

# TEA Commissioner Mike Morath

## 3/2/2018

### Replacing Supply and Demand Economics with Financial Literacy

1. Problems run deep
2. Opportunities
3. Responsibilities

Excerpts from the book:

*The Truth About Economics, Critical Thinking Guide for Students, Parents,  
Teachers, and Citizens.*

# Problems:

## Historical Opposition to Supply and Demand Theories from 1890

H.L Moore 1914

John Maynard Keynes 1926

Pierre Sraffa 1926

Kenneth Galbraith, 1948

Joan Robinson 1960's

Robert Heilbroner 1995

Ronald Coase 1997 (**Nobel Prize winner** 1991: Economists should study real markets and not theoretical ones)

Daniel Kahneman, 2000 (**Nobel Prize winner** 2002 for theory refuting foundations for supply and demand)

Frederic Lee 2009

Steven Keen 2011

Peter Fader 2012

Thomas Pickety 2013

Motley Fool current day **“but in the real world...(supply and demand) can't even assume a hint of validity”**

Even Alfred Marshall, the father of supply and demand theory, acknowledged that the underlying assumptions were “impracticable”. (letter dated 1912)

In the 1940's, John Von Neumann insisted at a seminar at Harvard that progress in economics would require a mathematics different from that which derived from the time of Newton.

## **Problems:**

### **Failure to Follow Scientific Methods**

Science relies on observations

Running a business relies on observations from accounting data

Economics makes up the data to fit the model

# Comparing Financial Literacy to Economics

From Budgeting and Planning curriculum thread in a financial literacy course

Breakeven Model - Financial Literacy Class							
Price = variable cost + markup = \$5 + \$10 = \$15							
Quantity	Fixed Cost	Variable Cost per Unit	Total Variable Cost	Total Cost	Average Total Cost	Revenue	Profit
1	\$ 50.00	\$ 5.00	\$ 5.00	\$ 55.00	\$ 55.00	\$ 15.00	\$ (40.00)
2	\$ 50.00	\$ 5.00	\$ 10.00	\$ 60.00	\$ 30.00	\$ 30.00	\$ (30.00)
3	\$ 50.00	\$ 5.00	\$ 15.00	\$ 65.00	\$ 21.67	\$ 45.00	\$ (20.00)
4	\$ 50.00	\$ 5.00	\$ 20.00	\$ 70.00	\$ 17.50	\$ 60.00	\$ (10.00)
5	\$ 50.00	\$ 5.00	\$ 25.00	\$ 75.00	\$ 15.00	\$ 75.00	\$ -
6	\$ 50.00	\$ 5.00	\$ 30.00	\$ 80.00	\$ 13.33	\$ 90.00	\$ 10.00
7	\$ 50.00	\$ 5.00	\$ 35.00	\$ 85.00	\$ 12.14	\$ 105.00	\$ 20.00
8	\$ 50.00	\$ 5.00	\$ 40.00	\$ 90.00	\$ 11.25	\$ 120.00	\$ 30.00
9	\$ 50.00	\$ 5.00	\$ 45.00	\$ 95.00	\$ 10.56	\$ 135.00	\$ 40.00



Data comes from accounting

Result – Smart Students



Student determines minimum quantity that must be sold to assure profitable business. More sales means more profits.

Economists drop revenue and profit and use the same six columns to confuse people

Marginal Cost Model - Economics Class					
Quantity	Fixed Costs	Marginal Cost Per Unit	Variable Cost	Total Cost	Average Total Cost
0	\$ 3.00		\$ -	\$ 3.00	#DIV/0!
		\$ 0.30			
1	\$ 3.00		\$ 0.30	\$ 3.30	\$ 3.30
		\$ 0.50			
2	\$ 3.00		\$ 0.80	\$ 3.80	\$ 1.90
		\$ 0.70			
3	\$ 3.00		\$ 1.50	\$ 4.50	\$ 1.50
		\$ 0.90			
4	\$ 3.00		\$ 2.40	\$ 5.40	\$ 1.35
		\$ 1.10			
5	\$ 3.00		\$ 3.50	\$ 6.50	\$ 1.30
		\$ 1.30			
6	\$ 3.00		\$ 4.80	\$ 7.80	\$ 1.30
		\$ 1.50			
7	\$ 3.00		\$ 6.30	\$ 9.30	\$ 1.33
		\$ 1.70			
8	\$ 3.00		\$ 8.00	\$ 11.00	\$ 1.38
		\$ 1.90			
9	\$ 3.00		\$ 9.90	\$ 12.90	\$ 1.43
		\$ 2.10			
10	\$ 3.00		\$ 12.00	\$ 15.00	\$ 1.50

Economists initiate the deception by creating a new term they call marginal cost. They pretend that marginal cost and variable cost are different. This is not true. When one unit is produced, they are exactly the same.

Economist: Marginal Cost = The additional cost for one unit.  
 Accountant: Variable Cost = Cost that varies with production.

Economist rename the columns. Notice the Variable Cost column is actually the total of all marginal cost. In the break-even model this column is labeled total variable cost. The new column label is inaccurate and confusing.

Marginal cost data is made up. Never seen in real life

Marginal cost =  $\$ 0.1 + \$ 0.2 Q$  Variable cost =  $\$ 0.2 Q + \$ 0.1 Q^2$   
 (Thus Von Nuemann's reference to "Newtonian Math".)

Student determines quantity that has the lowest average cost. Students are taught that selling more than this amount will cause losses for the business.

Result – Confused Student. No business loses money accepting another sale, costs do not follow a quadratic equation.

College Textbooks have the same problem with fabricated data.

**Profit Maximizing Data from a Texas A&M Textbook**

Quantity	Total Revenue	Total Costs	Profit	Marginal Cost	Quadratic Model = $Q^2 - 7.5Q + 25$
0	\$ -	\$ 2.00	\$ (2.00)	\$ -	
1	\$ 4.00	\$ 5.00	\$ (1.00)	\$ 3.00	
2	\$ 8.00	\$ 7.00	\$ 1.00	\$ 2.00	
3	\$ 12.00	\$ 8.50	\$ 3.50	\$ 1.50	
4	\$ 16.00	\$ 10.50	\$ 5.50	\$ 2.00	\$ 11.00
5	\$ 20.00	\$ 13.00	\$ 7.00	\$ 2.50	\$ 12.50
6	\$ 24.00	\$ 16.50	\$ 7.50	\$ 3.50	\$ 16.00
7	\$ 28.00	\$ 21.50	\$ 6.50	\$ 5.00	\$ 21.50
8	\$ 32.00	\$ 28.50	\$ 3.50	\$ 7.00	\$ 29.00
9	\$ 36.00	\$ 38.00	\$ (2.00)	\$ 9.50	\$ 38.50
9	\$ 36.00	\$ 50.50	\$ (14.50)	\$ 12.50	\$ 50.00

Notice the total cost column closely mirrors a quadratic equation. No explanation is given for why the marginal costs vary from bushel to bushel. From the book:

“A wheat farmer has many costs, including the cost of seed and fertilizer and the wages for farm workers.”

No explanation for why the fixed costs are only \$2.00.

Result – Students learn nothing about the real world of running a business.

## Problems:

### Economists Fail to Follow Correct Mathematical Methods

The physical sciences use mathematics as an integral part of their theories that explain and predict physical phenomenon.

Economics misuses mathematical concepts to justify economic theories.

Closer examination shows that economic predictions using improper methods arrive at incorrect answers for someone running a business.

# Marginal Product of Labor – Economist’s View

Labor	Output	Marginal Product of Labor	Value of the Marginal Product of Labor	Wage	Marginal Profit
$L$ (number of workers)	$Q$ (bushels per week)	$MPL = \Delta Q / \Delta L$ (bushels per week)	$VMPL = P \times MPL$	$W$	$\Delta Profit = VMPL - W$
0	0				
1	100	100	\$1,000	\$500	\$500
2	180	80	800	500	300
3	240	60	600	500	100
4	280	40	400	500	-100
5	300	20	200	500	-300

From a Texas HS Economics Textbook

Marginal product of labor predicts 3 workers should be hired to maximize profit.

Ch 5 Figure 21 Mankiw’s Marginal Product of Labor

## Errors leading to incorrect solution:

1. Production is not driven by number of workers, it is driven by the product of workers and time, aka person-weeks.
2. Productivity of the work force coupled with person-weeks determines level of production.

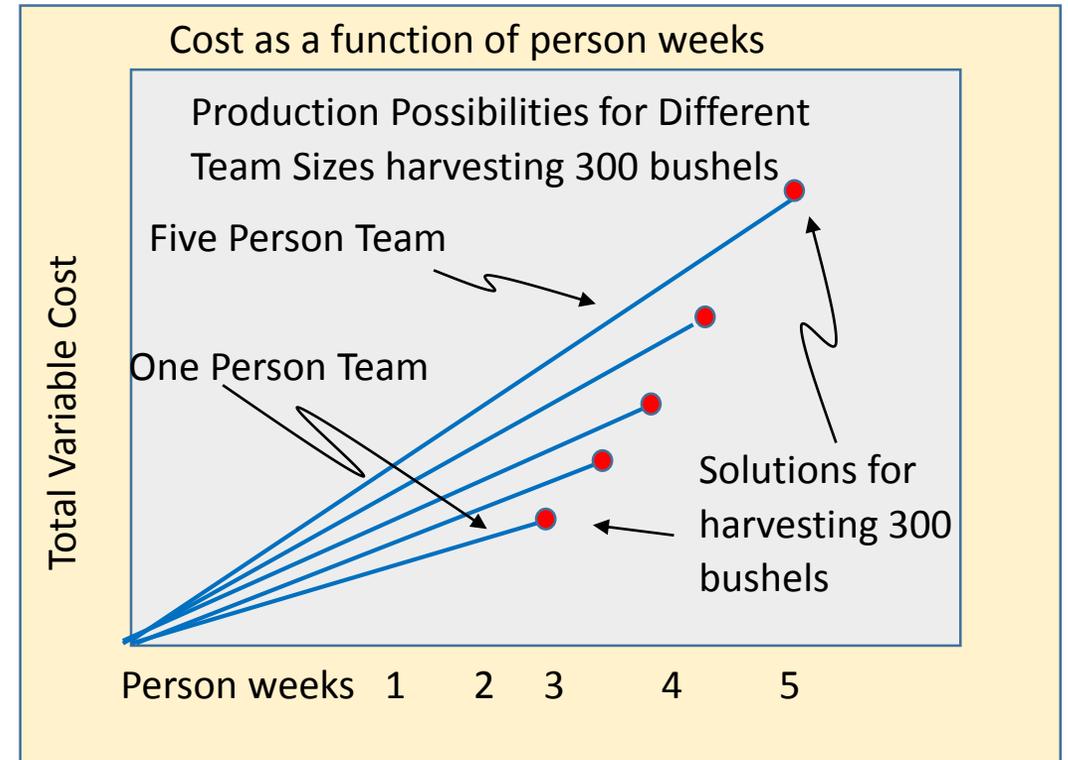
Students that have learned how to apply algebra are now very confused.

# Output as a Function of Person Weeks and Productivity

Productivity based upon team size using same data in economist view

(1)	(2)	(3)	(4)	(5)	(6)
Number Of Worlcers	Team Productivity: Bushels per week	Productivity Bushels per Man Week	Weeks to Harvest 300 Bushells	Person Weeks to Harvest 300 Bushels	Cost at \$500 per person week
1	100	100	3	3.00	\$ 1,500
2	180	90	1.67	3.33	\$ 1,667
3	240	80	1.25	3.75	\$ 1,875
4	280	70	1.07	4.29	\$ 2,143
5	300	60	1.00	5.00	\$ 2,500

Ch 5 Figure 22 Productivity Table



Ch 5 Figure 23 Cost Functions by Team Size

Standard business practices that focus on labor productivity show 5 different solutions dependent upon the productivity of the five different team sizes. The one person team is the least costly and provides the most profit. NOT the 3 person team as suggested by the economist.

Economists have confused productivity with production. Students know less after taking this class

## Problems:

### Many other issues are identified in the book:

1. Marginal revenue and model for monopolistic competition is wrong. (Ch 5)
2. Circular cash flow (circa 1750) the first model referenced in most economics textbooks does not reflect reality. (Ch 6)
3. Opportunity cost, (circa 1776) is just an oddity never used in running a business. (Ch 6)
4. Diminishing returns – economist confuse the concepts of productivity and return. (Ch 6)
5. Moral Hazard is a fundamental risk with many economic systems. Most textbooks inadequately discuss this issue sometimes only mentioning hourly workers shirking their responsibilities. No mention of moral hazard related to profiting on loan origination and passing the risk on to unsuspecting investors as experienced in the 2008 financial crisis. This is a failed opportunity to learn from our mistakes.
6. Supply and demand curves do not exist. Chapter 7 provides a mathematical proof. Using them to model economics is tantamount to fraud.

# Opportunities

Things our students should learn in a Financial Literacy class

1. Budgeting and planning for financial needs
2. Strategies and methods for saving and investing
3. Proper uses of credit and the risks associated with too much debt
4. Reading product markets and understanding how to stretch a dollar
5. Career choices and relation to earning potential and cost to acquire skills
6. Risk, Insurance, wills and other legal matters
7. Housing and homeownership as an investment
8. Taxation, commonwealth, social security, and retirement.

Teaching these skills at the high school level will unlock the entrepreneurial capabilities of over 400,000 students each year. Even if only 10% of the students find the confidence from this training to launch their own business, the economic stimulus would be profound.

Giving all of these students the fundamental knowledge for prosperity, will be a boon to the economy of Texas.

# Responsibilities

Sec. 4.001. PUBLIC EDUCATION MISSION AND OBJECTIVES. (a) The mission of the public education system of this state is to ensure that all Texas children have access to a quality education that enables them to **achieve their potential and fully participate** now and **in** the future in the social, **economic**, and educational **opportunities** of our state and nation.

The Knowledge and skills required to **fully participate in economic opportunities** includes:

Knowledge and Skill	Fin Literacy	Economics
1. Budgeting and planning for financial needs	yes	No
2. Strategies and methods for saving and investing	yes	No
3. Proper uses of credit and the risks associated with too much debt	yes	No
4. Reading product markets and understanding how to stretch a dollar	yes	No
5. Career choices and relation to earning potential	yes	No
6. Risk, Insurance, wills and other legal matters	yes	No
7. Housing and homeownership as an investment	yes	No
8. Taxation, commonwealth, social security, and retirement.	yes	No

**Financial Literacy = Practical Knowledge    Economics = Ancient Theories that don't apply to real life.** 12

## Prosperity

Prosperity only comes to people that work hard and understand how to manage their finances and navigate a competitive economic environment. Teaching our students financial literacy provides a better set of knowledge and skills for achieving prosperity than an economics class. Students learn how to take responsibility for their own financial prosperity.

## Obstacles to prosperity

1. Current high school graduation requirements specify Economics not Financial Literacy.
2. AP test credit at most major universities provides a college education subsidy of up to \$5,000.
3. Lack of information for parents and students on the advantages of financial literacy.
4. Lack of leadership/awareness in the academic system to fight for what our children need.

## Responsibility

I believe the Texas Education Agency, the State Legislature and the State Board of Education, have a responsibility to recognize the flaws of old economic theories. These theories are of no value for students that need practical real world education that allows them to prosper.

# Required Steps

## New Legislation:

1. Graduation requirements are specifically listed in Section 28.025 of the education code. Need to replace Economics with Financial Literacy. Same for TAC chapter 74.71
2. Advanced placement test credit for Economics needs to be replaced with AP test credit for Financial Literacy. It will be up to the College Board to develop new tests. Current education law in section 51.968 specifies that Universities in Texas must accept AP credit for any AP course. The Economics course credit should only be granted if the student also has AP credit for a financial literacy course. Alternately, the economics AP credit should be dropped at Texas Universities.
3. Current TEKS related to financial literacy are fairly confusing and should be re-written to carry the eight threads of knowledge and skills shown earlier. Chapter 118.4.