Do College Textbooks Cover All Categories Of Market Failure?

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ABSTRACT

The 2007 financial crisis, which began in the United States, has brought with it an increased interest among students in the topic of market failure. Although professors have responded by allocating extra time to teaching the subject, assigning textbooks with adequate information can be an effective pedagogical tool too. Thus this paper reviews the content of college textbooks focusing on market failure. The author surveys an undergraduate economic program, identifies four courses, including introductory microeconomics, international economics, money and banking, and finance, and then reviews selected textbooks on the four courses. This paper presents the review findings and some suggestions.

INTRODUCTION

A market is a mechanism through which buyers and sellers interact to set prices and exchange goods and services (Samuelson et al., 2001). A market works efficiently in a situation in which interaction between buyers and sellers, left on its own, results in efficient allocation of resources. But a market does not always work efficiently. When a market fails to work efficiently, it results in a market failure. A market failure is therefore a situation in which a market, left on its own, fails to allocate resources efficiently. More specifically, a market failure occurs when the activity of individuals, businesses, or governments imposes extra costs or benefits on a market, resulting in the inefficient allocation of resources (McConnell et al., 2009).

Following the 2007 financial crisis and the increased interest among students in finding out the causes of the crisis, many professors, including the author, have been allocating extra time to teaching issues of market failure. Convinced further that students can potentially become better economic managers, especially with respect to preventing and combating financial crisis, if they have a better understanding of the subject. The author conducted a survey of an undergraduate economics program to identify courses that cover the subject matter and the following four courses were identified1:

Principles of Microeconomics focuses on the theory of demand and supply, production and costs, allocation of resources, and also product and factor pricing. The key course objectives are acquiring a basic knowledge of economic society, from the vantage point of the individual and specific components, or micro-economy; also attaining a greater understanding as to how income is distributed (and redistributed) within the economy. International Economics covers why and how countries trade with each

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other. The key course objectives include acquiring a basic knowledge of international economic system, from the vantage point of trade, trade blocks, and specific institutional framework, comprehending the role of national economic system in a global economy. Money and Banking studies the process of financial intermediation in the economy, with primary focus on the role of money and banking. The key course objectives include understanding the economy, from the vantage point of money, banking, and specific components of financial system. Finance covers the basic principles, instruments, and institutions in the financial market place. The key course objectives include having knowledge of the impacts of financial market place on the economy.

Then, textbooks on the four courses were selected to find out how they cover the subject of market failure. The author selected the textbooks based on the following criteria (many schools/departments use the same criteria): (1) a textbook was published by the 10 best U.S. publishers or their affiliates, and (2) a textbook was published by a Nobel laureate, professor in any of the 100 best U.S. ivy schools, or professor who acted in an official advisory position in the three arms of the U.S. government. Based on the criteria, only sixteen textbooks, equally selected from the four courses, were reviewed. This paper presents the review findings and some suggestions.

TEXTBOOK REVIEW FINDINGS

FIRST FINDING

The author found a total of eight theories of market failure upon reviewing the sixteen textbooks. Below is a brief description of the theories:-

Creative destruction- A creative destruction refers to the hypothesis that the creation of new products, production methods, and management techniques can simultaneously make existing markets obsolete, thereby resulting in the failure of the now obsolete markets.

Distortional price-The theory of perfect competition assumes that a market price provides signals as to the benefit and cost of a resource, good or service. If a price is slow to adjust, then the proper signal such a price communicates does not happen quickly, and coordination of demand and supply can break down; possibly, a market failure can occur.

Public good- The theory of perfect competition assumes that a good possesses the features of rivalry and excludability, meaning that when one person buys a good, it is no longer available for another person, and also that sellers can keep people who do not pay for a product from obtaining benefits, respectively. Instead, a public good possesses two features of nonrivalry and nonexcludability, meaning that one person's consumption of a good does not preclude consumption of the good by others, and also that there is no effective way of excluding a person from the benefits associated with consuming of the good, respectively. The existence of a public good implies a case of market failure because a public good cannot be produced if left entirely to the signals of the market.

Market power- The theory of perfect competition assumes that if a firm can sell a good (note that all firms sell standardized goods) and sets a higher price than other competitors, the firm loses customers to the now cheaper identical good in the market. If a firm sets a higher price and still remains in the market, then it possesses a market power, which is a state of market failure. All forms of imperfect competition such as monopoly, monopolistic competition, and oligopoly (prisoner-dilemma) firms have a market power.

Asymmetric information- The theory of perfect competition assumes that free availability of information is critical in an efficient market. Informational asymmetry occurs where a buyer or seller has much more information about a good than the other party. If one party possesses more information than the other about a good, a market failure can occur.

Government failure- When a government fails to perform efficiently its statutory, market-related responsibilities a market failure can occur. This can occur if some extra costs or benefits are imposed on a market because a government enabled special-interest groups, shortsighted political behavior, limited and bundled choices, bureaucratic inefficiencies, or the deployment of economic policy.

Market externality- The theory of perfect competition assumes that costs or benefits related to producing a good are fully absorbed and distributed between the buyers and sellers in a market. Sometimes, in some markets, the costs or benefits related to producing a good can spillover onto a third party or bystander. This is considered a case of market failure because the activities of market participants impose extra costs or extra benefits on a third party or bystander.

Inequality of income-The theory of perfect competition assumes a market rewards a person according to his or her ability to produce goods that others are willing to pay for. Those who are not capable of producing goods are likely to not make ends meet. This means that an efficient market may fail to ensure that economic prosperity gets to everyone equitably. A recent study (Birdstall, March/April 2007) suggests that lack of equitable distribution of income throughout the economy can cause a market failure.

SECOND FINDING

The author found that individual textbooks on the four courses unevenly covered the eight theories. Tables 1 to 4 show how each of the sixteen textbooks cover the eight theories:

Table 1: Microeconomics Textbooks on the Eight Theories

Textbook / Source of Market Failure	Case, K. E., Fair, R.C. Oster, S.M., Principles of Microeconomics[1]	Krugman, P., Wells, R. Microeconomics[2]	McConnell,C.R., Brue, S.L., Flynn, S. M., Microeconomics[3]	Mankiw, N.G., Principles of Microeconomics[4]
Creative Destruction	X	X	✓*	X
Distortional Price	✓	✓	✓	✓
Market Power	✓	✓	✓	✓
Government Failure	✓	✓	✓	✓
Public Good	✓	✓	✓	✓
Market Externality	✓	✓	✓	✓
Informational Asymmetry	✓	✓	✓	✓
Inequality of Income	X	✓	✓	✓

[1] 9e, Pearson Prentice-Hall, 2008., [2] 2e, Worth Publishers 2009., [3]18e, McGraw-Hill Irwin, 2009., [4]5e, Thomson South-Western, 2008. * The concept was not presented as a theory of market failure.

Table 1 shows how four microeconomics textbooks cover the eight theories of market failure. As indicated in the table, three of the microeconomics textbooks cover seven of the eight sources of market failure. Only the text by McConnell et al. (2009), discusses all the eight sources of market failure, although the issue of creative destruction was not explicitly presented as a source of market failure.

TABLE 2: International-Economics Textbooks on the Eight Theories

Textbook / Source of Market Failure	Krugman, P., Ohstfeld, M International Economics: Theory & Policy[1]	Pugel, T. A., International Economics[2]	Carbaugh, R.J., International Economics[3]	Sawyer, W.C., Sprinkle, R. L., International Economics[4]
Creative Destruction	X	X	X	X
Distortional Price	✓	✓	✓	✓
Market Power	✓	✓	✓	✓
Government Failure	✓	✓	✓	✓
Public Good	✓	✓	X	X
Market Externality	✓	✓	X	X
Informational Asymmetry	✓	✓	✓	X
Inequality of Income	✓	X	X	X

[1] 8e, Pearson Addison Wesley, 2009, [2]14e, McGraw-Hill Irwin, 2009, [3] Thomson South-Western, 2005, [4] 3e, Prentice Hall, 2009.

Table 2 shows how international-economics textbooks covered the eight theories3 of market failure. As indicated in the table, the four textbooks extensively covered the issue of government failure. This finding is understandable because governments and regional economic unions such as European Union (EU) or North America Free Trade Association (NAFTA) often build fiscal policy and other protective barriers against nonmembers. Also, notice that the textbooks covered the issue of market power. This is also understandable because most multinational corporations that operate globally have some measurable level of market power. Further, the textbooks covered the issue of distortional price in a market economy. The textbooks by Pugel (2009) and Krugman et al. (2009) covered the issue of moral hazard, but none of the textbooks covered the issue of adverse selection; only Krugman et al. (2009) covered the issue of inequality of income.

TABLE 3: Money-and-Banking Textbooks on the Eight Theories

Textbook	Croushore, D.,	Ritter, L.S., Silber, W.L., Udell, G.F.,	Pesek, B.P.,	Cecchetti, S.G., Schoenholtz, K.L
Source of Market Failure	Money & Banking: A Policy-Oriented Approach[1]	Principles of Money, Banking, & Financial Markets[2]	Microeconomics of Money & Banking & Other Essays[3]	Money, Banking, & Financial Markets[4]
Creative Destruction	X	X	X	X
Distortional Price	✓	X	✓	✓
Market Power	✓	✓	✓	✓
Government Failure	✓	✓	X	✓
Public Good	✓	✓	✓	X
Market Externality	✓	✓	X	✓
Informational Asymmetry	✓	✓	✓	X
Inequality of Income	✓	X	X	X

[1]1e, Houghton Mifflin, 2007. [2]11e, Pearson Addison Wesley, 2004., [3] University Press, New York, 1988., [4] 3e, McGraw-Hill Irwin, 2011.

Table 3 shows how money-and-banking textbooks covered the eight theories of market failure. As the table shows, only three textbooks covered the issues of informational asymmetry, market externality, and the distortional price. The coverage of these three theories is understandable: Informational asymmetry, in form of moral hazard and adverse selection, is prevalent in the banking sector; market externality occurs in the banking sector, for the effect of poor banking practices or better banking practices can spill over onto other banks or citizens; the inclusion of distortional price was because the author found statements to the effect that bank products may not always reflect their efficient-market value. Although modern banks are mostly monopolies, oligopolies or monopolistically competitive firms, we found no coverage in the textbooks of the issue of market power (too big to fail). Only the textbook by Croushore (2007) briefly discussed how the banking industry can promote income inequality under the topic of redlining- a practice whereby banks refuse to make loans to people that live in poor neighborhoods. None of the four textbooks covered the issue of creative destruction, even though there is a fierce competition among banks that result in products and, sometimes, business failures.

TABLE 4: Finance Textbooks on the Eight Theories

Textbook	Melicher, R.W., Allen, F., Norton, E.A.,	Meyers, S.C., Brealey, R.A.,	Maurice, D.L.,	Bodie, Z., Kane, A., Marcus, A.J.,
Source of Market Failure	Principles of Finance, Markets, Investments, & Financial Management[1]	Principles of Corporate Finance[2]	International Finance[3]	Essentials of Investments[4]
Creative Destruction	X	X	X	X
Distortional Price	✓	✓	✓	✓
Market Power	X	X	✓	✓
Government Failure	✓	✓	✓	✓
Public Good	X	X	X	✓
Market Externality	X	X	X	X
Informational Asymmetry	✓	X	✓	X
Inequality of Income	X	X	X	X

[1]13e, John Wiley & Sons Inc., 2008., [2] 8e, McGraw-Hill Irwin, 2006., [3]5e,Rouledge,Taylor & Francis Group,2005.
[4] 8e, McGraw-Hill Irwin, 2010.

Table 4 shows how finance textbooks covered the eight theories of market failure. As indicated in the table, the four textbooks covered the issue of distortional price perhaps because the prevailing prices of financial products in general do not reflect the actual value of the products. Understandably, the textbooks covered the issue of government failure because financial institutions face risks from government regulatory activity. Even though financial institutions operate in a very competitive environment, none of the textbooks covered the issue of creative destruction because financial institutions operate in a very competitive industry. As indicated in the table, only Melicher et al. (2008) and

Maurice (2005) covered the issue of information asymmetry even though there is always a possibility that parties to a market transaction in the financial industry are regularly exposed to the incidence of moral hazard or adverse selection. Further, while there is no doubt that major financial institutions are mostly monopolies, oligopolies or monopolistically competitive firms, only Maurice (2005) and Bodie et al. (2010) covered how having market power can affect a market. None of the textbooks covered the issues of market externality and income inequality, even though financial transactions can affect nonmarket participants and contribute to the income inequality in the economy, respectively.

THIRD FINDING

None of the textbooks cover certain sources of market failure occurring when individuals, businesses, or governments are engaging in activities outside a market transaction. For example, a recent report (Anders, 2007) showed that private remittances by immigrants to family members can reduce poverty as well as increase creditworthiness of countries and underwrite their trade imbalances. Another observable source of market failure is the activity of Internet hackers that increasingly imposes extra costs on providers and customers alike. On the business level, the rent-seeking activities of businesses can cause a market failure. A recent study estimated the economy-wide cost of lending to firms with political connections in Pakistan to be between 0.3% and 1.9% of Pakistan's gross domestic product (Khwaja et al., 2005). On the government level, the extrajudicial activity of government can cause a market failure. The 2010 Human Rights Watch reports on Nigeria reveals that 1,350 illegal police roadblocks were mounted during a period of 18 months. The reports shows that police officers received millions of dollars from citizens, frequently threaten victims, and commit human rights abuses.

PEARSON CHI-SQUARE AND FISHER'S EXACT TESTS OF INDEPENDENCE

Next the paper presents the Pearson chi-square and Fisher's exact tests of independence to determine if the difference between the expected (eight theories plus omitted sources of market failure) and observed (actual number of theories covered in individual textbooks) data is due to a sampling error.

To perform the tests, the author aggregated the data from Tables 1 to 4, above, by adding together the total number of times the eight sources of market failure were covered in individual textbooks for each course, as shown in Table 5.

TABLE 5: Number of Times Textbooks Covered the Eight Theories

Courses	Microeconomics	Money and Banking	International Economics	Finance	Row Totals
Source of Market Failure					
Creative Destruction	1	0	0	0	1
Distortional Price	4	3	4	4	15
Market Power	4	4	4	2	14
Government Failure	4	3	3	1	11
Public Good	4	3	3	1	11
Market Externality	4	2	2	0	8
Informational Asymmetry	4	3	3	3	13
Inequality of Income	3	1	1	0	5
Column Totals	28	19	20	11	78

Thus the author conducted both tests based on same null and alternate hypothesis:

H_o: Expected eight theories and the actual theories in individual textbooks are independent.

H_A: Expected eight theories and the actual theories in individual textbooks are not independent.

The Chi-square can be used to test for independence between two variables using counts for the response variable. The Fisher's exact test can be conducted if the Chi-square result is deemed misleading or unreliable and the following conditions apply: (1) when one of the cells in the table is less than 5, and especially when it is less than 1, (2) the marginal totals of the observed table are fixed, and (3) if the null hypothesis is true. Clearly the first two conditions apply in this case for the cells in Table 5 have less than 5 observations and the marginal totals of the observed table are fixed. To find out if the third condition also applies, performing both tests using the IBM SPSS software, the author presents the results of the tests in Table 6 and then the interpretation of the results follows after.

TABLE 6: Results of the Pearson Chi-square and Fisher's Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	8.864[a]	21	.990	.[b]		
Likelihood Ratio	10.421 10.421	21	.973	.993		
Fisher's Exact Test	9.182			.999		
Linear-by-Linear Association	1.134[c]	1	.287	.301	.151	.012
N of Valid Cases	78					

a. 30 cells (93.8%) have expected count less than 5. The minimum expected count is .14.
b. Cannot be computed because there is insufficient memory.
c. The standardized statistic is -1.065.

INTERPRETATION OF THE CHI-SQUARE AND FISHER'S EXACT TEST RESULTS

The degrees of freedom of 21 (degrees of freedom= (c-1)(r-1) = 3(7)= 21) indicate the number of values that are free to vary after restrictions has been placed on the data. The table value for the degrees of freedom of 21 at the level of significance of p= .05 equals 32.6714.

Because the chi-square test result is 8.86 and the degrees of freedom is 21, which is 32.671 for alpha=0.05, then the null hypothesis is true. This means that that the relationship between the expected eight theories plus omitted sources of market failure is independent of the actual theories in individual textbooks. Thus, with the high p-value of 0.990, we can conclude that the distribution of the data was due to chance 99% of the time, implying that the eight theories were not fully covered in individual textbooks. Equally, in Table 6, the Fisher's exact test p-value of .999 means that there is no significant relationship between the coverage of the eight theories and the actual number of theories in individual textbooks.

CONCLUDING REMARKS AND SUGGESTIONS

This paper showed that college textbooks have not been covering all categories of market failure. The author found, across the sixteen selected textbooks, a total of eight theories of market failure; individual textbooks did not even cover all the eight theories; none of the textbooks covered some potential sources of market failure like Internet hacking, corporate lobbying, and extrajudicial activity of government. Further, the author conducted both the Pearson chi-square and Fisher's exact tests of independence, using the IBM SPSS software to analyze the data generated from the review. Both results confirmed equally that individual textbooks did not cover all categories of market failure.

Yet, covering all categories of market failure in textbooks on the courses can be helpful to students. In particular, it can help students not only understand the workings of the sectors covered in the courses, but also the potential pitfalls that can undermine them. Therefore the author suggests that textbooks on the four courses be required to show how the divergent economic sectors covered in the courses contribute to the incidence of creative destruction, distortional price, informational asymmetry, market power, market externality, public good, government failure, and inequality of income.

The good news is that this suggestion is economical for it can be applied at little or no costs. Based on the author's familiarity with the textbooks, a full chapter or selected sections of selected chapters can be used to present the topic areas without increasing their volume. An even more important reason this suggestion merits further consideration is that students taking these courses may turn out to become better economic custodians, especially with regard to preventing and combating financial crisis, because of the knowledge they acquire in the courses, if presented as being suggested.

In all, there are two ways schools can help ensure that students taking the courses obtain full knowledge of market failure. First they can elect to adopt only textbooks that evenly cover all categories of market failure as they relate to particular courses. Secondly they can encourage professors to cover all categories of market failure in their class, regardless of the content of the assigned textbook. If these suggestions are implemented, they can potentially spur both textbook authors and professors to adequately cover all categories of market failure for their students.

ACKNOWLEDMENTS

Professor Sean Flynn of Scripps College read the earlier draft and made valuable suggestions. Professor Clair A. Smith of St. John Fisher College read and made valuable suggestions when the paper came up for discussion at the 65th Annual New York State Economic Association (NYSEA) Conference. The author discussed the paper with Professor Wisdom Akpalu who suggested using the Pearson chi-square test of independence. Dr. Richard Vogel, current president of the New York State Economic Association, as well as executives and board of NYSEA made it possible for the paper to be presented at the 65th Annual New York State Economic Association Conference. The author remains responsible for errors, omissions, and suggestions.

ENDNOTES

1. Only the four courses were selected because others undergraduate economic or business courses either cover the same theories or variants of the same them. For example, usually, the eight theories are covered in principles of microeconomics, but only their mathematical applications of a few of them are covered in intermediate-level microeconomics.
2. The courses' objectives were contained on the syllabi approved for the author at the Departments of Economics and also Business and Accounting at Pace University and Touro College in New York, respectively.
3. Only variants of the theories were covered in textbooks on international economics, money and banking, and finance. For example, in money and banking, the author identified 'contagion' which refers to a spillover effects from a bank failure to other banks and entities as a variant of the theory of market externality.
4. The author can provide a separate table showing only the results of the Pearson chi-square test of independence.

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