Introduction

I am the president and CEO of the Federal Reserve Bank of Cleveland. As part of my responsibilities, I also serve on the Federal Open Market Committee, or FOMC, which sets monetary policy for our nation.

Of course, we know that economic conditions can be vastly different from region to region. At the Federal Reserve Bank of Cleveland, we have spent time researching the factors that determine the differences we see in regional economic growth. This morning, I would like to share some of those findings and explain why investments in innovation and human capital are important keys to our region's long-run prosperity.

I will begin by giving you a brief perspective on the national economy. Next, I will describe some of the longer-term challenges we have been facing here in Ohio. Finally, I will discuss the importance of innovation and human capital to our region's future.

Please understand that my remarks are my own and do not necessarily reflect the views of my colleagues in the Federal Reserve System.

I. The National Economy

Perhaps the best way for me to begin my discussion of the national economy is to take you back to September 18. On that day, the Federal Open Market Committee met and decided to cut its target for the federal funds rate by 50 basis points. This meeting, as you know, followed a volatile month in the financial markets.

There was concern that the turbulence in the financial markets could slow economic activity in coming months. The risks that spillover effects from housing could lead to slower gains in employment, income, and consumer spending had increased. The risks that businesses might scale back their capital spending next year in response to these factors had also increased. The inflation situation seemed to have improved slightly, although some inflation risks remained and continued to warrant close monitoring.

Given these conditions, the Committee indicated that the uncertainty surrounding the economic outlook had increased. The Committee also emphasized that future policy actions would depend on how economic prospects were affected by evolving market developments.
Since our September 18 meeting, the housing sector has remained very weak, but output and employment in other sectors appear to be holding up. Inflation and inflation expectations continue to be moderate and anchored. The strains in financial markets that were so evident and worrisome in mid-September appear to have lessened somewhat. During the past few weeks, as market participants have gained a better understanding of their financial positions and the positions of others, financial markets have become more stable. The Federal Open Market Committee meets again on October 30th and 31st, and we will once more assess developments and act as needed to foster price stability and maximum sustainable economic growth.

II. Longer-term Trends in the Ohio Economy
While the FOMC's policies are national in scope, meaning that we take policy actions based on what is best for the country as a whole - we are also well aware that different regions of the country face their own special circumstances and challenges.

Here in Ohio, while we are confronting many of the problems that are evident in the national economy, we are also challenged by longer-term structural issues.

Let's look at how these longer-term issues have evolved. If I were to step back in time, say to the late 1950s, I would be standing here telling you that the Ohio economy was the 5th largest among the 50 states, that we were among the top three manufacturing states in the country, and that our economy was adding good jobs - that is, well-paid manufacturing jobs. I would have proudly stated how the investments we were making in physical capital - our steel mills, automotive plants, and highway infrastructure - had placed Ohio at the center of the U.S. economy.

And I probably would have painted a pretty rosy picture of our economy going forward. I think my speech would have made us all feel good, and we could have patted ourselves on the back and headed home.

Unfortunately, as we all know, today Ohio's economy is facing some challenges. And although we might not have known back in the 1950s the specific challenges our economy would face, our region should have expected to be challenged in new ways. The fact is that the forces of economic change always require us to adapt. This process is sometimes referred to as creative destruction.

What do I mean by creative destruction? Well, this phrase is credited to a Harvard economist named Joseph Schumpeter. It describes a process by which market economies evolve. Technological change and innovation constantly create new opportunities and challenges in the economy. Some firms embrace the change and thrive, while others struggle and may ultimately fail. In our capitalist economy, this is a fundamental part of the competitive process. It helps move resources from less-productive to more-productive uses.

The dynamics of creative destruction play out across almost all sectors of our economy. The churning of firms also creates a churning in the labor markets. Here in Ohio, we have roughly 5.5 million workers. In each quarter of the year, roughly 300,000 jobs are destroyed, but in each quarter, roughly 300,000 new jobs are created.

But even with all of this churning, Ohio's labor market is less dynamic
than the nation as a whole. That is, at the national level, roughly 7 percent more jobs are created each quarter than are lost. Many Ohioans tend to blame our weaker employment growth on the job losses in our traditional manufacturing industries. However, Ohio is not losing jobs at a faster rate than the rest of the country. Our problem is not unusually high job destruction. Instead, it is our weak job creation, especially in the number of jobs created through new business formation.

This weakness is also mirrored in statistics on income. Whether we look at median household income or per-capita personal income, Ohio's income growth has trailed the nation over the past several years. This lack of income growth reflects, in part, the weak labor market and the lower proportion of high-skilled jobs in our economy.

Creative destruction is often painful, especially for workers with skills in low demand. But the process is central to a well-functioning market economy, and it will persist in the future. So, while it may be natural for us to miss the good old days, we really ought to be more concerned about missing out on the best of tomorrow.

How, then, can Ohio get on the right path and get our economy expanding at rates seen in other parts of the country? To answer this question, we need to understand the factors that determine how a region grows.

III. The Importance of Innovation and Human Capital

While a number of factors may explain differences in regional economic performance, our research at the Federal Reserve Bank of Cleveland shows that over the long run, there are two key drivers of regional economic growth - innovation and human capital.

Innovation

Let me begin with innovation - and I want to be specific about that word. In an economist's view, innovation does not simply mean change or creativity. In the context of economic growth, innovation is technological change or a business process improvement that makes people more productive.

Innovation comes in all forms, and it often becomes embedded in the tools or capital we use - like computers and cell phones. Other times, it is much closer to pure knowledge, such as mapping the human genome. At a very general level, innovation reflects our accumulation of knowledge about the production of goods and services.

Society generates innovation through both commercial and publicly funded research and development, but the vast majority of R&D is financed and carried out by private firms. The structure of our economy creates incentives for firms to take risks and to undertake innovative activities. The payoffs to a new blockbuster drug, a new computer program, or a new medical device can be substantial.

We know that innovation will be commercialized more readily in regions where entrepreneurship and business formation are encouraged. And our research shows that regions where such innovative activity prospers through commercialization have a real advantage. Specifically, states that generate a greater amount of innovation through patenting of inventions show greater per-capita
Historically, Ohio has been a relatively innovative state, and this has boosted our long-term growth. However, our advantage in innovation has been diminishing over time. Back in the 1950s, Ohio was producing almost 50 percent more patents per capita than the nation as a whole. Today, we produce patents at a rate very similar to the rest of the nation.

**Human Capital**

The second key factor driving regional economic growth is human capital. While innovation is the accumulation of knowledge that makes people more productive, human capital is actually the wellspring of innovation. Human capital represents the knowledge and skills that workers, managers and entrepreneurs acquire through school, on-the-job training, and informal channels.

The willingness and opportunity to build human capital is the great equalizer in our society. And, in turn, societies themselves benefit from the knowledge and skills that individuals accumulate. Research shows that states with greater amounts of human capital, as reflected in the education levels of their workforces, grow significantly faster than states with less-educated workforces.

This result, of course, is linked to the innovation story I told earlier. Regions that accumulate greater amounts of knowledge have an advantage in creating new products and ideas. Cities like Boston, Seattle, and San Jose, which have recently been at the forefront of knowledge creation and innovation, have exceedingly well-educated workforces. And it is the ability of these regions to continue to attract, develop, and retain their skilled workforces that will drive further growth.

Unfortunately, Ohio's education levels are below average, and this has held back our rate of per-capita income growth. This is especially true in terms of the share of our population with a college degree. Even though Ohio is the 7th largest economy in the nation today, we rank 38th out of the 50 states in terms of adults with a college degree. This is unacceptable, and we need to do better.

New information technologies have increased the demand for highly skilled, more educated workers. This growing demand for highly skilled workers has also increased their relative wages. In 1975, a college graduate earned about 19 percent more than someone with a high school diploma, but today, that differential has risen to 63 percent. This represents a phenomenon known as skill-biased technological change, and it is one explanation for the significant increase in earnings inequality we have experienced in our nation over the past 30 years.

What is most troublesome about the rise in earnings inequality is not simply that workers at the top of wage distribution have done better, but that those at the lowest part of the income distribution have made such little progress in terms of real wage growth. Workers with high school diplomas or less have actually seen their real wages decline over the past several decades.

The problem is that the skills that come with a high-school education are increasingly inadequate to do the work of the jobs available today. This is only likely to become more true over time. The technological changes we have witnessed in recent years require that people deepen their own human capital in order to stay employable. More education is required not only so individuals can take advantage
of new technologies, but also so that they are in a position to
generate more of these innovations in the future. These are the keys
to our region's economic future.

Conclusion
For Ohio to flourish over the long term, we need to create an
economic climate that encourages innovative endeavors and fosters
investments in human capital.

Those individuals and those regions that invest most effectively in
education will be more readily able to adapt to the economic shocks
that are bound to occur. It may be that the returns on the
investments we make in education are not specifically tied to what
we learn, but rather in enhancing our ability to learn. And it is our
ability to learn and create that allows us to innovate and to respond
to the changes in the economy that, while uncertain in nature and
timing, are certain to come.

I am confident in our region's resourcefulness, and I know that we
will remain committed to building an economic future that will be as
enriching as our past. All of you play an important role in this
process.