

**DIRECTORATE FOR EDUCATION  
INSTITUTIONAL MANAGEMENT IN HIGHER EDUCATION GOVERNING BOARD**

**Group of National Experts on the AHELO Feasibility Study**

**PROGRESS REPORT ON ECONOMICS STRAND**

**6th meeting of the AHELO GNE**

**Paris, 28-29 March 2011**

*This document was prepared by the ACER Consortium.*

*The AHELO GNE is invited to:*

- *TAKE NOTE of the progress report.*
- *COMMENT on progress as necessary.*

*This document is available in PDF format only.*

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## OVERVIEW

1. This progress report provides an update of work undertaken between September 2010 and February 2011 in Module B of the AHELO Feasibility Study, *i.e.* to develop a provisional assessment framework and instrument for the Economics strand of work. This document provides background information that will be elaborated with a verbal report at the sixth AHELO GNE meeting being held in Paris on March 28 and 29, 2011.
2. The work for Module B is undertaken by Educational Testing Service (ETS) under a subcontracting arrangement with the Australian Council for Educational Research (ACER).
3. Figure 1. provides an overview of Module B schedule and progress. As this shows, work is progressing as planned and is on track for completion. In this diagram 'C' stands for 'Completed'.

**Figure 1. Module B schedule and progress**

Phase	Activity	2010						2011							
		6	7	8	9	10	11	12	1	2	3	4	5	6	
Framework	Finalise methodology	C													
	Audit existing resources	C	C	C	C										
	Framework development	C	C	C	C										
	Consultation and validation		C	C	C	C	C	C							
	Develop instrument specification		C	C	C	C	C	C							
	Evaluation and review of framework					C	C	C	C	C	C				
	Deliver framework and specifications														
Instrument	Submissions from networks	C	C	C											
	Search for existing materials	C	C	C											
	Item development	C	C	C	C	C	C								
	Cognitive labs with source version						C	C							
	Finalise source versions						C	C							
	Produce source version of instrument							C							
	In-country adaptation/translation								C	C	C				
	Revise, validate and map items									C	C				
	Deliver verified translated instruments														
	Develop coding guides					C	C	C	C	C	C				
Analysis	Contribution to analysis plan	C	C	C	C										
	Contribution to reporting	C	C	C	C	C	C	C	C	C					
	Deliver summary report														
	Deliver report mapping items and framework									C	C				

## FRAMEWORK DEVELOPMENT

4. *ETS will work with an international committee of Economics experts in developing a framework for the field of Economics. (Contract M09/57)*

5. Based on the document ‘Tuning-AHELO Conceptual Framework of Expected/Desired Learning Outcomes in Economics’, Educational Testing Services (ETS) drafted the Economics Assessment Framework. The Economics Assessment Framework explicates the skills and knowledge which students will need to demonstrate in order to indicate that they have achieved the following five key learning outcomes:

- I. Subject knowledge and understanding;
- II. Subject knowledge and its application;
- III. The ability to make effective use of relevant data and quantitative methods;
- IV. The ability to communicate to specialists and non-specialists; and
- V. The ability to acquire independent learning skills.

6. The draft Economics Assessment Framework was posted on the AHELO Exchange in October 2010 for review by the Economics Expert Group. The Economics Expert Group consists of seven discipline experts drawn from countries participating in the AHELO Feasibility Study. The list of expert group members is provided in Annex A of the Economics Assessment Framework.

7. In October 2010 the Economics Expert Group met for three days in Paris. At this time the draft Economics Assessment Framework was discussed in detail and a number of revisions were suggested. Feedback was incorporated from Professor William Becker, who was unable to attend the meeting in person. After revisions were incorporated the Economics Assessment Framework was again posted on the Exchange for a second round of comments/revisions from the Economics Expert Group.

8. Feedback from participating countries was fed into draft versions of the framework throughout its development. The final Economics Assessment Framework was posted on the AHELO Exchange for countries in February 2011. The draft working version is included as Appendix 1 to this Module B Progress Report. The framework will be finalised by the consortium and Economics Expert Group for delivery in 2011.

## INSTRUMENT DEVELOPMENT

9. *ETS will develop a 'mini instrument' for the Economics Expert Group to consider and revise. (Contract M09/57)*

10. ETS revised and adapted a large number of items for the AHELO Economics Assessment with input from a consultant economist (Professor Rae Jean Braunmuller Goodman, United States Naval Academy). The draft items were posted on the AHELO Exchange in October 2010 for review by the Economics Expert Group.

11. At the October 2010 meeting of the Economics Expert Group, all items were discussed in detail and revisions, deletions and additions were suggested. Once incorporated, the revised items were posted on the AHELO Exchange for further input from the Economics Expert Group, and went through a further period of revision by ETS. Results from testing/validation of assessment materials with United States university students were taken into account as part of this process.

12. It is important to note how the Economics instrument positions alongside the Generic Skills and Engineering instruments. The Generic Skills consists entirely of open constructed response with no multiple choice. The Economics instrument consists of a balance of open constructed-response and multiple choice items. The Engineering instrument consists of a number of different question types, including open constructed and short response, and multiple choice items. The deployment of this variety of item types in the AHELO Feasibility Study enables testing of various technical, practical and educational considerations.

13. The final AHELO Economics Assessment will be composed of one constructed response task and approximately 50 multiple choice questions, which together will take students 90 minutes to complete. For qualitative testing (via focus groups or cognitive labs), ETS have prepared two constructed response tasks as well as the 50 multiple choice questions. These will be administered in an alternated manner in focus groups to be conducted in March/April by participating countries. The choice of the constructed response task best suited to the final instrument will take place based on feedback collected from students during the qualitative testing phase. ETS has created scoring guides for each of the items.

14. All English source versions of the AHELO Economics Assessment were posted on the AHELO Exchange in January 2011 in preparation for translation and adaptation by countries. Information about adaptation, translation and verification is provided in the Module E Progress Report. Participating countries are expecting to finalise the adaptation, translation and verification process by the end of April 2011.

15. A brochure on the AHELO Economics Assessment is included in Appendix 2 of this Module B Progress Report. This brochure was created to assist NPMS promote the assessment with institutions and students.

## CONTRIBUTE TO PROJECT MANAGEMENT

16. *ETS will assist with broader aspects of the study's planning, implementation, analysis and reporting. (Contract M09/57)*

17. ETS has contributed to the overall management of the AHELO Feasibility Study, working closely with colleagues in other organisations. They have been involved in several key meetings:

- Participating in a two-day face-to-face meeting of National Project Managers (NPMs) in Paris in October 2010;
- Arranging and running a three-day meeting with the Economics Expert Group in October 2010;
- Participating in teleconferences with all NPMs in December 2010;
- Participating in the March 2011 meeting of the AHELO Group of National Experts; and
- Participating in the April 2011 meeting of the AHELO Technical Advisory Group.

18. ETS has also contributed to the revision of the AHELO Assessment Design and the drafting and revision of the AHELO Analysis Plan, as well as reviewing AHELO Reporting Guidelines and the NPM Manual. Contribution has been multifaceted and provided on an ongoing basis during the development and finalisation of these materials.

19. ETS has also worked closely with cApStAn on the creation of the AHELO Translation, Adaptation and Verification (ATAV) guide for all Economics assessment items, and has contributed to the development of translation and adaptation guidelines.

## PROGRESS WITH DELIVERABLES

20. *ETS will deliver a provisional framework; a 'mini assessment' of Economics consisting of approximately 20 multiple choice items and one open constructed-response task with a scoring guide; and a mapping of the items in the 'mini assessment' to the provisional framework. (Contract M09/57)*

21. The following items have been produced and are being finalised for delivery:

- The framework and test specifications for the Economics assessment;
- The instrument for the Economics assessment including scoring/coding guides;
- A mapping of the items in the 'mini assessment' to the provisional framework; and
- A summary framework and instrument development report including details of the development process, the pretest outcomes and a mapping of test items to the assessment framework for the Economics instrument.



**APPENDIX 1: ECONOMICS ASSESSMENT FRAMEWORK (DRAFT)**



Assessment of Higher Education Learning Outcomes

# AHELO ECONOMICS STRAND ASSESSMENT FRAMEWORK

Version: 1.0

20 February 2011

Leadship team:  
Educational Testing Service (ETS)



INDIANA UNIVERSITY  
Center for Postsecondary Research



Statistics  
Canada

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## INTRODUCTION

Within the United States advocates of large-scale general-education tests, such as the Collegiate Learning Assessment test, assert that individual student's general abilities to think critically, reason analytically, solve problems and communicate clearly can be assessed as the product of a university (or college) education. Accordingly, individual student scores can then be aggregated to the institutional level and compared to previous scores and other institutions to provide signals to the institution about its overall performance as a unit.

In contrast, as seen in the European idea of TUNING, the essence of a higher education is discipline based, with each discipline having its own assessment needs based on desired student outcomes. That means that a student completing a first-cycle bachelor's degree in Economics should be able to think like an economist. To construct an assessment instrument requires that there first be consensus as to what constitutes economic thinking. Contrary to what the news media might lead one to believe, consensus does exist among academic economists.

The 2009 TUNING-AHELO Expert Group, representing economists from around the world, unanimously agreed that the economic way of thinking and reasoning could be seen in the work of the recipients of the Nobel Prize in the Science of Economics. Modern-day economists thinking about problems, issues, and events typically start with the identification of objectives to be achieved and a recognition of the constraints or resource restrictions that must be confronted in any attempt to achieve those objectives. Models of (or methods for connecting) objectives and constraints are then formulated, where the models identify relevant institutional details and might be static (ignoring time) or dynamic, with or without the incorporation of sources of uncertainty. Models might be based on or involve theoretical considerations, social norms, history of economic thought, or empirical inference, with reflections on shortcomings in the analysis based on mathematical limitations, data availability, or other impediments. Analysis might be aimed at explaining the allocation, distribution, and use of resources and their consequences for economic and social well-being at the individual or firm (micro) level or the aggregate (macro) level, recognizing local, national, or international dependencies.

As seen in the curriculum of universities around the world, not only is there general agreement on what it means to think like an economist, there is also agreement on the type of courses or subjects that are required to acquire "the economic way of thinking." For example, Yamaoka, Asano and Abe (2010) call attention to the fact that until the collapse of the Soviet Union in 1991, universities in Japan and Europe typically had Marxist economists on their faculties and offered courses in Marxist economics but that is no longer the case. Today it is rare to see a required introductory or more advanced course in Marxist economics. What is taught and learned in the microeconomics and macroeconomics introductory courses for the bachelor's degree tends to be relatively standard as seen in the numerous textbooks that differ only slightly from each other. At the intermediate level differences in textbooks begin to appear but these differences are more a matter of emphasis within the models considered than in the approach to economic reasoning.<sup>1</sup>

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<sup>1</sup> Historically, and as seen in the popular press, economists have been classified into schools of thought: classical economics, Marxist, Chicago school (freshwater), saltwater schools (MIT, Harvard, Berkeley), French heterodox,

Even a cursory review of the four papers in the summer 2010 issue of the *Journal of Economic Education* that address the teaching of economics in Australia, Great Britain, Korea, and Japan shows that most universities have one or two introductory or principles courses that deal with microeconomic and macroeconomic ideas and concepts. For the bachelor's degree in Economics, students must also complete intermediate level courses in microeconomic and macroeconomic theory. At least one course in statistics is required, and many institutions also require formal course work in econometrics or mathematical economics. A few institutions also require a course in the history of economic thought or economic history in general. The number of elective (field) courses for the Economics major varies from university to university.<sup>2</sup>

Although there is agreement on what it means to think like an economist, it is the differences in model specifications, empirical support, emphasis on mathematical rigor and non-academic matters involving religious, political and personal beliefs that make the development and acceptance of a standard assessment instrument for the bachelor's degree in Economics challenging. This was recognized by Hamish Coates (Australian Council for Educational Research principal research fellow) when he was quoted by journalist John Ross (2010) in the *Campus Review* saying that it was relatively easy to specify the capabilities needed by an engineer but such was not the case for an economist:

If someone can do those things, and do them in ways they can apply to professional practice, they're going to be a thriving professional engineer. In Economics, it's much more complicated. You've got different paradigms. Can we get consensus about what we need to measure, let alone any actual test? If we can test in those two divergent fields, it should be possible to do it in medicine, or math, or physics.

The different paradigms in conjunction with the difference in method of model development when done almost exclusively by words, graphs, or algebra add to the complexity of producing a universally accepted testing instrument. Although it is relatively easy to guard against

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Austrian school, Keynesian economics, post-Keynesian economics, behavioural economics, etc. Today mainstream or orthodox economists (as opposed to their heterodox critics) do not fit into any one particular school of thought on the many topics in *The Journal of Economic Literature* Classification Codes. It is the nature of their models, empirical support and what is emphasized that distinguishes them from those who simply adhere to an ideology.

<sup>2</sup> For an example of the agreement on what courses are required for students to acquire the skill of an economist, consider the French government's response to the 2000 protest of students against:

- ▶ economics' "uncontrolled use" and treatment of mathematics as "an end in itself," with the result that economics becomes an "autistic science," lost in "imaginary worlds," lacking empirical and concrete content;
- ▶ the repressive domination of neoclassical theory and approaches derived from it; and
- ▶ the dogmatic teaching style in economics, which leaves no place for critical and reflective thought; a lack of pluralistic approaches adapted to the complexity of economic objects and to the uncertainty surrounding most of the big economic questions. (<http://www.autisme-economie.org/article155.html>)

Pretty much ignoring these cries for heterodox reform, In 2007 the French government opened the Paris School of Economics (PSE) intended to be one of the top global institutions for economic studies to compete with the likes of Harvard, Chicago, MIT and the London School of Economics. In keeping with the teaching of economics at the best institutions around the world, "In the first year (M1) of the Master's programmes, students take basic courses in microeconomics, macroeconomics, econometrics and economic history . . . all courses are taught in English." (<http://www.parisschoolofeconomics.eu/spip.php?rubrique4&lang=en>)

institutional and environmental misunderstandings (for example, the use of “scalper” in talking about the sale of tickets outside a sporting event), language peculiarities are difficult to avoid (for example, even if a student in Russia has learned English, she or he might still have trouble with the distinction between the words price and cost, which are represented by one word in everyday Russian). Finally, there is the problem of having one instrument to serve for all institutions. For example, in The Netherlands (as found in other countries, as well) the higher education system is binary with Higher Vocational Education (a type of Polytechnic and Fach Hochschule) and universities. Students’ expectations, motivation, and skills differ greatly between these two systems and it is difficult to see how one test could serve the needs of both.

While educational content and expected outcomes in Economics are relatively consistent, a need remains to produce robust data on learning outcomes and graduates’ potential for subsequent success in work and further study. An assessment of Economics capability undertaken as part of the AHELO Feasibility Study provides an opportunity to contribute to a more evidence-based approach to ascertaining quality in higher education. In collaboration with teams leading other modules, therefore, the work undertaken in Module B will explore the feasibility of directly measuring learning outcomes in Economics and across different cultural, linguistic, and institutional contexts.

With full recognition of the complications in assessing what it means to think like an economist, this framework sets out the guidelines for the development of a testing instrument for use in a variety of countries to assess the learning outcomes of students completing a bachelor’s degree or a first-cycle degree in Economics.

## **FRAMEWORK**

The issues faced by economists in today’s world are increasingly global and complex and require economists to have both strong technical knowledge and skills, and understanding of relevant environmental, social, political, and cultural contexts. In addition, as for other professions, economists are expected to be good communicators, both to economic experts and non-economic experts, to be able to work effectively in interdisciplinary teams, to conduct themselves ethically and professionally, and to be able to constantly update and improve their technical and personal skills. These requirements are reflected in the “Learning Outcomes” discussed below.

A cornerstone of any assessment framework is an agreed definition of the domain to be tested and on which instrument development can be based. The aim of this study is to measure whether higher education Economic students in the last year of their “first-cycle” or bachelor can think like an economist. Knowledge, skills, attitudes, and motivation all play a role and so must be taken into account in defining the domain.

Arguably the most important aspect of assessing economic competency is the evaluation of how a student performs when measured against pre-defined objectives of achievement. These objectives are encapsulated in what are known as “Learning Outcomes.” For Economics, five learning outcomes were identified by the Tuning-AHELO Expert Group and serve to circumscribe the economic knowledge and skills that will be the focus of this study. These learning outcomes will be explicitly used in designing the assessment instrument.

The draft framework for the AHELO Economics strand 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;
- III. Demonstrate the ability to make effective use of relevant data and quantitative methods.
- IV. Demonstrate the ability to communicate to specialists and nonspecialists; and
- V. Demonstrate the ability to acquire independent learning skills.

## FRAMEWORK OBJECTIVE

The Economics strand of the OECD feasibility study will assess the learning outcomes of students completing a bachelor's degree or a first cycle degree in Economics. Learning outcomes are statements of what a learner is expected to know, understand and be able to demonstrate after completion of a process of learning. This framework describes and illustrates the domain of Economics competency that will be used in the AHELO Feasibility Study

## CONTEXT

In May 2009, the OECD brought together a group of academic experts with expertise in the teaching and learning of Economics. These experts came from different countries and cultures, they spoke different languages, and they represented different academic and pedagogical traditions. This group reviewed how Economics is taught and what is taught in various countries/universities and what research has been done in these areas. (The findings of this group are summarized in *Tuning-AHELO Conceptual Framework of Expected and Desired Learning Outcome in Economics*<sup>3</sup>).

The authors of the *Tuning-AHELO* paper concluded that a framework for Economics should focus on identifying and describing the learning outcomes necessary for a first cycle or bachelor's degree student to have achieved to be successful in a job or to be successful in pursuing a higher academic degree. The Tuning-AHELO Group also concluded that the *QAA Subject Benchmark Statement for Economics 2007* from the United Kingdom could serve as a guide for developing the learning outcomes.

The draft framework which follows is based on the Tuning-AHELO paper as well as the QAA benchmarks. This document summarizes the decisions of the AHELO Economics Experts Group<sup>4</sup>, which held its first meeting in Paris from 29 to 31 October 2010 in preparation for the pilot testing of the Economics strand of the OECD AHELO Feasibility Study to be conducted in 2011. In this draft we focus on identifying the students' learning outcomes in Economics, and not on specific teaching methods, course requirements for graduation, and the like.

The Economics AHELO Assessment will not focus on the recall of factual knowledge, but rather will focus on "above content" skills including application of concepts, use of appropriate statistical and non-statistical tools, drawing conclusions, recommending policy, and "thinking

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<sup>3</sup> <http://www.oecd.org/dataoecd/46/33/43160495.pdf>

<sup>4</sup> The list of members of the group is provided in Annex A.

like an economist.” The first step in learning how to “think like an economist” involves knowing and understanding basic economic concepts which are listed as part of Learning Outcome I below and organized as Key Economic Concepts (used in both microeconomics and macroeconomics), Microeconomic concepts, and Macroeconomic concepts. Learning Outcomes II-IV focus on the application of these concepts, the use of tools to evaluate issues, the use of data, and the ability to communicate results to various audiences.

## **MEASUREMENT OF ECONOMIC COMPETENCE**

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:

- a 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;
- a 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;
- 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;
- the ability to explain the basic workings of an economic system and the role of policy in such a system; and
- the ability to articulate critical features and shortcomings in an economic model or in a method of analysis.

While actual course requirements and content within specific courses vary widely across and within countries, some of the common concepts that will be covered in this assessment are listed below.

### Key economic concepts

#### 1. Opportunity cost

By asking and answering the question what is given up when one alternative is selected, economists can think about the costs of an action in terms of all resources. An assessment of what is given up may involve a comparison of alternatives at different times. Present value calculations are used to compare alternatives with different cash outflows and inflows at different times to reflect the time value of money and other factors such as risk.

#### 2. Incentives and expectations

People often react in predictable ways to incentives. Being able to predict how people will respond to incentives is critical in evaluating policies and strategies. The use of expectations in decision-making requires an understanding of probability and the notion that there can always be unexpected shocks or surprises. How agents form expectations and use expectations is debated in economics and forms the bases for alternative model formulations.

### 3. Equilibrium and disequilibrium

A stable equilibrium describes a state in which there is a tendency for prices and output to remain the same. Equilibrium does not always result in full employment or optimal allocation of resources. Disequilibrium indicates at least some economic agents have an incentive to change behaviour. The ability to identify disequilibria is important in policy-making.

### 4. Strategic thinking

This type of thinking involves the roles of opportunities, outcomes, information, and motivation in the analysis of actions, including conflict, bargaining and negotiation, and intertemporal decision-making. Game theory techniques are sometimes used to model this behaviour.

### 5. The relevance of marginal considerations

Decision-making sometimes involves the analysis of small variations in inputs for which small changes in outputs can be expected. Unfortunately, continuous incremental analysis is not always possible. However, when the additional benefit of an action is greater than the additional cost, the action should be taken.

### 6. The possible gains from voluntary exchange

Voluntary exchange takes place when parties expect to gain from that trade. The identification and measurement of gains relative to costs and the barriers to maximizing net gains are important in devising appropriate policies to optimize the use of scarce resources.

### 7. Systems and dynamics

Many economic decisions or events can start a complex chain of reactions. The ability to see beyond the direct or short-term effects of a decision can contribute to analyzing the effects of both deliberate decisions and external shocks.

### 8. Numeracy

Economic analysis requires the use of numbers, mathematical concepts and methods, logical thinking, and reasoning in order to evaluate issues and solve problems.

## Microeconomic concepts

### 1. Decision-making and choice

Economic agents are required to make choices because resources are scarce. Choices involve considerations of opportunity costs, marginal analysis, production trade-offs (production possibilities frontiers), relationships between goods (substitutes versus complements), elasticity, and substitution and income effects. Risk and uncertainty affect choices of economic agents.

## 2. Production and exchange of goods

In some economic systems decisions about what to produce and how to produce are determined by markets, and in other economic systems such decisions are made by government agents. Economic activity, including the production of goods and services, may also occur outside of markets. Some economic decisions may be made through cooperation and bargaining.

## 3. The interdependency of markets

Firms use scarce resources to produce goods and services for consumers, businesses, and governments. The demand for labour and other scarce resources is a derived demand and depends on the demand for the goods and services that those resources produce.

## 4. Prices and market structure

In economic systems that rely on markets, consumer demand, costs, and the interaction of firms within specific market structures determine price and output. The structure of costs, the conditions for entry and exit, product differentiation, and government regulations affect market structure. Government regulations, taxes, and subsidies also affect prices and output.

## 5. Market failures

Externalities, asymmetric information, moral hazard, adverse selection, the strategic behavior of firms in imperfect markets, and public goods may lead to inefficiency or market failure. Market failure may lead to government intervention in markets. Differentials in power among firms and between firms and workers may also affect the allocation of resources.

## 6. Economic welfare

Welfare economics evaluates how alternative economic arrangements affect economic efficiency and income distribution. One basic concept used to evaluate alternative economic arrangements is Pareto optimality, but other criteria, including equity, equality, and the provision of a minimum standard of living are also important.

## Macroeconomic principles

### 1. Employment and unemployment

Full utilization of resources (land, labour, capital) yields maximum production of goods and services with fixed technologies, social norms, and market and government structures. The unemployment of resources in an economy reduces that country's output to below its potential production (GDP) level. Market forces need not automatically eliminate unemployment. There

are many different types of unemployment (e.g., frictional, structural, cyclical). There is also a discouraged-encouraged worker phenomenon associated with changes in reported unemployment.

## 2. National income

The value of a nation's production can be used to measure the nation's growth and make cross country comparisons. National income, also referred to as gross domestic product (GDP), can be reported in real and nominal values.

## 3. International Trade and Finance

Trade occurs between nations and is based on comparative advantage and the gains from trade. The trade in goods and services, financial transactions, and capital inflows and outflows determine the exchange rate (the international value of a country's currency) and are summarized in the balance of payments. The balance of payments consists of the current account (trade in goods and services and financial transactions between countries), the capital account (inflows and outflows of capital), and financial transfers which occur if the current account and capital account do not sum to zero. Changes in the international value of a country's currency may impact a country's interest rate and other macroeconomic variables. Trade barriers, such as tariffs and quotas, will impact both international trade and the international value of a country's currency.

## 4. International linkages and economies

Internationalization and globalization are major economic trends leading to more trade and cooperation agreements and to greater economic integration among nations and within regions.

## 5. Distribution of income

While real GDP can measure a country's total production and GDP per capita looks at the average income of people in a country, neither addresses income differences. A Lorenz curve can be used to describe the degree of income inequality in a country and across countries. Discussion of poverty income levels and the percentage of the population below the poverty line add to an understanding of the distribution of income and its effects.

## 6. Inflation

Decision makers who need to compare long-term costs and benefits to make decisions/recommendations can make better decisions if the price level is known and constant or if the change in the price level is known and constant. Unexpected price changes cause an unintended redistribution of income and lead to a misallocation of resources.

## 7. Economic Growth

Economic growth can be measured by changes in real GDP or real GDP per capita. As a country grows, its citizens are generally better off economically. Growth can be increased through increased resources, increased education and training of workers, and changes in government policy. There are exogenous and endogenous theories of the determinants of long-run growth.

## 8. Business cycles

Economic fluctuations do not occur in regular patterns, nor are they predictable. Changes in investment and employment decisions by producers can lead to changes in a country's total production. Reducing fluctuations in the business cycle can create a more stable economic environment.

## 9. Money, banking and finance

Money eliminates the need for barter and makes the purchase of goods and services more efficient. Business, government, and consumer purchases are often financed through loans. Changes in a country's money supply and/or money demand impact other economic variables, such as interest rates, investment, consumption, value of the domestic currency, etc. These, in turn, affect a nation's production level.

## 10. Economic policy

Government, quasi-public, supranational, and international institutions formulate and implement policies that affect macroeconomic variables. Decisions of the central banks with respect to the money supply, and decisions of the government concerning taxation, spending, and regulation impact the decisions of other economic agents. These policies often have unintended, as well as intended, domestic and international consequences. Examination of normative and descriptive policies is included.

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

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

In demonstrating their mastery of subject knowledge and its application, students may be asked to use the economic concepts listed in Learning Outcome I in applying their economic knowledge to evaluate economic questions, issues, and policies. In contrast to Learning

Outcome I, this learning outcome and the remaining learning outcomes focus more on multiple steps, multiple principles, and/or more sophisticated methods of analysis to address an issue.

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.

#### Knowledge and access to economic data

Economic analysis may require the use of quantitative and qualitative data from primary and secondary sources and of historical information. It is necessary to know and be able to access different sources of national and international data provided by government, private sectors, and international organizations. It is also necessary to understand how data are collected as well as their limitations because conclusions of data-based research depend on the accuracy of such data.

#### Methods for economic analysis

Economic analysis may be done through the study of economic history and of other forms of data. Processing of data in different ways is needed in order to obtain information, statistics, and indicators that can help understand economic reality and economic problems and make it possible to test hypotheses. The knowledge and application of descriptive statistics, probability, hypothesis testing, correlation, and multivariate analyses can be considered as essential tools for assessing the application and relevance of economic theory and, hence, to determine if the evidence does not contradict economic assumptions and relationships.

#### Interpretations and limitations of empirical economic analyses

The ability to interpret results of data analyses and to draw the appropriate conclusions are essential skills. Equally important is the ability to recognize the limitations of the analytical method and data used.

LEARNING OUTCOME IV: STUDENTS SHOULD BE ABLE TO DEMONSTRATE THE ABILITY TO COMMUNICATE TO SPECIALISTS AND NONSPECIALISTS.

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

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

Assessing students' ability to communicate to specialists and nonspecialists requires the students to use the following types of communication:

- sharing information, ideas, problems, and solutions;
- using appropriate analytical tools, such as tables, charts, graphs, models, etc., to communicate with the audiences;
- presenting quantitative information in usable ways;
- summarizing data that cannot be readily absorbed raw; and
- explaining results to specialists and nonspecialists.

#### 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:

- 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;
- 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
- 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.

#### COMPETENCIES

The assessment of these learning outcomes should require students to use the following competencies:

##### 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.

## **ASSESSING ECONOMICS COMPETENCY**

The duration of the assessment will be 90 minutes, and it will consist of about 45 multiple-choice items to be completed in 60 minutes, and constructed response task(s) to be completed in 30 minutes. These are approximate times only; these sections will not be timed separately.

The assessment will include 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 the economics competency.

Due to the nature of economics and the interdependency of content, it is not always possible to assess each component discussed in this document separately from other content. Every item, though, is drafted to measure primarily a component of economic knowledge and skill as specified earlier in this document. For example, such skills as abstraction and deduction, as described in Learning Outcome V, are not assessed separately but in the context of economic problems or scenarios posed in multiple-choice items and constructed-response tasks.

Items will be designed to measure varying levels of proficiency. Less demanding items will be designed to measure an understanding of economic principles (Learning Outcome I). Higher levels of proficiency will be measured by asking students to evaluate the effectiveness of a given policy change or to use an econometric model to predict an outcome (Learning Outcomes II-V).

Language difficulty will be set at or below an appropriate level for final-year first cycle Economics students. Charts, graphs, tables, and econometric models will be used, as appropriate.

Care will be taken to ensure that a range of contexts is employed as one means of controlling for students' interest and prior knowledge. The Economics experts group will help ensure that all scenarios are applicable to all countries and cultures. Real world situations are often extremely complex and involve a number of variables changing simultaneously, requiring a balance between authenticity of context and practicality of assessment when constructing items.

Economic principles are often divided into two major components: macroeconomics and microeconomics. While equal emphasis of these two components is not necessary, great care must be taken in balancing the items such that one is not emphasized at the expense of the other. Item response formats will include:

- multiple-choice: simple and complex items that are answered by selecting one option from a list of 4 choices;
- short constructed-response tasks: items that require the respondent to provide his or her own answer to a series of related questions (completed in 8-10 minutes); and
- long constructed-response tasks: items that require the respondent to provide his or her own answer to a series of related questions (completed in 20-30 minutes) and incorporate multiple learning outcomes.

In this assessment, multiple-choice items can provide a fast and efficient way to collect data on students' economic knowledge, understanding, and skills.

Short and long constructed-response items require students to do more than select the best answer from a variety of options. Rather, students are given a problem and asked to solve the problem, recommend policy, provide explanations, etc. The distinction between short and long

will largely depend on the complexity of the problem and the time needed to respond to all parts of the item.

Marking guides or scoring rubrics for evaluating student responses to items will be constructed based on the components of economics competency identified in the Measurement section of this document. The scoring rubric will specify the points allocated for each part of the task.

In the rubrics, the highest level of scoring will reflect a complete understanding of the problem, be tied to a correct solution, reward thought that shows considerable insight, and reflect work that is clear, appropriate, and fully developed. Such responses should be logically sound, clearly written, and contain no errors. Any examples given should be well chosen and fully developed.

At a slightly lower score level, one might encounter work that demonstrates an understanding of the problem, shows some insight, and provides an acceptable approach, but answers to some parts of the item may be incorrect or not fully developed, or an explanation may be weak.

At an even lower level, one may see work that presents an understanding of the problem at the conceptual level evidenced by the logical approach to complete the task, but major parts of the expected response are missing and/or incorrect. Typically, the response may lack an acceptable explanation or understanding of a graphical or statistical result.

Finally, there will be no credit level for coding a completely incorrect or irrelevant response. Within the scoring at this level, there will be allowance made for distinguishing between students who attempt a given problem and those who submit a blank response. The latter may signal either lack of time or a motivational problem.

The assessment of Learning Outcomes I and II will focus on the concepts listed in Learning Outcome I. The full assessment will include coverage of all concepts; however, due to the more limited time and number of multiple-choice items included, not all concepts will be covered. As many concepts will be covered as allowed by the items approved by the committee for use in the feasibility study, constructed-response tasks will incorporate at least three learning outcomes and may incorporate all five learning outcomes. Concepts covered in Learning Outcome I and II are certain to be included in any constructed-response question. Learning Outcomes III, IV, and/or V will also be covered in any constructed-response task; the learning outcome covered will depend on the focus of the task. The constructed-response tasks typically incorporate a student demonstrating an understanding of some concept (Learning Outcome I) and some application of the concept (Learning Outcome II). In addition the student may be asked to use appropriate data and quantitative methods (Learning Outcome III). Learning Outcome IV (ability to communicate) will also be assessed in a constructed-response task. The ability to acquire independent learning skills may not be included in any constructed-response tasks.

Not all components of the five learning outcomes will be assessed in the Economics assessment, in part due to the time constraint, and in part due to the nature of a paper-and-pencil or even a computer assessment. For example, communicating with nonexperts orally will not be assessed. Other learning outcomes are more applicable to constructed-response tasks rather than multiple-choice items.

Below is a table summarizing the approximate percentage of multiple-choice items covering each of the learning outcomes.

**Table 1: Distribution of multiple-choice items**

Learning outcome	I	II	III	IV	V
Multiple-choice items (%)	25%	45%	20%	5%	5%

**FUNCTIONALITY PROVIDED BY COMPUTER DELIVERY**

Due to budgetary constraints, the initial pilot study will take the form of a pencil-and-paper instrument administered in participating countries. For future studies, the plan is for the assessment to be administered via computer. Doing so has several benefits, as outlined in the next few paragraphs.

Items could be delivered in a fixed order or lockstep fashion. The lockstep procedure means that students are not able to return to an item once they have moved to the next one. Each time students click the Next button a dialog box will display a warning that they are about to move on to the next item and that it will not be possible to return to the previous item. At this point, students can either confirm they want to move on or cancel the action and return to the current item. Development of the Economics assessment will need to reflect whether this option is appropriate.

A principal benefit of measuring economics competency by computer is that dynamic and current stimulus material can be provided, including visuals such as real world data files or bases. Students could be required to use actual data to respond to a problem and/or determine how actual variables will change with a change in policy. Providing this real world simulation, which students would see in advanced schooling or in actual work, would be advantageous.

A further benefit is the opportunity to capture and measure data that relate to processes and strategies. With appropriate authoring, it will be possible to record data such as the type, frequency, length, and sequence of actions performed by students.

Another possible benefit is that the time students spend on any particular item can be restricted where it is considered appropriate. This is particularly useful in contexts where students are exploring stimulus material interactively.

With a computer-based assessment, the multiple-choice items may be scored immediately.

For any responses that cannot be coded automatically, the responses will be collected by the computer-delivery system and saved in an appropriate format. An online coding system will be developed to facilitate the coding (by experts) of these saved files. This eliminates the need for

separate data entry, minimizes the need for data cleaning, and allows coding to take place off site, if desired.

While Economics graduates would be expected to be familiar with various software packages, detailed knowledge of particular software will not be assumed in the assessment. Only basic skills will be assumed, such as keyboard use, manipulating a pointer (via a mouse), clicking option buttons, drag and drop, scrolling, and use of pull-down menus and hyperlinks. However, knowledge of specific statistical and graphing software may be appropriate.

## **CALCULATORS**

This assessment does not focus on students' ability to perform calculations. For the mini-assessment, the items were constructed such that students do not need a calculator. However, some items might be easier with a calculator. A decision about whether a calculator should be allowed for this Economics assessment should be made with care since many calculators have virtually the same functionality as a computer. Allowing the students to have computer access during the assessment is undesirable and would invalidate the results. If calculators are to be permitted, great care should be taken in describing the functionality of the calculator, and great oversight at the assessment would be required to assure all students have the same calculator functionality and no other electronic devices, such as cell phones, personal digital assistants (PDAs) etc., be brought to the assessment.

If the assessment is given on computer in the future, consideration should be given to including a calculator as part of the software of the assessment so that all students have the same calculator functionality.

## **REPORTING ECONOMICS COMPETENCY**

Similar to the PISA reporting practice results will be reported on a scale constructed using a generalized form of the Rasch model. Underlying the construction of a scale are several assumptions: (1) that there is a latent trait (as specified in the framework) that can be represented by a continuous variable and is possessed by test takers; (2) that test items can be constructed that require the test taker to use this trait in responding to items; and (3) that the amount of the trait possessed by test takers is a function of the score they receive on the test.

The form of the Rasch model that will be used employs the scores obtained by students to produce estimates for both the difficulty of items and the ability of students on a single real-valued scale. The scale is constructed so as to have a mean score of 500 and standard deviation of 100; accordingly, about two-thirds of the test takers would score between 400 and 600 points.

The scale will be divided into levels (bands) of equal width, with an unbounded region at each end of the scale. Each band corresponds to a student proficiency level (or, alternatively, an item difficulty level). Information about the items at each level is then used to develop descriptions characterizing typical student performance at each level. The specific constituent learning outcomes of the competency components will be very useful as the basis of these descriptors.

It is expected that five levels of proficiency will be able to be identified and described to show individual economic competency. The model and scaling methods allow the linking of measures of student performance with background data, where available, such as gender, socioeconomic standing, geographical location, and institution attended. This enables statistical comparisons of population means among students grouped by these background factors. For example, comparisons of performance among participating institutions would be possible.

In assessments with a large enough number of items responded to, it is sometimes possible to collect sufficient data to create subscales (e.g., macroeconomics, microeconomics) based on independent components within a domain. It is unlikely that for this feasibility study there will be enough such items to report on potential economics subscales.

Item difficulty will depend on a number of variables, including the following:

- context, including familiarity and concreteness of context;
- complexity of problem;
- number of constraints present;
- amount/coherence of information; and
- number of steps in reaching an answer.

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## **ANNEX A: ECONOMICS EXPERT GROUP**

A group of experts drawn from participating countries and key international organisations will be supporting the team in developing the framework and assessment instruments. The membership comprises the following experts:

- Professor Cecilia Conrad, United States (Chair)
- Professor William Becker, United States
- Professor Fiorella Kostoris, Italy
- Professor Maria de Lourdes Dieck-Assad, Mexico
- Professor Henriëtte Maassen van den Brink, The Netherlands
- Professor Tatsuya Sakamoto, Japan
- Professor Vladimir Zuev, Russia

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**APPENDIX 2: AHELO ECONOMICS ASSESSMENT BROCHURE**

**Subject competence**

Key economic concepts, microeconomic concepts, macroeconomic principles.

**Application to real world problems**

Effective application of economic reasoning and methods of analysis to specific topic areas.

**Effective use of data and methods**

Use of quantitative and qualitative data from primary and secondary sources and methods of processing data.

**Communication**

Effective communication and explanation of economic arguments.

**Independent learning skills**

Thinking reflectively and critically and to pose and carry out investigations of specific problems.



Further information:  
[www.oecd.org/edu/ahelo](http://www.oecd.org/edu/ahelo)

**Economics  
Assessment**

## **Economics Assessment**

The Organisation for Economic Cooperation and Development (OECD) is conducting the Assessment of Higher Education Learning Outcomes (AHELO) to test the feasibility of assessing bachelor degree learning outcomes in Economics across different cultural, linguistic and institutional contexts.

The **Economics Assessment** aims to measure whether students close to graduating from a higher education first degree have the competencies required to apply their economics knowledge in effective professional practice.

This test has been internationally developed and validated for the OECD by the Educational Testing Service (ETS) in Princeton USA, with supervision from globally recognised experts on economics education.

## **Test format**

The test is an online instrument of 90 minutes duration, composed of two modules.

Section one: Students are presented with one constructed response task which takes 30 minutes to complete and incorporates multiple learning objectives.

Section two: Students are requested to complete 45 multiple choice items assessing economics reasoning. Completion takes 60 minutes.

## **Test focus**

AHELO's **Economics Assessment** focuses on 'above content' knowledge and skills. Rather than assess achievement against curriculum this test looks at whether students have the capacity to use acquired knowledge and skills to solve concrete, novel and real-world problems.

Items are designed to measure varying levels of proficiency. A range of context variables are employed to control for students' interest and prior knowledge.

The test incorporates important aspects of economics competency activated when a student tackles an assessment item, including subject competence, application to real world problems and effective use of data and quantitative methods.

