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Math 2270

05/06/2018

Economics

Introduction

The Leontief Input-Output model supposes the nation's economy is divided into *n* sectors that produces goods or services and x would be the production vector which lists the output of each sector. One of the sectors only consumes goods (the open sector). D would be the final demand vector which lists the values of all of the good consumed. The producer creates intermediate demand for goods that they need to create the final product. (amount produced x)=(intermediate demand)+(final demand d) One of the basic assumptions of this model is that for each sector, there is a unit consumption vector that lists inputs needed which are measured in millions of dollars.

Theorem 11

Let C be the consumption matrix for an economy, and let d be the final demand. If C and d have nonnegative entries and if each column sum of C is less than 1, then $(I-C)^{-1}$ exists and the production vector

$$X = (I-C)^{-1}d$$

has nonnegative entries and is the unique solution of

$$x=Cx+d$$

The importance of this theorem is that it shows how you can predict the production when the final demand changes .

Consumption Matrix

When the consumption matrix is calculated the economy is found to be horrible because of the total output numbers are less then what is inputted. This is proven with the output being lower for most industries. The economy took a drastic step backwards the following year as well mainly because of the retail side of business and a giant bubble was created. The financial crisis of 2007-2009 is thought to be worse financial situation since the great depression. The economy was performing very well until the final quarter. Since the housing area performed so poorly it poured into the rest of the economy. Some people thought we were officially in a depression but we still had economic growth in the middle of 2008. Figure 1 shows the economics from 2008 and how much it decreased by the end of the year.

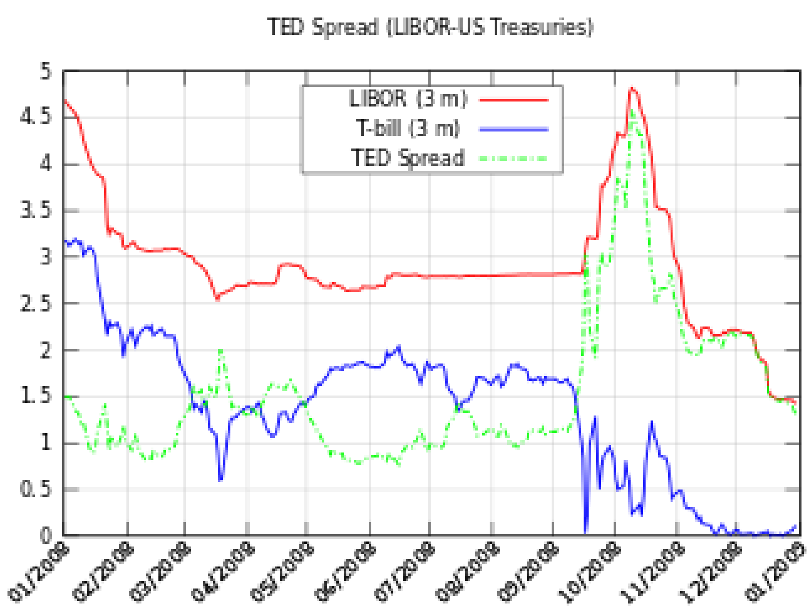

Figure 1

Conclusion

This goes to show that the economy was doing really badly during this time frame and that we needed to perform better to get back on track. One thing can ruin the entire vector and the entire status of it. Once it started dipping it didn't stop for a while.