countries, and even in some colleges/universities within countries than others. The depth of coverage of some material included in college courses in different countries varies greatly, most noted is econometrics. The assessment process will continue to involve finding the balance such that students are able to demonstrate their depth of knowledge in this area.
82. Scoring of one of the constructed-response tasks will be a bit complicated since one part of the task requires students to “label” a graph which is done by the student on paper. The student paper response has to be matched by the scorer to the correct student response on the computer. This was not the case in Phase 1 in which all of the student responses were completed on paper.
83. The stems of some of the multiple-choice items were “open ended”, i.e. the stem was an incomplete statement and the options were possible completions to the stem. While this item type works well in “English”, and often is more direct than a “closed stem” and shortens the stem, it presented some problems with the translations and the wording had to be revised to make the stem a question.
84. Graphs presented a couple of challenges. In one case where graphs were the options, options “A” and “B” were presented side-by-side and options “C” and “D” were presented below “A” and “B”. However, in at least one case, options “B” and “C” were reversed. This was particularly noticeable since one of these was the correct answer. This can be resolved, easily, by requiring all the graphs to be vertical. Another issue with graphs is that associated with labels. A number of items included a graph or graphs as stimulus material. In translation, the labels on the graphs need to have the translated labels. However, giving the graph documents to the translators raised some concern about lines on the graphs being accidentally changed which could change the correct answer.



## APPENDIX A – ECONOMICS EXPERT GROUP

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Professor Cecilia Conrad, Chair	Pomona College, U.S.
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Professor Tatsuya Sakamoto	Keio University, Japan
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