

**OFFICE OF QUALITY PROFESSIONALS AND SPECIAL SCHOOLS**  
**Summary of State Board of Education Items**  
**February 16-17, 2012**

**EDUCATOR LICENSURE**

17. Approval to begin the Administrative Procedures Act Process:  
To Approve A New Praxis Test for Economics and Cut Score as  
Recommended by the Commission on Teacher and Administrator Education,  
Certification and Licensure Development

**Specifications:**

In March of 2009, the State Board approved a new Praxis test for Mississippi in the subject of Economics – the Praxis II test 0910 for Economics with a passing score of 490. During the 2011 testing year, Educational Testing Service conducted a national standard setting study to regenerate the Economics test. Mississippi sent three Economics experts to participate in this standard setting study in Princeton, New Jersey. At the January 6, 2012 meeting of the Certification Commission, the members approved the new Economics test 0911 with a recommended national score of 150. This new test will replace the current 0910 test upon approval.

Back-up material attached

Recommendation: Approval

Attached:

1. ETS report from national standard setting with recommended cut scores
2. Licensure guideline page 31 – list of approved Praxis exam with recommended new tests
3. Licensure guidelines page 30 – list of supplemental endorsements added by Praxis

<b>APPENDIX B:</b> <b>PRAXIS II EXAMINATION SCORES REQUIRED BY MISSISSIPPI</b> Praxis test numbers in bold print
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<b>SPECIALTY AREA TEST CODE</b>	<b>SCALED SCORE</b>
Art Education (0133)	139
Audiology (0340)	610
Biology (0235)	150
Business Education (0100)	560
Chemistry (0245)	151
Early Childhood Education (Child Development Pre-K and K only) (0021)	165
<b>Economics (0910)</b>	<b>490</b>
Elementary Education (K-6) (0011)	158
Elementary Education (4-8) (0014) <b>Alternate Route Only</b>	153
Emotionally Disturbed/Behavior Disorders (0371)	150
English Language and Literature (0041)	157
French (0171)	161
German (0182)	160
Guidance and Counseling (0420)	580
<b>Health Education (0550)</b>	<b>600</b>
Hearing Disability (0271)	151
Home Economics/Family & Consumer Science (0121)	153
<b>Latin (0600)</b>	<b>610</b>
Library Media Specialist (0310)	590
Marketing (0561)	151
Mathematics (0061)	123
Middle Grade Math (0069) <i>supplemental only</i>	140
Middle Grade Language Arts (0049) <i>supplemental only</i>	145
Middle Grade Social Studies (0089) <i>supplemental only</i>	140
Middle Grade Science (0439) <i>supplemental only</i>	135
Music Education (0113)	139
Physical Education (0091)	138
<b>Physical Science (0481)</b>	<b>147</b>
Physics (0265)	139
School Leaders Licensure Assessment (1010)	165
School Psychologist (0401)	154
Social Studies (0081)	143
Spanish (0192)	155
Special Education (0353)	136
Special Education <b>Alternate Route Only</b> (0352)	139
Special Education Fundamental Subjects HQ (0511)	142
Speech Communication (0220)	510
Speech/Language Pathology (0330)	600
Technology Education (0050)	560
Visually Impaired (0280)	660

**APPENDIX C:  
PRAXIS I & PRAXIS II PLT SCORES**

**PRAXIS I REQUIREMENTS FOR EDUCATOR LICENSURE**

<b>PRE-PROFESSIONAL SKILLS TEST</b>	<b>PASSING SCORE</b>
Reading (0710 or 5710)	170
Writing (0720 or 5720)	172
Mathematics (0730 or 5730)	169

**PRAXIS II REQUIREMENTS FOR EDUCATOR LICENSURE**

*(For Approved Teacher Education Program Candidates only)*

<b>PRINCIPLES OF LEARNING AND TEACHING (PLT)</b>	<b>PASSING SCORE</b>
Grade Level K-6 (0522)	152
Grade Level 5-9 (0523)	152
Grade Level 7-12 (0524)	152

**APPENDIX A:  
SUPPLEMENTAL ENDORSEMENTS THAT MAY BE ADDED TO A VALID  
MISSISSIPPI LICENSE**

**Supplemental Endorsements Added By Praxis II**

<u>CODE</u>	<u>AREA</u>
102	Art Education
181	Biology Education
105	Business
185	Chemistry
119	English
130	French
134	German
<b>135</b>	<b>Latin</b>
<b>143</b>	<b>Health Education K-12</b>
208	Hearing Disability K-12
322	Home Economics
440	Library/Media
318	Marketing
154	Mathematics
901	Math 7-8
902	Language Arts 7-8
903	Social Studies 7-8
904	Science 7-8
166	Music Education
144	Physical Education
<b>182</b>	<b>Physical Science</b>
189	Physics
192	Social Studies
<b>193</b>	<b>Economics</b>
140	Spanish
221	Special Education ( <i>Mildly/Moderately Disabled—K-12</i> )
910	Special Education Fundamental Subjects
196	Speech Communications
218	Visually Impaired K-12

**Supplemental Endorsements  
Added by Completion of Approved Program  
(Institutional Program Verification required)**

<u>CODE</u>	<u>AREA</u>
111	Computer Applications
114	Driver Education
117	Elementary Education (4-8)
143	Health Education
150	Nursery-Grade 1 (N-1)
152	Elementary Education (K-4)
174	Reading
177	English as a Second Language
182	Physical Science
193	Economics
207	Gifted
208	Hearing Impaired (K-12)
218	Visually Impaired (K-12)
221	Mild/Moderate Disability (K-12)
222	Severe Disability (K-12) added to 221 only
223	Mild/Moderate Disability (K-8) added to elementary only
224	Mild/Moderate Disability (7-12) added to secondary or special subject license only
314	Vocational Guidance(added only to 436)
317	Cooperative Education(added to vocational license only)
328	Child Care (only added to 322 or 321—Home Economics)
329	Aging Services (only added to 322 or 321—Home Economics)
330	Clothing (only added to 322 or 321— Home Economics)
331	Food Production, Management, and Services (only added to 322 or 321— Home Economics)
440	Library/Media

**Supplemental Endorsements  
Added with 21 Hours of Coursework in Subject  
(Course work must have a grade of “C” or higher)**

<u>CODE</u>	<u>AREA</u>
102	Art Education
104	Bible
105	Business Education
119	English
123	Drama (Performing Arts)
130	French
134	German
135	Latin
136	Italian
139	Russian
140	Spanish
144	Physical Education
149	Journalism
154	Mathematics
165	Music Education Instrumental
166	Music Education Vocal
171	Psychology
181	Biology
185	Chemistry
188	General Science
189	Physics
192	Social Studies
193	Economics
196	Speech Communications
302	Agriculture
318	Marketing
322	Home Economics

**Supplemental Endorsements  
Added by Completion of MDE Approved Module, Course or  
Workshop (IC3 test required)**

<u>CODE</u>	<u>AREA</u>
955	Management
956	Marketing & Economics
961	Health Services
966	Automotive Service
971	Teacher Academy
972	Culinary Arts
976	Manufacturing
977	Construction Technology
981	ICT I
982	ICT II
983	STEM
992	Agri & Envir Sci/Tech
994	Technology Applications
995	Work-Based Learning
996	Career Discovery
997	Computer Discovery
998	Technology Discovery

**Supplemental Endorsements  
Added by Completion of MDE Approved  
Math & Science Partnerships**

<u>CODE</u>	<u>AREA</u>
Added to Elementary or Special Education licenses only:	
901 or 905	Math 7-8
904 or 908	Science 7-8



*Listening. Learning. Leading.*

Multi-State Standard Setting Technical Report

**PRAXIS™ ECONOMICS (0911)**

Educational and Credentialing Research

Educational Testing Service

Princeton, New Jersey

October 2011

## **Executive Summary**

To support the decision-making process for state departments of education with regards to establishing a passing score, or cut score, for the Praxis™ Economics (0911) test, research staff from Educational Testing Service (ETS) designed and conducted a multi-state standard-setting study. The study also collected content-related validity evidence to confirm the importance of the content specifications for entry-level economics teachers.

## **Participating States**

Panelists from five states were recommended by state departments of education to participate on an expert panel. The state departments of education recommended panelists with (a) education experience, either as economics teachers or college faculty who prepare economics teachers and (b) familiarity with the knowledge and skills required of beginning economics teachers.

## **Recommended Cut Scores**

The recommended passing score is provided to help state departments of education determine an appropriate operational passing score. For the Praxis Economics test, the recommended passing score is 54 (on the raw score metric), which represents 60% of the total available 90 raw score points. The scaled score associated with a raw score of 54 is 150 (on a 100 - 200 scale).

## **Summary of Content Specification Judgments**

Panelists judged the extent to which the knowledge and skills reflected by the content specifications were important for entry-level economics teachers. The favorable judgments of the panelists provided evidence that the content covered by the test is important for beginning practice.

To support the decision-making process for state departments of education with regards to establishing a passing score, or cut score, for the Praxis™ Economics (0911) test, research staff from Educational Testing Service (ETS) designed and conducted a multi-state standard-setting study. The study also collected content-related validity evidence to confirm the importance of the content specifications for entry-level economics teachers. Panelists were recommended by state departments of education<sup>1</sup> to participate on an expert panel. The state departments of education recommended panelists with (a) education experience, either as economics teachers or college faculty who prepare economics teachers and (b) familiarity with the knowledge and skills required of beginning economics teachers.

Five states (see Table 1) were represented by 11 panelists. (See Appendix A for the names and affiliations of the panelists.) The panel was convened in September 2011 in Princeton, New Jersey.

**Table 1**

*Participating States and Number of Panelists*

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Maryland (1 panelist)	Wisconsin (3 panelists)
Mississippi (3 panelists)	Wyoming (2 panelists)
North Dakota (2 panelist)	

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The following technical report is divided into three sections. The first section describes the content and format of the test. The second section describes the standard-setting processes and methods. The third section presents the results of the standard-setting study.

The passing-score recommendation for the Praxis Economics test is provided to each of the represented state departments of education. In each state, the department of education, the state board of education, or a designated educator licensure board is responsible for establishing the final passing score in accordance with applicable state regulations. The study provides a recommended passing score, which represent the combined judgments of a group of experienced educators. The full range of a state department of education’s needs and expectations cannot likely be represented during the standard-setting study. Each state, therefore, may want to consider the recommended passing score and other sources of information when setting the final Praxis Economics passing score (see Geisinger &

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<sup>1</sup> State departments of education that currently use one or more Praxis tests were invited to participate in the multi-state standard-setting study.

McCormick, 2010). A state may accept the recommended passing score, adjust the score upward to reflect more stringent expectations, or adjust the score downward to reflect more lenient expectations. There is no *correct* decision; the appropriateness of any adjustment may only be evaluated in terms of its meeting the state's needs.

Two sources of information to consider when setting the passing score are the standard errors of measurement (SEM) and the standard errors of judgment (SEJ). The former addresses the reliability of Praxis Economics test score and the latter, the reliability of panelists' passing-score recommendations. The SEM allows a state to recognize that a Praxis Economics test score—any test score on any test—is less than perfectly reliable. A test score only approximates what a candidate *truly* knows or *truly* can do on the test. The SEM, therefore, addresses the question: How close of an approximation is the test score to the *true* score? The SEJ allow a state to consider the likelihood that the recommended passing score from the current panel would be similar to the passing score recommended by other panels of experts similar in composition and experience. The smaller the SEJ the more likely that another panel would recommend a passing score for a test consistent with the recommended passing score. The larger the SEJ, the less likely the recommended passing score would be reproduced by another panel.

In addition to measurement error metrics (e.g., SEM, SEJ), each state should consider the likelihood of classification error. That is, when adjusting a passing score, policymakers should consider whether it is more important to minimize a false positive decision or to minimize a false negative decision. A false positive decision occurs when a candidate's test score suggests he should receive a license/certificate, but his actual level of knowledge/skills indicates otherwise (i.e., the candidate does not possess the required knowledge/skills). A false negative occurs when a candidate's test score suggests that she should not receive a license/certificate, but she actually does possess the required knowledge/skills. The state needs to consider which decision error may be more important to minimize.

## **Overview of the Praxis Economics Test**

The Praxis Economics *Test at a Glance* document (ETS, in press) describes the purpose and structure of the test. In brief, the test measures whether entry-level economics teachers have the knowledge and skills believed necessary for competent professional practice. A National Advisory



Committee of expert practitioners and preparation faculty defined the content of the test, and a national survey of the field confirmed the content.

The two hour assessment contains 110 multiple-choice questions<sup>2</sup> covering three content areas: *Fundamental Economic Concepts* (approximately 22 questions), *Microeconomics* (approximately 49 questions), and *Macroeconomics* (approximately 39 questions)<sup>3</sup>. The reporting scale for the Praxis Economics test ranges from 100 to 200 scaled-score points.

The first national administration of the new Praxis Economics test will occur in fall 2012.

## **Processes and Methods**

The following section describes the standard-setting processes and methods. (The agenda for the panel meetings are presented in Appendix B.) The panelists were sent an e-mail explaining the purpose of the standard-setting study and requesting that they review the test content specifications for the test (included in the *Test at a Glance* document, which was attached to the e-mail). The purpose of the review was to familiarize the panelists with the general structure and content of the test.

The standard-setting study began with a welcome and introduction by the meeting facilitator. The facilitator explained how the test was developed, provided an overview of standard setting, and presented the agenda for the study.

### **Reviewing the Test**

The first activity was for the panelists to “take the test.” (Each panelist had signed a nondisclosure form.) The panelists were given approximately an hour and a half to respond to the multiple-choice questions. (Panelists were instructed not to refer to the answer key while taking the test.) The purpose of “taking the test” was for the panelists to become familiar with the test format, content, and difficulty. After “taking the test,” the panelists checked their responses against the answer key.

The panelists then engaged in a discussion of the major content areas being addressed by the test; they were also asked to remark on any content areas that they thought would be particularly challenging for entering economics teachers, and areas that addressed content that would be particularly important for entering economics teachers.

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<sup>2</sup> Twenty of the 110 multiple-choice questions are pretest questions and do not contribute to a candidate’s score.

<sup>3</sup> The number of questions for each content area may vary slightly from form to form of the test.

## **Defining the Just Qualified Candidate**

Following the review of the test, panelists developed the definition of the Just Qualified Candidate (JQC). The JQC is the test taker who has the minimum level of knowledge believed necessary to be a qualified economics teacher. The JQC definition is the operational definition of the passing score. The goal of the standard-setting process is to identify the test score that aligns with this definition of the JQC.

The panelists were split into smaller groups, and each group was asked to write down their definition of a JQC. Each group referred to the Praxis Economics *Test at a Glance* to guide their definition. Each group posted its definition on chart paper, and a full-panel discussion occurred to reach a consensus on a definition (see Appendix C for the definition).

## **Panelists' Judgments**

The standard-setting process for the Praxis Economics test was a probability-based Angoff method (Brandon, 2004; Hambleton & Pitoniak, 2006). In this approach, for each question, a panelist decides on the likelihood (probability or chance) that a JQC would answer it correctly. Panelists made their judgments using the following rating scale: 0, .05, .10, .20, .30, .40, .50, .60, .70, .80, .90, .95, 1. The lower the value, the less likely it is that a JQC would answer the question correctly, because the question is difficult for the JQC. The higher the value, the more likely it is that a JQC would answer the question correctly.

The panelists were asked to approach the judgment process in two stages. First, they reviewed the definition of the JQC and the question and decided if, overall, the question was difficult for the JQC, easy for the JQC, or moderately difficult/easy. The facilitator encouraged the panelists to consider the following rule of thumb to guide their decision:

- difficult questions for a JQC were in the 0 to .30 range;
- moderately difficult/easy questions for a JQC were in the .40 to .60 range; and
- easy questions for a JQC were in the .70 to 1 range.

The second decision was for panelists to decide how they wanted to refine their judgment within the range. For example, if a panelist thought that a question was easy for a JQC, the initial decision located the question in the .70 to 1 range. The second decision was for the panelist to decide if the

likelihood of answering it correctly was .70, .80, .90, .95, or 1.0. The two-stage decision-process was implemented to reduce the cognitive load placed on the panelists. The panelists practiced making their standard-setting judgments on four questions on the test.

The panelists engaged in two rounds of judgments. Following Round 1, question-level feedback was provided to the panel. The panelists' judgments were displayed for each question. The panelists' judgments were summarized by the three general difficulty levels (0 to .30, .40 to .60, and .70 to 1), and the panel's average question judgment was provided. Questions were highlighted to show when panelists converged in their judgments (at least two-thirds of the panelists located a question in the same difficulty range) or diverged in their judgments. Panelists were asked to share their rationales for the judgments they made. Following this discussion, panelists were provided an opportunity to change their question-level standard-setting judgments (Round 2).

### **Judgment of Content Specifications**

In addition to the two-round standard-setting process, each panel judged the importance of the knowledge and skills stated or implied in the content specifications for the job of an entry-level economics teacher. These judgments addressed the perceived content-based validity of the test. Judgments were made using a four-point scale — *Very Important*, *Important*, *Slightly Important*, and *Not Important*. Each panelist independently judged the knowledge categories and knowledge statements. Those data are included in Appendix D (see Table D1).

## **Results**

### **Expert Panel**

The panel included 11 educators representing five states. (See Appendix A for a listing of panelists.) In brief, seven panelists were teachers, one was college faculty, two were administrators or department heads, and one was a representative of a state chapter of the Council on Economics Education. The one panelist who was college faculty was currently involved in the training or preparation of economics teachers. Ten panelists were White and one was Black or African American. Seven panelists were male. Of the panelists who indicated they were currently teachers, almost all of the panelists (six of the seven panelists) had 11 or fewer years of experience as a teacher.

**Table 2*****Panel Member Demographics***

	<i>N</i>	<i>%</i>
<b>Current Position</b>		
Teacher	7	64%
Administrator/Department Head	2	18%
College Faculty	1	9%
State CEE Representative	1	9%
<b>Race</b>		
White	10	91%
Black or African American	1	9%
<b>Gender</b>		
Female	4	36%
Male	7	64%
<b>Are you currently certified to teach economics in your state?</b>		
Yes	6	55%
No	1	9%
Not currently teaching at the K-12 level	4	36%
<b>At what K-12 grade level are you currently working<sup>‡</sup>?</b>		
Grade 8	1	9%
Grade 9	3	27%
Grade 10	3	27%
Grade 11	5	45%
Grade 12	6	55%
Not currently teaching at the K-12 level	4	36%

<sup>‡</sup> Panelists indicating they were currently teachers were asked to list all of the grades they teach.

**Table 2 (continued)**

***Panel Member Demographics***

	<i>N</i>	<i>%</i>
<b>How many years of experience do you have?</b>		
3 years or less	3	27%
4 - 7 years	0	0%
8 - 11 years	3	27%
12 - 15 years	0	0%
16 years or more	1	9%
Not currently teaching at the K-12 level	4	36%
<b>Which best describes the location of your K-12 school?</b>		
Urban	3	27%
Suburban	3	27%
Rural	3	27%
Not currently working at the K-12 level	2	18%
<b>If you are college faculty, are you currently involved in the training/preparation of special education teachers?</b>		
Yes	1	9%
No	0	0%
Not college faculty	10	91%

**Initial Evaluation Forms**

The panelists completed an initial evaluation after receiving training on how to make standard-setting judgments. The primary information collected from this form was the panelists indicating if they had received adequate training to make their standard-setting judgments and were ready to proceed. All panelists indicated that they were prepared to make their judgments.

**Summary of Standard-setting Judgments**

A summary of standard-setting judgments (Round 2) are presented in Table 3. The numbers in the table summarize the recommended passing scores—the number of raw points needed to “pass” the test. The panel’s average recommended passing score and highest and lowest passing scores are reported, as are the standard deviations (SD) of panelists’ passing scores and the standard errors of judgment (SEJ).

The SEJ is one way of estimating the reliability of the judgments<sup>4</sup>. It indicates how likely it would be for other panels of educators similar in makeup, experience, and standard-setting training to the current panel to recommend the same passing score on the same form of the test. A comparable panel's passing score would be within 1 SEJ of the current average passing score 68 percent of the time.

Round 1 judgments are made without discussion among the panelists. The most variability in judgments, therefore, is typically present in the first round. Round 2 judgments, however, are informed by panel discussion; thus, it is common to see a decrease both in the standard deviation and SEJ. This decrease — indicating convergence among the panelists' judgments — was observed. The Round 2 average score is the panel's recommended passing score.

The panel's passing score recommendation for the Praxis Economics test is 53.38 (out of a possible 90 raw-score points). The value were rounded to 54, the next highest whole number, to determine the functional recommended cut score. The scaled score associated with 54 raw points is 150.

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<sup>4</sup> An SEJ assumes that panelists are randomly selected and that standard-setting judgments are independent. It is seldom the case that panelists are randomly sampled, and only the first round of judgments may be considered independent. The SEJ, therefore, likely underestimates the uncertainty of passing scores (Tannenbaum & Katz, in press).

**Table 3***Passing Score Summary by Round of Judgments*


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<b>Panelist</b>	<b>Round 1</b>	<b>Round 2</b>
1	47.00	53.60
2	46.15	46.75
3	47.35	53.45
4	58.05	56.25
5	53.90	51.90
6	64.90	61.60
7	36.65	41.20
8	64.85	61.60
9	67.90	59.75
10	54.30	52.40
11	48.25	48.70
<b>Average</b>	53.57	53.38
<b>Median</b>	53.90	53.45
<b>Lowest</b>	36.65	41.20
<b>Highest</b>	67.90	61.60
<b>SD</b>	9.66	6.34
<b>SEJ</b>	2.91	1.91

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Table 4 presents the estimated conditional standard error of measurement (CSEM) around the recommended passing score. A standard error represents the uncertainty associated with a test score. The scaled score associated with 1 and 2 CSEMs above and below the recommended passing score are provided. The conditional standard errors of measurement provided are estimates, given that the Praxis Economics test has not yet been administered operationally.

**Table 4**  
***Passing Scores Within 1 and 2 CSEMs of the Recommended Passing Score<sup>5</sup>***

<b>Recommended passing score (CSEM)</b>		<b>Scale score equivalent</b>
	54 (4.67)	150
- 2 CSEMs	45	136
-1 CSEM	50	144
+1 CSEM	59	158
+ 2 CSEMs	64	166

### **Summary of Content-specification Judgments**

Panelists judged the extent to which the knowledge and skills reflected by the content specifications was important for entry-level economics teachers. Panelists rated the knowledge/skill statements on a four-point scale ranging from *Very Important* to *Not Important*. The panelists' ratings are summarized in Appendix D (see Table D1).

The knowledge/skill statements are categorized into one of the three major content areas. All eight of the statements defining *Fundamental Economics Concepts* were judged to be *Very Important* or *Important* by at least ten of the 11 panelists who responded. For *Microeconomics*, 27 of the 30 statements were judged to be *Very Important* or *Important* by at least half of the panelists who responded; 22 of the 30 statements were judged at this level by at least two-thirds for the panelists. For *Macroeconomics*, 28 of the 30 statements were judged to be *Very Important* or *Important* by at least half of the panelists who responded; 19 of the 30 statements were judged at this level by at least two-thirds for the panelists.

### **Summary of Final Evaluations**

The panelists completed an evaluation form at the conclusion of their standard-setting study. The evaluation form asked the panelists to provide feedback about the quality of the standard-setting implementation and the factors that influenced their decisions. Results of the final evaluations are presented in Appendix D.

<sup>5</sup> The unrounded CSEM value is added to or subtracted from the rounded passing score recommendation. The resulting values are rounded up to the next highest whole number and the rounded values are converted to scaled scores.



All panelists *agreed* or *strongly agreed* that they understood the purpose of the study and that the facilitator's instructions and explanations were clear. All panelists *agreed* or *strongly agreed* that they were prepared to make their standard-setting judgments and that the standard-setting process was easy to follow.

All panelists reported that the definition of the JQC was *very influential* in guiding their standard-setting judgments. All of the panelists reported that between-round discussions were at least *somewhat influential* in guiding their judgments. All of the panelists indicated that the knowledge/skills required to answer each question was at least *somewhat influential* in guiding their judgments.

All of the panelists indicated they were at least *somewhat comfortable* with the passing score they recommended; eight of the eleven panelists were *very comfortable*. Nine of the 11 panelists indicated the recommended passing score was *about right* with two remaining panelists believing the passing score was *too high*.

## **Summary**

To support the decision-making process for state departments of education with regards to establishing a passing score, or cut score, for the Praxis Economics (0911) test, research staff from Educational Testing Service designed and conducted a multi-state standard-setting study. The study also collected content-related validity evidence to confirm the importance of the content specifications for entry-level economics teachers.

The recommended passing score is provided to help state departments of education determine an appropriate operational passing score. For the Praxis Economics test, the recommended passing score is 54 (out of a possible 90 raw-score points). The scaled score associated with a raw score of 54 is 150 (on a 100 - 200 scale).

Panelists judged the extent to which the knowledge and/or skills reflected by the content specifications was important for entry-level economics teachers. The favorable judgments of the panelists provided evidence that the content covered by the subtests is important for beginning practice.

## References

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**Appendix A**  
**Panelists' Names & Affiliations**

## Praxis Economics

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### Panelist

Evan R. Bock  
Vanessa DeCoteau  
Lynnette Forcella  
Thomas Fugate  
Tommie Gillispie  
Robert A. Handy  
Christie Klun  
Andrew Lach  
Brian Schultz  
Selena Swartzfager  
James Wilcox

### Affiliation

Douglas Middle School (WY)  
Century High School (ND)  
Greybull High School (WY)  
Homestead High School (WI)  
Forest Hill High School (MS)  
Harford County School System (MD)  
Arrowhead High School (WI)  
Des Lacs\Burlington High School (ND)  
University of Wisconsin-River Falls (WI)  
MS Council on Economic Education (MS)  
University of Southern Mississippi (MS)

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**Appendix B**  
**Study Agenda**

# AGENDA

## Praxis Economics (0911) Standard Setting Study

### Day 1

8:30 – 8:45	Welcome and Introduction
8:45 – 9:15	Overview of Standard Setting & the Praxis Economics Test
9:15 – 11:00	“Take” the Praxis Economics Test
11:00 – 11:30	Discuss the Praxis Economics Test
11:30 – 12:00	Define the Knowledge/Skills of a JQC
12:00 – 12:45	Lunch
12:45 – 2:15	Define the Knowledge/Skills of a JQC (continued)
2:15 – 2:30	Break
2:30 – 3:00	Standard Setting Training
3:00 – 5:00	Round 1 Standard Setting Judgments for Multiple-Choice
5:00 – 5:15	Collect Materials; End of Day 1

# AGENDA

## Praxis Economics (0911) Standard Setting Study

### Day 2

9:00 – 9:15	Overview of Day 2
9:15 – 10:30	Round 1 Feedback & Round 2 Judgments
10:30 – 10:45	Break
10:45 – 12:00	Round 1 Feedback & Round 2 Judgments (continued)
12:00 – 1:00	Lunch
1:00 – 1:30	Specification Judgments
1:30 – 1:45	Feedback on Round 2 Recommended Cut Score
1:45 – 2:00	Complete Final Evaluation
2:00 – 2:15	Collect Materials; End of Study

**Appendix C**  
**Just Qualified Candidate (JQC) Definition**



## Description of a Just Qualified Candidate

### A JQC ...

1. Demonstrates Supply and Demand analysis, such as understanding causes of shifts/movement, how buyers and sellers interact in markets, basic elasticity, impact of price controls (tariffs, subsidies, quotas, ceilings, floors).
2. Interprets and draws basic conclusions (e.g., directional flow of goods/services and money) based on a circular flow diagram.
3. Analyze the impact of trade-offs and opportunity costs on decision making. Illustrate these concepts with the use of production possibility curves (interpret/explain, but not draw) as they are influenced by changes in the factors of production. Can identify absolute and comparative advantage, understanding their relationship to specialization and trade.
4. Identify the major components of GDP. Distinguish between real vs. nominal GDP (adjusting for inflation).
5. Compare and contrast the four types of economic systems.
6. Interpret the impact of scarcity on an economy and understand the need to make choices.
7. Understands the agents (Fed, Congress), goals (e.g., full employment, price stability, economic growth), and tools of fiscal (taxes, gov't spending, both) and monetary policy (discount rates, reserve rates, open market operations).
8. Define foundational economic concepts such as "what is economics," marginal analysis (law of diminishing returns), scarcity, opportunity costs, trade-off, specialization, inflation, and economic interdependence.
9. Understanding costs (fixed, variable) and varying market structures associated with the product and factor markets (e.g., how the conditions impact the markets).
10. Demonstrates basic understanding of the business cycle.
11. Compare and contrast the characteristics of the four basic market structures (monopoly, perfect competition, monopolistic competition, oligopoly).
12. Define the different types of unemployment and how it is measured.
13. Identify advantages and disadvantages of the three main types of business organizations.
14. Define the functions and characteristics of money.

**Appendix D**  
**Results for Praxis Economics**

**Table D1**

*Specification Judgments — Economics*

	Very Important		Important		Slightly Important		Not Important	
	N	%	N	%	N	%	N	%
<b>I. FUNDAMENTAL ECONOMIC CONCEPTS</b>								
1. Understands the concepts of scarcity, choice and opportunity costs and knows the factors of production	10	91%	1	9%	0	0%	0	0%
2. Knows how to apply marginal cost and marginal benefits analysis to decision-making	6	55%	4	36%	1	9%	0	0%
3. Knows how to use the production possibilities model to illustrate the concepts of opportunity costs, economic efficiency, and growth	7	64%	4	36%	0	0%	0	0%
4. Understands absolute advantage and comparative advantage	3	27%	7	64%	1	9%	0	0%
5. Understands specialization, interdependence, and gains from trade	4	36%	6	55%	1	9%	0	0%
6. Knows the types of economic systems and how the basic economic choices are made in each system	8	73%	3	27%	0	0%	0	0%
7. Knows the roles of individuals, businesses, and government in a market economy and knows how to use the circular flow model to show how the different sectors are related	6	55%	5	45%	0	0%	0	0%
8. Knows how to evaluate charts and graphs	7	64%	4	36%	0	0%	0	0%

Table D1

*Specification Judgments — Economics*

	Very Important		Important		Slightly Important		Not Important	
	N	%	N	%	N	%	N	%
<b>II. MICROECONOMICS</b>								
<b>A. Supply and demand</b>	<b>10</b>	<b>91%</b>	<b>1</b>	<b>9%</b>	<b>0</b>	<b>0%</b>	<b>0</b>	<b>0%</b>
1. Knows the definition of a market and the role of incentives	7	64%	4	36%	0	0%	0	0%
2. Understands the law of demand and the relationship between price and quantity supplied	9	82%	2	18%	0	0%	0	0%
3. Knows the difference between individual demand and market demand	2	18%	8	73%	1	9%	0	0%
4. Knows the difference between firm supply and market supply	2	18%	5	45%	4	36%	0	0%
5. Understands the interaction of demand and supply in determining equilibrium price and quantity	11	100%	0	0%	0	0%	0	0%
6. Understands how price guides resource allocation and rations goods and services	5	45%	6	55%	0	0%	0	0%
7. Knows the determinants of demand and supply and how to analyze the effect of a given economic event on equilibrium price and quantity	7	64%	4	36%	0	0%	0	0%
8. Knows how to analyze the effects of government policies (e.g., price ceiling, price floor) on price and output	5	45%	5	45%	1	9%	0	0%
9. Understands the determinants of price elasticity of demand and the meaning of the coefficients of price elasticity of demand	4	36%	6	55%	1	9%	0	0%

**Table D1**

*Specification Judgments — Economics*

	Very Important		Important		Slightly Important		Not Important	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
10. Understands how price elasticity of demand affects the relationship between changes in price and total revenue	2	18%	8	73%	1	9%	0	0%
11. Knows total utility, marginal utility, and the law of diminishing marginal utility	4	36%	6	55%	1	9%	0	0%
<b>B. Product Market</b>	<b>3</b>	<b>27%</b>	<b>8</b>	<b>73%</b>	<b>0</b>	<b>0%</b>	<b>0</b>	<b>0%</b>
1. Understands the relationship among revenues, costs, and economic profits	5	45%	4	36%	2	18%	0	0%
2. Understands the relationship between inputs and outputs and the law of diminishing returns	6	55%	4	36%	1	9%	0	0%
3. Understands how changes in productivity and prices of inputs affect costs (e.g., MC, VC, and FC) in the short run	2	18%	6	55%	3	27%	0	0%
4. Understands long-run costs, economies of scale, and diseconomies of scale	1	9%	3	27%	6	55%	1	9%
5. Understands that profit-maximizing firms produce where marginal cost equals marginal revenue	0	0%	7	64%	3	27%	1	9%
6. Knows the characteristics of perfect competition and understands the distinction between a firm's demand curve and the market demand curve	4	36%	6	55%	1	9%	0	0%
7. Understands why a firm may continue to operate in the short run while incurring losses	1	9%	6	55%	4	36%	0	0%
8. Understands the motive of firms for entering or exiting the perfectly competitive market	2	18%	7	64%	2	18%	0	0%

**Table D1**

*Specification Judgments — Economics*

	Very Important		Important		Slightly Important		Not Important	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
9. Understands the characteristics, sources, and models of a monopoly	5	45%	5	45%	1	9%	0	0%
10. Understands the characteristics of an oligopoly	5	45%	5	45%	1	9%	0	0%
11. Understands the characteristics of monopolistic competition	5	45%	5	45%	1	9%	0	0%
12. Understands the difference between monopoly and perfectly competitive market with respect to price, output, and allocative efficiency. Knows how allocative efficiency is defined	5	45%	4	36%	2	18%	0	0%
13. Knows the different forms of business organization	4	36%	6	55%	1	9%	0	0%
<b>C. Factor Markets</b>	<b>2</b>	<b>18%</b>	<b>8</b>	<b>73%</b>	<b>1</b>	<b>9%</b>	<b>0</b>	<b>0%</b>
1. Understands wage and employment determination in competitive labor markets								
<b>D. Government Policy and Regulation of Markets</b>	<b>1</b>	<b>9%</b>	<b>5</b>	<b>45%</b>	<b>5</b>	<b>45%</b>	<b>0</b>	<b>0%</b>
1. Understands the problems posed by externalities and what the government can do to correct them	2	18%	4	36%	4	36%	1	9%
2. Understands the problems posed by public goods and why private markets fail to provide them	0	0%	8	73%	3	27%	0	0%
3. Knows how antitrust laws are used to promote a competitive market environment	1	9%	2	18%	8	73%	0	0%
4. Knows the different types of taxes and the distinctions among them	3	27%	2	18%	3	27%	3	27%
5. Knows the roles of regulatory agencies (e.g. FDIC, SEC,) in overseeing the activities of financial markets	2	18%	4	36%	4	36%	1	9%

Table D1

*Specification Judgments — Economics*

	Very Important		Important		Slightly Important		Not Important	
	N	%	N	%	N	%	N	%
<b>III. MACROECONOMICS</b>								
<b>A. Economic Performance and Fluctuations</b>	<b>2</b>	<b>18%</b>	<b>4</b>	<b>36%</b>	<b>4</b>	<b>36%</b>	<b>1</b>	<b>9%</b>
1. Knows the definition and meaning of GDP and measures of standards of living	4	36%	7	64%	0	0%	0	0%
2. Understands the distinction between nominal and real values (e.g., GDP, interest rates, and wages)	8	73%	3	27%	0	0%	0	0%
3. Knows the meaning, types, costs, and measurement of unemployment	6	55%	3	27%	2	18%	0	0%
4. Knows the meaning, measurement, and costs of inflation	5	45%	6	55%	0	0%	0	0%
5. Knows how to use a price index, (e.g., CPI, GDP deflator) to convert nominal values to real values	5	45%	6	55%	0	0%	0	0%
6. Knows the meaning of economic growth and its determinants	2	18%	7	64%	2	18%	0	0%
7. Understands the relationship between savings, investment, and economic growth	3	27%	7	64%	1	9%	0	0%
8. Knows the characteristics and phases of the business cycle	2	18%	6	55%	3	27%	0	0%
9. Understands the aggregate demand curve and its components	5	45%	5	45%	1	9%	0	0%
10. Understands the distinction between short-run and long-run aggregate supply and their determinants	2	18%	2	18%	4	36%	3	27%

**Table D1**

*Specification Judgments — Economics*

	Very Important		Important		Slightly Important		Not Important	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
11. Knows how to apply the aggregate demand and aggregate supply model to determine equilibrium price level and output in the short run and in the long run	3	27%	1	9%	6	55%	1	9%
<b>B. Money and Banking and the Federal Reserve System</b>	<b>4</b>	<b>36%</b>	<b>5</b>	<b>45%</b>	<b>2</b>	<b>18%</b>	<b>0</b>	<b>0%</b>
1. Knows the functions of money and various measures of the money supply	8	73%	3	27%	0	0%	0	0%
2. Understands how banks create money	3	27%	5	45%	3	27%	0	0%
3. Understands the structure and functions of the Federal Reserve System	4	36%	7	64%	0	0%	0	0%
4. Understands how the Federal Reserve uses the tools of monetary policy to change the money supply	6	55%	4	36%	1	9%	0	0%
5. Understands the demand for money and its determinants (e.g., interest rates, income)	2	18%	5	45%	4	36%	0	0%
6. Understands the function of financial markets and the basic categories of investment instruments (e.g., stocks, bonds, money markets)	1	9%	6	55%	4	36%	0	0%
7. Knows how to use the money supply-and-demand model to determine the equilibrium interest rate	1	9%	5	45%	3	27%	2	18%



**Table D1**

*Specification Judgments — Economics*

	Very Important		Important		Slightly Important		Not Important	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
<b>C. Fiscal and Monetary Policies</b>	<b>3</b>	<b>27%</b>	<b>7</b>	<b>64%</b>	<b>1</b>	<b>9%</b>	<b>0</b>	<b>0%</b>
1. Knows the definition of government budget surpluses and deficits and their relationship to debt	4	36%	6	55%	0	0%	1	9%
2. Understands the multiplied effects of changes in government spending and changes in taxes	2	18%	4	36%	5	45%	0	0%
3. Understands the goals and tools of fiscal and monetary policies	6	55%	5	45%	0	0%	0	0%
4. Knows how fiscal and monetary policy actions affect aggregate supply and demand	4	36%	3	27%	3	27%	1	9%
5. Knows the appropriate fiscal and monetary policy actions to deal with unemployment (recession) and inflation	5	45%	5	45%	1	9%	0	0%
6. Knows the strengths and weaknesses of fiscal and monetary stabilization policies	3	27%	4	36%	3	27%	1	9%
7. Understands how the economy adjusts to long-run equilibrium in the absence of changes in fiscal or monetary policy	0	0%	6	55%	5	45%	0	0%
8. Knows the definition of full employment and the natural rate of unemployment	3	27%	6	55%	2	18%	0	0%
9. Understands the short-run tradeoff between unemployment and inflation	0	0%	8	73%	3	27%	0	0%

**Table D1**

*Specification Judgments — Economics*

	<b>Very Important</b>		<b>Important</b>		<b>Slightly Important</b>		<b>Not Important</b>	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
<b>D. Macroeconomics of the Open Economy</b>	<b>3</b>	<b>27%</b>	<b>6</b>	<b>55%</b>	<b>2</b>	<b>18%</b>	<b>0</b>	<b>0%</b>
1. Understands comparative advantage and gains from international trade	4	36%	5	45%	2	18%	0	0%
2. Understands the effects of government policies (e.g., tariffs, quotas, subsidies) on domestic and international markets	4	36%	3	27%	3	27%	1	9%
3. Knows how the equilibrium exchange rate is determined and the effects of currency appreciation or depreciation on exports and imports	1	9%	6	55%	3	27%	1	9%

**Table D2****Final Evaluation — *Economics***

	<b>Strongly Agree</b>		<b>Agree</b>		<b>Disagree</b>		<b>Strongly Disagree</b>	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
• I understood the purpose of this study.	9	82%	2	18%	0	0%	0	0%
• The instructions and explanations provided by the facilitators were clear.	11	100%	0	0%	0	0%	0	0%
• The training in the standard setting method was adequate to give me the information I needed to complete my assignment.	9	82%	2	18%	0	0%	0	0%
• The explanation of how the recommended passing score is computed was clear.	8	73%	3	27%	0	0%	0	0%
• The opportunity for feedback and discussion between rounds was helpful.	10	91%	1	9%	0	0%	0	0%
• The process of making the standard setting judgments was easy to follow.	8	73%	3	27%	0	0%	0	0%

**Table D2 (continued)**

**Final Evaluation — *Economics***

<b>How influential was each of the following factors in guiding your standard setting judgments?</b>	<b>Very Influential</b>		<b>Somewhat Influential</b>		<b>Not Influential</b>			
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%		
• The definition of the JQC	11	100%	0	0%	0	0%		
• The between-round discussions	8	73%	3	27%	0	0%		
• The knowledge/skills required to answer each test question	8	73%	3	27%	0	0%		
• The passing scores of other panel members	0	0%	9	82%	2	18%		
• My own professional experience	8	73%	3	27%	0	0%		
	<b>Very Comfortable</b>		<b>Somewhat Comfortable</b>		<b>Somewhat Uncomfortable</b>		<b>Very Uncomfortable</b>	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
• Overall, how comfortable are you with the panel's recommended passing scores?	8	73%	3	27%	0	0%	0	0%
	<b>Too Low</b>		<b>About Right</b>		<b>Too High</b>			
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%		
• Overall, the recommended passing score is:	0	0%	9	82%	2	18%		