

WORKING PAPER

**Semester, Trimester or Block Plan?
Retention of Economics Principles by Undergraduates
on Alternative Curricular Structures**

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Abstract

This paper investigates whether the curricular structure of an Economics course (semester, trimester, or compressed “block” schedule) has an effect on an undergraduate’s subsequent retention of course material. We test separately for theoretical / process comprehension and for graphical construction / interpretation, while separating micro from macro content as well. We use an instrument to address the “no stakes” testing problem, and our Heckman two-stage estimations present some interesting results for educators and institutional policymakers alike.

JEL Codes: A22

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1. Introduction

While the vast majority of U.S. undergraduates take their courses on a semester-based (roughly September to December, then January to May) system, there are several alternative curricular structures available. Some institutions follow a trimester system (approximately September to November, November to March, and March to June), or a quarter system (September to November, November to February, February to April, then April to June). A few employ a creative compressed schedule, comparable to many summer education programs, where students take only one class per month, switching every month (e.g. the Colorado College “Block Plan,” also adopted by Cornell College among others). This leads us to ask an obvious question: does the curricular form of instruction matter, or does the function of an Economics education, prevail equally regardless of format? That is, does a compressed (or even, one might say, an immersion) format serve students equally well in conveying the theory and tools of an Economics education?

Each curricular format offers roughly the same number of classroom contact hours per course, but range from three hours per week over 13 weeks to 15 hours per week over three weeks. Therefore, the effect of these alternative formats on student retention may be dramatically different. We test those differences using a nationwide sample of undergraduate liberal arts students, all of whom have taken at least one Principles course (Micro and/or Macro or a combination principles course), evaluating them after course completion for their retention of economics tools and concepts.

Naturally there is self-selection intrinsic to the question at hand, as students have not been assigned randomly to different curricular formats. Presumably students chose to attend institutions which, among other things, offer a curricular structure appealing to their learning styles. The question still remains as to whether all structures serve their constituents equally effectively. Is retention of subject matter driven by institutional structure, a factor largely out of the control of the teacher or student once a choice of school is made, or does knowledge retention depend on other factors instead?

Studies of student learning and retention are not new in economics, and many can be traced back to the Stigler Hypothesis¹ (1963), namely that exposure to economics courses does nothing for the long-term memory of economics concepts. The types of studies conducted broadly fall into the following categories: retention of introductory economics by college students, retention of college economics by public school teachers, retention of economics by students at different types of institutions, and the impact of microeconomic textbooks on knowledge retention. In general, scholars find minimal long-term memory, in particular for those who took fewer than four courses.

The existing literature has incorporated a wide variety of explanatory variables, testing the importance of each of the following: number of economics courses taken in college, length of time since last course, class standing, gender, age, college major, occupation, interest in economics, reading habits, SAT scores, race, ethnicity, educational aspirations, class size, use of graduate student instructors, and reinforcing coursework in mathematics. Further, a variety of tests and surveys have been utilized to measure

¹ Stigler (1963) wrote, "I propose the following test: Select an adequate sample of seniors (I would prefer men five years out of college), equally divided between those who have never had a course in economics and those who have a conventional one-year course. Give them an examination on current economic problems, not on textbook questions. I predict they will not differ in their performance."

student performance. In addition to study-specific surveys, student retention has been evaluated using a variety of other tests and surveys: Gallup survey, Major Field Test in Business II (MFTB), Test of Economic Understanding (TEU), and several versions of the Test of Understanding in College Economics (TUCE).

The Bach-Saunders (1966) study presents data on high school social studies teachers that had attended five different types of institutions. In comparing students who had taken economics courses with those who did not, their results tended to support Stigler's hypothesis. Saunders (1971; 1980) compared the performance of students who took an introductory economics course with those who had not over three periods of time: immediately following the course, two years after the course and five years after taking the course. Finding a small difference (about 10%) in favor of the alumni with only an introductory economics course provides a weak rebuttal to Stigler's hypothesis. The studies also demonstrate that the effects of an introductory economics courses on student performance diminish over time.

Kohen and Kipps (1979) consider the effect of time on retention and empirically measure the rate of depreciation of a student's stock of economic knowledge, finding annual rates of decay ranging between 13 and 23 percent. The Walstad-Allgood (1999) study investigates the economic knowledge of college seniors, finding those with an economics course scored 14 percentage points higher than those without. At the same time, the performance of those who had taken an economics course was quite disappointing, averaging only 62 percent correct. However, it is worth noting that this is not too far from the posttest mean scores on the TUCE III of 45.3 to 51.2 percent (Saunders, 1991).

Most recently, Pyne (2006) explores whether the choice of introductory microeconomic textbook has a lasting effect on student retention and performance in future economics courses. He finds limited evidence that the choice of text matters though it is impossible to reject the hypothesis that most texts lead to identical results in student retention.

This paper extends the literature's discussion in a new way, exploring the importance of curricular format, while controlling for the same factors that others have used to explore long-term memory of economics principles. Section 2 outlines our method and Section 3 presents our survey data. Section 4 presents the model, Section 5 follows with the estimation results, and Section 6 concludes with implications and suggestions for subsequent work.

2. Method

Given the vast heterogeneity with which Principles courses are taught across the nation, we first decided to curtail our consideration to undergraduates at roughly similar institutions: four-year liberal arts colleges of high national ranking.² We randomly chose fifty such institutions from the top two hundred listed by US News and World Report (2004). Of the fifty invitees, only five agreed to participate: Colorado College, Furman University, Kenyon College, Wellesley College, and Whitman College. All others sent their regrets, citing confidentiality of student email addresses and the desire not to tax their students with too many surveys (other than their own) as their primary concerns.

² It is worth noting that in a study of different institutional types, Bach and Saunders (1966) found that lasting retention was greatest at small liberal arts colleges.

We asked each participating registrar to provide a list of email addresses for students who fit our specific sample requirements: juniors and seniors who had taken at least one Economics course but who were not currently enrolled in an Economics course, and who were not declared majors in Economics, Business, Political Economy, or Mathematical Economics. We limit our sample to upper-level students to minimize the variation in age and college test-taking experience. We sample only students who have taken an Economics course, as other studies (e.g. Bach and Saunders (1966), Saunders (1971), Saunders (1980), and Walstad and Allgood (1999)) have provided ample evidence comparing control groups with no Economics coursework. Finally, we deliberately exclude students majoring in Economics or related disciplines to minimize variation in exposure of the respondents to Economics applications, and to target the specific population we have in mind, namely students with rudimentary education in the discipline. By selecting juniors and seniors only, we also minimize the chance that we have potential Economics majors in the sample who are as yet undeclared, although that possibility still exists, so in the survey which follows we control for the number of related courses they have taken.

We emailed an invitation to participate to each student, providing a link to a third-party surveying Web site with the promise of a randomly assigned \$50 prize to five participants. Given this structure, our results are clearly subject to the low-stakes testing problem, widely referenced in the education literature as a challenge to most forms of standardized testing (e.g. Wise and DeMars, 2005). In the absence of an incentive to take the questions seriously, we have little confidence that all students approached the survey with an equal degree of attention. Furthermore, survey invitations came from an email

address at either Colorado College or Wellesley College, which may have had an impact on the willingness of students at those institutions to respond. Unbeknownst to the respondents, we recorded the amount of time each respondent took to complete the online survey and use it in the following section as an (imperfect) indicator of the seriousness with which respondents answered the questions posed.

The survey consisted of 25 to 41 questions (depending on whether the respondent took one principles course or two). The full survey is included in the appendix. It begins with four questions to confirm eligibility: junior/senior status, one or more Economics principles courses taken, major, and confirmation that the respondent was not currently taking an Economics course. Any respondent not answering all questions as needed for our sample was politely dismissed from the process and blocked from responding to any further questions. For those respondents continuing on, five questions investigate their status: grade point average, gender, foreign student status, number of high school and college courses taken abroad, and number of courses in Economics beyond Principles. Next, six questions are asked about each Principles-level class taken: how many months ago it took place, what curricular structure it used (semester, trimester, quarter or compressed schedule), how much effort the student contributed in hours per day, class size, a rating of the instructor, and a rating of the text. All descriptive questions were asked in the form of multiple choice, with the exception of grade point average where a precise number was requested. Notice that all variables are therefore recorded by Likert scale (i.e., very much = 6, very little = 1) rather than text-based responses.

Finally, in order to ensure impartiality of the knowledge-based questions, twenty multiple-choice questions from the College Board's Advanced Placement 2005/6 test

were selected (ten for Micro, and ten for Macro). The questions cover standard topics: comparative statics of Demand and Supply; profit from cost curve graph; consumer surplus; Federal Reserve Open Market Operations; fiscal policy; exchange rates. Respondents were allowed to answer only questions which pertained to the courses which they had completed. At the time of the survey's administration, we were unaware of the Test of Understanding in College Economics (TUCE), but would find that equally suitable, if not preferable, in subsequent studies of this type.

Half of the knowledge-based questions required some graphical skills of the respondent (either interpretive, or creative by the respondent to answer the question). The other half were based on an understanding of process or theory (e.g. how do exchange rates work) rather than interpretation of a graph's movement or area.

3. Data

We received 294 valid responses (a 24.2% response rate³) after two waves of invitations in September and October of 2005. Sixty percent of the resulting sample was seniors. All but ten chose to voluntarily report their grade point average, but since less than one-third elected to report their sex, our data do not report any decompositions or statistical controls for sex.

Of the respondents, 85 took Micro principles, 17 took only Macro principles, 96 took both subjects as separate courses, and the remaining 96 took both as a single combined course. Only three respondents reported taking no Economics courses subsequent to Principles.

³ This is similar if not better than the response rate reported in other studies: 22% in Saunders (1971, 1980), and 9% in Allgood, et.al. (2004).

Eight percent reported completing Principles courses within the last six months, another sixteen percent indicated completion within the last year, and a further thirty-three percent completed less than two years ago.

Just under one-quarter of all respondents reported attending all of their high school and college courses within the United States, and a full two-thirds had taken some share of their college education abroad. However, only 14 respondents (less than five percent) self-identified as foreign students.

We found that over seventy percent had attended class under the semester system, another ten percent under the trimester system, and the remaining twenty percent learned Economics under the compressed schedule (either “Block Plan” or summer classes). We therefore had to remove the quarter system from consideration in our sample. Notice that there was not a perfect overlap between the manner in which a student learned Economics and the curricular structure at the student’s home institution, as some students took Economics at a summer program hosted by a different institution.

In the estimation which follows, several variables are treated as level variables: subsequent Economics courses (1; 2; 3 or more), retention period since Principles completed (< 6 months; 6-11 months; 12-23 months; 24-36 months; >36 months ago), student effort in the class (< 1 hour outside of class per day; 1-2 hours; 2.1-3 hours; >3 hours), teacher and text quality (ranked on a Likert scale of 1 to 6) are grouped as level variables. Others are simply presented as dummy variables: senior status, foreign status, studied abroad, small class size (i.e. less than 25 students), taking both Principles classes as opposed to only one, and curricular structure.

Upon initial investigation, our hearts sank at the low scores (averages of 2.43 and 2.05 out of ten on micro and macro quizzes respectively). This might support the rather dire Stigler hypothesis that retention of applicable knowledge may be not much better than zero, since random guesses would warrant an average of two out of ten. Moreover, even college students lacking any Economics training would presumably be able to eliminate some possible responses to score higher than random guesses. Upon further reflection, given that the AP Economics test is designed to test proficiency in the discipline at the Principles level among a population of high school students studying in advance (often with the help of preparatory courses and materials), perhaps we should not be too hard on the respondents here. After all, they were instructed not to prepare, but rather to reveal their “on-the-spot” recollections of graphs and theory outside of their major.

In addition, we recognize that some respondents simply did not take the knowledge-based questions seriously. We therefore use another piece of information collected, the time taken to complete the survey, as an indicator of whether respondents were seriously answering the questions or merely entering the prize lottery. In fact, times ranged from under one minute for all 26 relevant questions (a speed of mouse-clicking making it impossible for that respondent to even read the questions) to almost three days (presumably by someone who forgot that the link remained open on their computer).

Table 1 presents summary statistics on the dependent variable, correct responses, on the micro and macro tests for various populations. Notice in particular the pattern of

Table 1: Summary Statistics

	Correct responses			
	Micro		Macro	
	Mean	Standard deviation	Mean	Standard deviation
Semester	2.46	1.09	2.06	1.74
Trimester	2.33	1.24	2.29	1.52
Compressed schedule / Block	2.27	1.04	2.10	1.72
Respondents taking < 10 minutes	2.20	1.07	0.87	1.49
Respondents taking 10.1 to 15 minutes	2.21	1.15	2.76	1.30
Respondents taking 15.1 to 20 minutes	2.46	0.93	2.77	1.12
Respondents taking > 20 minutes	2.76	1.10	3.04	1.52
Total	2.43	1.10	2.05	1.72

increasing correct answers among respondents who took only slightly longer to think about the questions before submitting their answers. Thankfully, we can differentiate these groups using the methodology below, in order to learn more accurately about the true underlying retention patterns of our students.

4. Model

We estimate a Heckman-corrected negative binomial model, assuming that respondents spending less than a critical minimum amount of time on the survey were not truly displaying their knowledge on the survey. In other words, we estimate a two-stage model: first, the decision by respondents to display their full knowledge accurately, and second, their ability to answer Economics questions correctly.

We propose that

$$P_n = \sum_{i=1}^8 \beta_i X_{in} + \sum_{j=1}^3 \gamma_j Z_{jn} + \sum_{k=1}^2 \delta_{kn} + \varepsilon_n \quad (1)$$

$$S_n = \sum_{i=1}^8 \beta'_i X_{in} + \sum_{j=1}^3 \gamma'_j Z_{jn} + \sum_{k=1}^2 \delta'_{kn} + \lambda_n + u_n \quad (2)$$

where P_n is the probability that respondent n spent more than 15 minutes on test;

X_i are respondent-level factors (GPA, number of subsequent courses, foreign student status, study abroad, senior status, both Principles courses taken, retention lag and effort level);

Z_j are course-level factors (teacher quality, text quality, class size);

δ_k are the curriculum-level factors (dummies for trimester or compressed schedule as compared to the default semester system);

S_n is the score of respondent n on the Economics test;

λ_n is the inverse Mills ratio for the respondent as calculated from (1);

ε and u are error terms due to the linear approximation of (1) and (2);

and estimated coefficients β and β' , γ and γ' , δ and δ' have no theoretical linkage to one another other than their premultiplication of similar variables in separate stages of the analysis.

In other words, we suggest that a respondent will decide to seriously consider the questionnaire depending upon the same vector of characteristics that enable them to correctly answer the questions (i.e. all information that we have about the respondent and his or her educational experience). We propose a cutoff level of 15 minutes, corresponding roughly to the College Board's own timed ratio of 0.857 content questions per minute with an additional 3.5 minutes for completion of the descriptive questions at

the start of our survey.⁴ We deem respondents spending less than that amount of time to have “chosen not to display their knowledge.” We infer the probable correct responses to the Economics quizzes for those below the cutoff using the standard Heckman technique with inverse Mills ratio. Naturally, we test alternative cutoff deadlines to ensure that our results are robust.

To our knowledge, there is little rigorous modeling of knowledge retention in the Economics literature. Seminal studies of student outcomes tend to rely on a reduced form linear approximation.⁵ We found that the literatures in psychology and education focus on fundamentally different questions surrounding the retention of learned material, so treat linear approximation as current best practice.

5. Results

Results for four estimations are presented in Table 2, all for cutoffs of 15 minutes. With cutoffs of 10 minutes or 30 minutes, the resulting coefficients are extremely similar in sign and size. All formulations show highly significant Wald statistics, offering some solace that even our linear approximation has some measure of explanatory power.

Most importantly, curricular structure appears to be largely insignificant to the learning of economics. Students who learned on the trimester system were less adept at micro-related graphical questions, but there appeared no relative benefit or cost in either micro or macro overall.

⁴ According to the College Board, each exam (the AP Microeconomics Exam and the AP Macroeconomics Exam) is two hours and 10 minutes in length. In Section I, students are given 70 minutes to answer 60 multiple-choice questions; in Section II, they must answer three required free-response questions in 50 minutes. (http://apcentral.collegeboard.com/apc/members/exam/exam_questions/22942.html)

⁵ These include: Walstad and Allgood (1999), and Bach and Saunders (1966).

Table 2: Determinants of successful responses on knowledge-based questions

Variable	Micro questions						Macro questions					
	All questions			Graphical questions only			All questions			Graphical questions only		
	coeff	t-stat		coeff	t-stat		coeff	t-stat		coeff	t-stat	
Respondent-level variables												
GPA	-0.072	0.62		-0.225	1.56		0.727	1.74	*	-0.239	0.97	
Subsequent courses	0.031	0.33		0.023	0.21		-0.212	1.63	*	0.194	1.17	
Foreign status	-0.156	0.36		-0.270	0.55		-2.488	2.34	**	-0.578	0.82	
Studied abroad	0.186	1.08		0.173	0.77		-0.319	1.41		-0.379	1.35	
Senior	-0.281	1.71		-0.185	0.94		-0.607	2.24	**	-0.599	1.54	
Both principles classes	0.511	2.53	***	0.529	2.35	***	4.776	2.75	***	3.043	1.89	*
Retention lag	0.002	0.22		0.003	0.39		0.008	0.82		0.004	0.30	
Effort level	-0.071	0.62		-0.054	0.38		0.032	0.23		-0.197	1.17	

Variable	Micro questions						Macro questions					
	All questions			Graphical questions only			All questions			Graphical questions only		
	coeff	t-stat		coeff	t-stat		coeff	t-stat		coeff	t-stat	
Course-level variables												
Teacher quality	0.011	0.26		-0.032	0.57		0.077	1.28		0.038	0.50	
Text quality	-0.001	0.02		-0.043	0.40		0.094	0.97		0.119	0.79	
Small class size	0.190	1.10		0.015	0.08		-0.309	1.25		0.909	1.55	
Curriculum-level variables												
Trimester	-0.256	0.90		-0.584	1.62	*	-0.535	1.27		1.01	1.51	
Compressed schedule (Block Plan)	-0.011	0.05		-0.006	0.02		0.236	0.81		0.061	0.18	
Regression-wide controls and diagnostics												
Inverse Mills	0.089	1.21		0.093	2.00	**	-5.455	-2.27	**	-3.663	1.49	
Number of observations		206			206			200			200	
Wald χ^2		74.88	***		40.99	***		28.74	***		34.63	***

* shows significance at the 10% level, ** shows significance at the 5% level, *** shows significance at the 1% level.

Grade point average seems to matter little (in contrast to Kohen & Kipps, 1979; Walstad & Allgood, 1999), although we find a slight advantage to better overall students in the retention of macro knowledge.

Oddly, students appear to be slightly less accurate on macro questions if they have taken subsequent economics courses. This, combined with insignificant coefficients for micro-related questions, causes alarm to the authors. We trust that it is merely a function of our dataset. However, it is worth pointing out that the improvement in student performance from taking both Principles courses is much greater macro-related questions than for micro-related questions.

Foreign students performed significantly worse on the macro test than did domestic students. Perhaps that is due to linguistic or institutional differences, but if so, we are left with the conundrum of why those differences did not similarly compromise the performance of foreign students in microeconomic questions. Is it possible that the traditional principles experience in introductory micro is typically more mathematical and theoretical compared to a more institutional or culturally-specific education in introductory macro? Consider, for example, how we frequently teach macro using U.S. examples (e.g., the Federal Reserve system's workings) while our micro examples are more universal (e.g., indirect tax incidence). Optimistically, it is merely our choice of questions from the AP Economics exam that were culturally biased.

The institutional content of macro vs. the more mathematical content of micro may have other implications as well. It is interesting to note that only 17% of the students who took only one course took macroeconomics, while the vast majority (83%) chose to take a microeconomic course. This may imply a preference for microeconomics

over macro, or it may indicate that more of the students who first took a macroeconomics course went on to take the introductory microeconomics than students who first took microeconomics. It is possible that the more mathematical content of microeconomics courses may discourage math-phobic students from taking additional courses, while macroeconomics is potentially less likely to have this effect.

Seniors performed worse on the macro questions than did their junior peers, even controlling for the time since they took the course. It is curious that their 'senior moments' were focused on forgetting macro themes and tools rather than micro. Notice also that the retention lag, or time since the course was completed, did not appear significantly in any equation, perhaps because the timeframe (3 months to 3 years) was still quite limited.

Happily, students who took both principles courses were unambiguously better at answering all forms of questions. Complementary courses in micro appeared to help students answer questions in macro much more than the reverse.

Finally, notice that the Mills ratio was significant in two of the four specifications, and close to significance on the other two. We take that as indication that the econometric correction for sample selection bias was warranted.

6. Conclusion

This study extends the existing literature on the retention of economic knowledge by investigating the importance of curricular format. Examining semester, trimester and block formats, we test for elementary economic knowledge recall while controlling for the traditional variables that earlier work has used to explore long-term memory of

economic principles. Perhaps most important, we find that curricular structure is largely insignificant to the learning of economics. This is heartening for instructors under each structure, suggesting that long-term retention of economics is dependent upon factors more directly under their control.

The results also point to the importance of providing students with exposure to both macroeconomic and microeconomic theories and concepts. Performance in both areas was enhanced by coursework in both principles classes. Since long-term retention of economic knowledge is improved by taking both courses, notably even when offered as a single combined course, increasing the number of students who take combination and sequence courses would seem to be a worthwhile endeavor.

From one perspective, our overall results could be interpreted as fairly bleak. After all, retention overall is atrociously low in our sample. The results are more in line with the TUCE pretest scores, 29 and 31 percent on TUCE-4 micro and macro tests respectively (Walstad & Watts 2005), than the posttest mean scores, 45-51 percent on TUCE III (Saunders 1991). Moreover, performance does not appear to be impacted much by variables that we would like to believe really do matter, such as student effort and scholastic ability, not to mention teacher or textbook quality.

On the other hand, respondents have self-selected into their chosen curricular structures and class choices, hopefully altering their paths to the point where marginal differences in textbook quality or student effort do not matter. If you are an experiential learner, you will presumably not be dissuaded by a course with a mediocre textbook, and your knowledge retention will be largely unaffected by the quality of that text.

More importantly, recall that all surveys were completed by students who took Principles of Economics courses and then subsequently chose not to major in economics-related disciplines. Presumably they did not have a natural passion or proclivity for the field, although the overwhelming majority of respondents reported taking additional economics courses subsequent to Principles. Such students may have little reason to perform well on a spontaneous test of knowledge in a field which they have universally chosen not to pursue as a major, and in which most of them have not taken a course for more than a year prior to the survey.

One concrete logistical suggestion that we take away from this exercise is the necessity of accounting for and, if possible, countermanding the limitations of low-stakes testing. In subsequent testing, we would consider installing a visible timer on each question, or a prompt to ask for confirmation if a respondent clicks through a question too quickly to be considered serious. We suspect that small cues to raise expectations might generate much more information on true student performance than we were able to gather.

It would naturally be interesting to mount this experiment again, in cooperation with others in the discipline, to test larger populations, and to test Economics majors compared to non-Economics majors while controlling for curricular structure. We would appreciate the chance to confirm the results presented here with the TUCE. Parallel tests in other disciplines, to discern where (if any) the benefits of the semester/trimester/block systems are greatest would be valuable to educational administrators and teachers alike.

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Appendix

Eligibility [Edit Page](#) [Delete Page](#) [Copy/Move](#) [Add Logic](#)

[Add Question](#) [Add Page](#)

[Edit](#) [Delete](#) [Copy/Move](#) [Add Logic](#)

*** What is your class year?**
(Please note that only college juniors and seniors are eligible to participate in this survey.)

junior

senior

[Add Question](#) [Add Page](#)

[Edit](#) [Delete](#) [Copy/Move](#) [Edit Logic](#)

*** What is your major?**

Economics, Business, Mathematical Economics, Political Economy

Other (please specify)

[Add Question](#) [Add Page](#)[Edit](#) [Delete](#) [Copy/Move](#) [Edit Logic](#)[Add Question](#) [Add Page](#)

[Edit](#) [Delete](#) [Copy/Move](#) [Edit Logic](#)

*** Are you currently enrolled in a Principles of Economics course?**

yes

no

[Add Question](#) [Add Page](#)

About you [Edit Page](#) [Delete Page](#) [Copy/Move](#) [Add Logic](#)

We have determined that you are eligible for our survey. Please tell us about yourself.

[Add Question](#) [Add Page](#)

[Edit](#) [Delete](#) [Copy/Move](#) [Add Logic](#)

*** What is your sex?**

female

male

[Add Question](#) [Add Page](#)

[Edit](#) [Delete](#) [Copy/Move](#)

What is your current GPA to the nearest hundredth place on a 4-point scale (e.g. 3.25)?

[Add Question](#) [Add Page](#)

[Edit](#) [Delete](#) [Copy/Move](#) [Add Logic](#)

*** How many courses in Economics have you taken above the Principles level?**

none

one

two

three or more

[Add Question](#) [Add Page](#)

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*** How much of your education have you completed in the U.S. so far?**

- all of high school and all of college
- all of high school and part of college
- part of high school and all of college
- part of high school and part of college
- none of high school and all of college
- none of high school and part of college
- Other (please specify)

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*** Are you considered a foreign student or exchange student in the U.S.?**

- yes
- no

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We have 3 more pages of questions for you.

[Add Question](#) [Add Page](#)

Microeconomics course [Edit Page](#) [Delete Page](#) [Copy/Move](#) [Add Logic](#)

We would now like to ask you a few questions about your Principles of Microeconomics course.

[Add Question](#) [Add Page](#)

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*** How long ago did you take a Principles of Microeconomics course?**

- less than 6 months ago
- between 6-11 months ago
- between 12-23 months ago
- between 24-36 months ago
- 36 months ago or more
- never taken a Principles of Microeconomics course

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*** Under which college system did you take your Principles of Microeconomics course?**

- semester (courses roughly Sept-Dec, Jan-May)
- trimester (courses roughly Sept-Nov, Nov-Mar, Mar-June)
- quarter (courses roughly Sept-Nov, Nov-Feb, Feb-Apr, Apr-June)
- block plan (courses roughly one month each in duration)
- summer school (courses roughly one month each in duration)
- correspondence school with self-directed pace
- never took Principles of Microeconomics
- Other (please specify)

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*** On average, how much time outside of the classroom did you spend on your Microeconomics Principles class per day?**

- less than 1 hour (or less than five hours per week)
- 1-2 hours (or 5-10 hours per week)
- 2.1-3 hours (or 11-15 hours per week)
- more than 3 hours (or more than 15 hours per week)

Add Question Add Page

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*** How many students were in your Microeconomics Principles course?**

- 1-10
- 11-25
- 26-50
- 51-100
- More than 100

Add Question Add Page

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*** How many classroom hours of instruction did you receive per week in your Microeconomics Principles course?**

- less than 3 hours
- 3-8 hours
- 8.1-12 hours
- More than 12 hours

Add Question Add Page

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*** On the following scale, rate your Microeconomics Principles instructor(s).**

- excellent (always clear, knowledgeable, energetic, approachable)
- very good (usually clear, knowledgeable, energetic, approachable)
- good (often clear, knowledgeable, energetic, approachable)
- fair (sometimes clear, knowledgeable, energetic, approachable)
- poor (rarely clear, knowledgeable, energetic, approachable)
- would have failed "Teaching 101" (never any of the above)

Add Question Add Page

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*** On the following scale, rate your Microeconomic Principles readings (text, articles).**

- excellent (always clear, helpful, interesting)
- very good (usually clear, helpful, interesting)
- good (often clear, helpful, interesting)
- fair (sometimes clear, helpful, interesting)
- poor (rarely clear, helpful, interesting)
- would have failed "Publishing 101" (never any of the above)

Add Question Add Page

Macroeconomics course Edit Page Delete Page Copy/Move Add Logic

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Add Question Add Page

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[Add Question](#) [Add Page](#)

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[Add Question](#) [Add Page](#)

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- poor (rarely clear, helpful, interesting)
- would have failed "Publishing 101" (never any of the above)

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We are interested in your memory of material that you may have learned in your Economics Principles class(es). Please answer the following questions to the best of your ability, without reviewing material or seeking help from outside sources.

Each question should require roughly one minute to answer, and no question should require more than two minutes at a maximum.

[Add Question](#) [Add Page](#)

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*** Scarcity is correctly described by which of the following statements?
I. Scarcity exists if there are more uses for resources than can be**

satisfied at one time.

II. Scarcity exists if decisions must be made about alternative uses for resources.

III. Scarcity would not exist in a society in which people wanted to help others instead of themselves.

- I only
- II only
- III only
- I and II only
- I, II and III

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*** Assume that Canadian consumers increase their demand for Mexican financial assets. How would the international supply of Canadian dollars (C\$), the value of the Mexican peso relative to the Canadian dollar, and Canadian net exports to Mexico change?**

- Supply of C\$ increases, value of peso increases, Canadian net exports increase
- Supply of C\$ increases, value of peso increases, Canadian net exports decrease
- Supply of C\$ decreases, value of peso increases, Canadian net exports decrease
- Supply of C\$ decreases, value of peso decreases, Canadian net exports increase
- Supply of C\$ does not change, value of peso increases, Canadian net exports decrease

Add Question

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*** Suppose that a national government increased deficit spending on goods and services, increasing its demand for loanable funds. In the long run, this policy would most likely result in which of the following changes in this country?**

- real interest rate decreases, investment decreases

- real interest rate decreases, investment increases
- real interest rate does not change, investment increases
- real interest rate increases, investment does not change
- real interest rate increases, investment decreases

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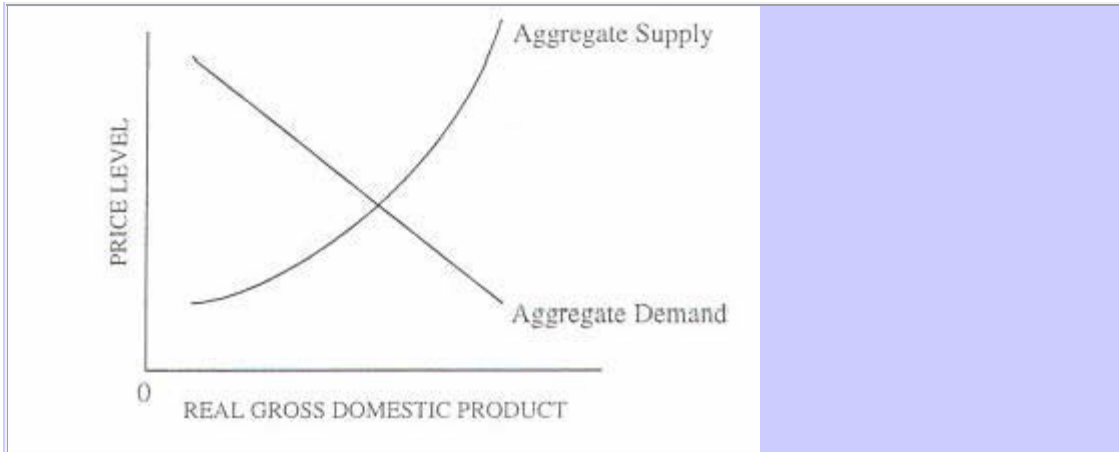
*** Which of the following situations would necessarily lead to an increase in the price of peaches?**

- while the wages of peach farm workers fall drastically, the peach industry launches a highly successful advertising campaign for peaches.
- the wage paid to peach farm workers rises at the same time that medical researchers find that eating peaches reduces the chances of a person's developing cancer.
- a breakthrough in technology enables peach farmers to use the same amount of resources as before to produce more peaches per acre.
- the prices of apples and oranges fall.
- weather during the growing season is ideal for peach production.

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Use the graph below to answer the following question.



[Add Question](#) [Add Page](#)

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*** Based on the diagram above, what effect will an increase in the world supply of oil have on real gross domestic product (GDP) and the aggregate price level?**

- real GDP will increase, price level will increase
- real GDP will increase, price level will not change
- real GDP will increase, price level will decrease
- real GDP will decrease, price level will decrease
- real GDP will decrease, price level will increase

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*** As its output increases, a firm's short-run marginal cost will eventually increase because of**

- diseconomies of scale
- diminishing returns
- inefficient production
- a lower product price
- the firm's need to break even

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*** If the government increases expenditures on goods and services and increases taxation by the same amount, which of the following will occur?**

- the money supply will decrease
- the money supply will increase
- aggregate demand will be unchanged
- interest rates will decrease
- aggregate demand will increase

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*** To counteract a recession, the Federal Reserve should**

- raise the reserve requirement and the discount rate
- sell securities on the open market and raise the discount rate
- sell securities on the open market and lower the discount rate
- buy securities on the open market and raise the discount rate
- buy securities on the open market and lower the discount rate

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*** For a firm hiring labor in a perfectly competitive labor market, the marginal revenue product curve slopes downward after some point because as more of a factor is employed, which of the following declines?**

- marginal product
- wage rates

- marginal cost
- total output
- marginal factor cost

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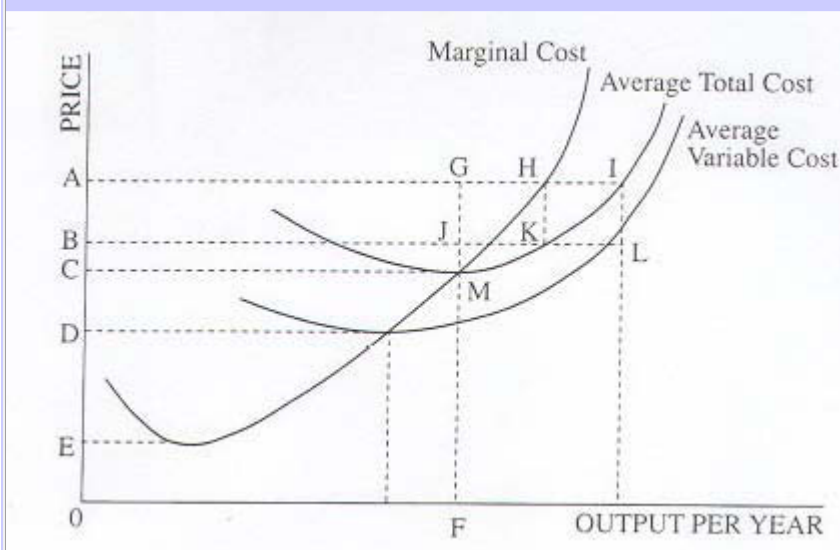
*** Which of the following is most likely to cause an increase in the international value of the United States dollar?**

- reduced inflation abroad
- expansionary monetary policy in the United States
- higher United States real interest rates
- lower United States government expenditures
- higher real interest rates abroad

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Use the following diagram for the next two questions.



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*** At the price 0A, economic profits are**

- ABJG
- ABKH
- ACMG
- ABLI
- COFM

Add Question Add Page

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*** In the short run, the firm will stop production when the price falls below**

- 0D
- 0A
- 0C
- 0E
- 0B

Add Question Add Page

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*** If firms in a perfectly competitive industry have been dumping toxic waste free of charge into a river, government action to ensure a more efficient use of resources would have which of the following effects on the industry's output and product price?**

- increase output, no change in price
- increase output, increase price
- decrease output, decrease price

- increase output, decrease price
- decrease output, increase price

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*** If the government simultaneously engages in expansionary monetary and fiscal policies, which of the following is the likely effect on interest rates and unemployment?**

- interest rates decrease, unemployment decreases
- interest rates increase, unemployment decreases
- interest rates increase, effect on unemployment is indeterminate
- effect on interest rates is indeterminate, unemployment rate decreases
- effect on interest rates is indeterminate, unemployment rate increases

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*** A market is clearly NOT perfectly competitive if which of the following is true in equilibrium?**

- price exceeds average fixed cost
- price exceeds average variable cost
- price equals opportunity cost
- price exceeds marginal cost
- accounting profits are positive

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*** An increase in which of the following would reduce the United States balance-of-trade deficit?**

- the value of foreign currency relative to the United States dollar
- United States rate of inflation compared to other countries
- United States demand for foreign goods
- the federal budget deficit
- United States interest rates compared to other countries

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*** If a perfectly competitive industry is in long-run equilibrium, which of the following is most likely to be true?**

- consumers can anticipate price increases
- firms are earning a return on investment that is equal to their opportunity costs
- individual firms are not operating at the minimum points on their average total cost curves
- some factors are not receiving a return equal to their opportunity costs
- some firms can be expected to leave the industry

[Add Question](#) [Add Page](#)

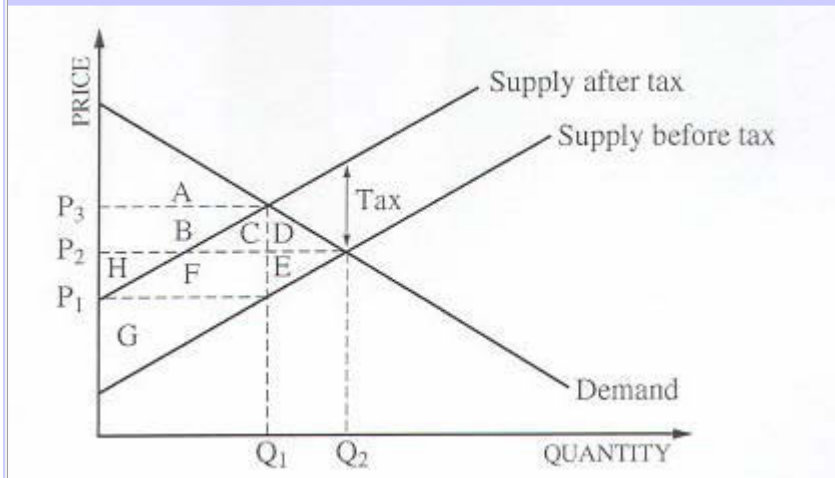
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*** If the Federal Reserve sells a significant amount of government securities in the open market, which of the following will occur?**

- the total amount of loans made by commercial banks will decrease
- rates of interest will decrease
- rates of interest and amount of loans made by commercial banks will remain unchanged
- the total amount of loans made by commercial banks will increase
- the money supply will increase

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Use the graph below for the question which follows.



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* The graph above shows the market for good X. The letters in the graph denote the enclosed areas. If the government imposes an excise tax of t dollars on each unit of good X, which of the following represents the consumer surplus, producer surplus, and deadweight loss after the imposition of the tax?

- consumer surplus = $A+B$, producer surplus = $G+F+E$, deadweight loss = $C+D$
- consumer surplus = $A+B+H$, producer surplus = $G+F+C$, deadweight loss = E
- consumer surplus = $A+B+H$, producer surplus = $G+F$, deadweight loss = $D+E$
- consumer surplus = A , producer surplus = $F+E$, deadweight loss = $D+E$
- consumer surplus = A , producer surplus = G , deadweight loss = $D+E$

Edit Delete Copy/Move Add Logic

* An increase in which of the following would cause an increase in aggregate supply?

- labor productivity
- consumer spending
- the wage rate
- prices of imports
- interest rates

Thank you

Your participation is appreciated. If eligible, your name has been entered into our drawing for a prize.

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