## Introduction

Inflation results when actual economic pressures and anticipation of future developments cause the demand for goods and services to exceed the supply available at existing prices or when available output is restricted by faltering productivity and marketplace constraints. Inflation persistence refers to how long it takes for a case of inflation to go back to normal. In the article, the author argues how inflation persistence has decreased in the United States over the past 20 years, and the reason might be all the changes that have occurred during this time in the economy.

Jonathan L. Willis makes emphasizes on these different changes and/or specific facts that support his theory. First, he uses volatility and persistence of inflation as statistical features of inflation dynamics that have changed, becoming strong evidence to the topic. He analyzes how the structure of the input costs of firms has changed over time, when it comes to their capital, labor, and materials, affecting their source of funds, benefits and expenses; employment wages, salaries and benefits; and changes in storage and financing costs, respectively.

Then he talks about markups, explaining how competition can affect pricing behavior and how firms can lose market and pricing power because of increments of competition in the industry. He continues talking about information technology, especially computer related improvements, explaining how the use of this field affects the pricing decision and pricing adjustment of firms. Finally, Willis explains how the changes he wrote about relate to declines or increases in inflation.

Willis describes inflation dynamics with using two features (persistence and volatility), referring to volatility as the amount of inflation that changes from quarter to quarter or from year to year; and to persistence as how long it takes for inflation to return to normal. In this section, Willis discusses how inflation volatility has declined in the U.S. since 1960 to 2001. The decline in persistence of inflation started to arise in 1990, making it more severe than in the decades before. Before the 1960's changes or variances of inflation were less.

According to the statistics that are shown in Willis's article, using the core CPI, persistence declined from 0.90 in the years 1960-1990 to 0.77 for 1999-2002. Using the core PCE, it fell from 0.89 in the years 1960-1992 to 0.66 in the years 1992-2002.

He explains how changes in the inputs of production (labor, capital and materials) may result in an increase of the output price. Labor is the most important one out of the inputs of production, constituting 60% of the total input cost, divided into wages/salaries and benefits paid or offered to the employee. Over the past 40 years, labor's share of costs has remained relatively stable; however, labor has gone through other changes: benefits began to increase; wages/salaries began to decrease. Before 1990, the benefits were lower, and the wages/salaries were higher because the cost of insurance was much higher. More temporary workers were being employed; fewer permanent workers were being hired. Obviously, it is more expensive to have permanent workers than temporary workers. Temporary workers receive wages, but no benefits, and the labor costs are lower.

As their capital, firms use bank loans, corporate bond lending, and/or commercial papers. When using bank loans, the lower financing of borrowed funds benefits the firm.

When firms make wrong decisions and/or take bad loans, their financing costs can rise or, even worse, it may be hard or even impossible for the firm to get other loans. Another source of capital is corporate bonds, which are usually available for larger firms with strong financial records. The use of commercial paper has increased from 4% in 1980 to 7% in 2000; therefore, the use of bank loans has decreased from 48% in 1980 to 35% in 2000. The use of corporate bond lending has also increased from 48% in 1980 to 58% in 2000. Because of these statistics, loan refusals and financing costs of bank loans have decreased.

Another important change that has occurred in input costs includes the inventory of materials and its management. This has been accomplished primarily because of advances in technology such as computers, which help keep inventory, and other stockpiles of materials organized. Production levels of a firm are very dependent upon materials. Storage and financing costs have been lowered because of these changes. To maintain a proper inventory of materials there are two things that firms need: Sufficient storage space, and the ability to finance the cost of the materials. The storage space depends on how much material is needed for production. The reason finance for the cost of materials is needed is that the firm needs the materials before the final product is made and paid for. The inventory levels can now be managed less expensively because of advances in information technology.

A markup occurs when a price is set above the marginal cost of production, and it can affect the output pricing behavior. According to studies done on the topic, because global competition has increased, markups have declined over time. According to Willis, there are three factors of the U.S trade that have contributed to the increase of global

competition: increase in the percentage of imports in total consumption of durable goods (except automobiles), increase in the percentage of imports in total consumption of nondurable goods, and increase in the percentage of imports in capital goods expenditures (except automobiles).

Willis starts the section of “Frequency of Adjustment” with the results of a few survey questions to various firms, interested mainly in what affects the decision of a price change and its implementation. Many firms don’t change prices because of the costs of changing them and because of the impact that it would cause in customers. Other firms said that they don’t change price regularly because of adjustment costs such as new catalogs, new price lists, etc. However, because of technological changes and advances, costs of price adjustment have decreased, and there are three reasons for it: 1. Scanning technology. It is much easier to change the price of an item by just scanning it, and not having to deal with changing the price tags of each of the items. 2. Information technology has allowed easier and more organized record keeping and access data in a firm. 3. Antagonizing customers; for example, now days, people can easily compare prices over the Internet.

In the last section, Willis concludes saying that the changes he spoke about throughout the article affect pricing decisions and inflation by “decreasing the volatility of inflation over the business cycle.” He also says that inflation won’t be as bad as it’s been before because the marginal cost of labor won’t fall too quickly in a downturn because employment for permanent employees would increase, and the employment for temporary employees would decrease.

## Conclusion

In conclusion, Willis showed in his article how inflation persistence and volatility work, being relative to each other (if one decreases, the other will decrease as well). Demonstrating the relationship between the two terms, he also showed how the changes he discussed can easily give arise to a decrease in the volatility and persistence of inflation. Input costs are a very important section in this article because the inputs of production (materials, labor and capital) are the basis of any business. All three inputs of production have being going through changes for the past 2 decades. Labor changed by employing more temporary than permanent positions; capital has changed by lowering the use of bank loans and increasing the use of commercial paper and corporate bonds; and materials have changed by using information technology and/or databases.

He also talks about competition in the market in the "markup" section. Informing us what a markup is, he implies how important it is to changes in inflation by saying that global competition influences the decline in markups.

The responses to the survey that Willis includes in the article help readers understand what he was talking about and the message he wanted to get across. He wants to inform why firms don't like to make price changes, and it seems like information technology has made it much easier for firms to be able to change the prices of their merchandise without having as many expenses as before.

Willis concludes explaining how all the changes he spoke about relate to the reduction of persistence of inflation.