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Remarks on Class Day 2008

by

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It seems to me, paradoxically, that both long ago and only yesterday I attended my own Class Day in 1975. I am pleased and honored to be invited back by the students of Harvard. Our speaker in 1975 was Dick Gregory, the social critic and comedian, who was inclined toward the sharp-edged and satiric. Central bankers don't do satire as a rule, so I am going to have to strive for "kind of interesting."

When I attended Class Day as a graduating senior, Gerald Ford was President, and an up-and-coming fellow named Alan Greenspan was his chief economic adviser. Just weeks earlier, the last Americans remaining in Saigon had been evacuated by helicopters. On a happier note, the Red Sox were on their way to winning the American League pennant. I skipped classes to attend a World Series game against the Cincinnati Reds. As was their wont in those days, the Sox came agonizingly close to a championship but ended up snatching defeat from the jaws of victory. On that score, as on others--disco music and Pet Rocks come to mind--many things are better today than they were then. In fact, that will be a theme of my remarks today.

Although 1975 was a pretty good year for the Red Sox, it was not a good one for the U.S. economy. Then as now, we were experiencing a serious oil price shock, sharply rising prices for food and other commodities, and subpar economic growth. But I see the differences between the economy of 1975 and the economy of 2008 as more telling than the similarities. Today's situation differs from that of 33 years ago in large part because our economy and society have become much more flexible and able to adapt to difficult situations and new challenges. Economic policymaking has improved as well, I believe, partly because we have learned well some of the hard lessons of the past. Of course, I do not want to minimize the challenges we currently face, and I will come back to a few of

these. But I do think that our demonstrated ability to respond constructively and effectively to past economic problems provides a basis for optimism about the future.

I will focus my remarks today on two economic issues that challenged us in the 1970s and that still do so today--energy and productivity. These, obviously, are not the kind of topics chosen by many recent Class Day speakers--Will Farrell, Ali G, or Seth MacFarlane, to name a few. But, then, the Class Marshals presumably knew what they were getting when they invited an economist.

Because the members of today's graduating class--and some of your professors--were not yet born in 1975, let me begin by briefly surveying the economic landscape in the mid-1970s. The economy had just gone through a severe recession, during which output, income, and employment fell sharply and the unemployment rate rose to 9 percent. Meanwhile, consumer price inflation, which had been around 3 percent to 4 percent earlier in the decade, soared to more than 10 percent during my senior year.<sup>1</sup>

The oil price shock of the 1970s began in October 1973 when, in response to the Yom Kippur War, Arab oil producers imposed an embargo on exports. Before the embargo, in 1972, the price of imported oil was about \$3.20 per barrel; by 1975, the average price was nearly \$14 per barrel, more than four times greater. President Nixon had imposed economy-wide controls on wages and prices in 1971, including prices of petroleum products; in November 1973, in the wake of the embargo, the President placed additional controls on petroleum prices.<sup>2</sup>

As basic economics predicts, when a scarce resource cannot be allocated by market-determined prices, it will be allocated some other way--in this case, in what was

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<sup>1</sup> Inflation is calculated as the percent change from four quarters earlier in the price index for personal consumption expenditures (PCE), published by the U.S. Department of Commerce.

<sup>2</sup> See Energy Information Administration (2002).

to become an iconic symbol of the times, by long lines at gasoline stations. In 1974, in an attempt to overcome the unintended consequences of price controls, drivers in many places were permitted to buy gasoline only on odd or even days of the month, depending on the last digit of their license plate number. Moreover, with the controlled price of U.S. crude oil well below world prices, growth in domestic exploration slowed and production was curtailed--which, of course, only made things worse.

In addition to creating long lines at gasoline stations, the oil price shock exacerbated what was already an intensifying buildup of inflation and inflation expectations. In another echo of today, the inflationary situation was further worsened by rapidly rising prices of agricultural products and other commodities.

Economists generally agree that monetary policy performed poorly during this period. In part, this was because policymakers, in choosing what they believed to be the appropriate setting for monetary policy, overestimated the productive capacity of the economy. I'll have more to say about this shortly. Federal Reserve policymakers also underestimated both their own contributions to the inflationary problems of the time and their ability to curb that inflation. For example, on occasion they blamed inflation on so-called cost-push factors such as union wage pressures and price increases by large, market-dominating firms; however, the abilities of unions and firms to push through inflationary wage and price increases were symptoms of the problem, not the underlying cause. Several years passed before the Federal Reserve gained a new leadership that better understood the central bank's role in the inflation process and that sustained anti-inflationary monetary policies would actually work. Beginning in 1979, such policies were implemented successfully--although not without significant cost in terms of lost

output and employment--under Fed Chairman Paul Volcker. For the Federal Reserve, two crucial lessons from this experience were, first, that high inflation can seriously destabilize the economy and, second, that the central bank must take responsibility for achieving price stability over the medium term.

Fast-forward now to 2003. In that year, crude oil cost a little more than \$30 per barrel.<sup>3</sup> Since then, crude oil prices have increased more than fourfold, proportionally about as much as in the 1970s. Now, as in 1975, adjusting to such high prices for crude oil has been painful. Gas prices around \$4 a gallon are a huge burden for many households, as well as for truckers, manufacturers, farmers, and others. But, in many other ways, the economic consequences have been quite different from those of the 1970s. One obvious difference is what you don't see: drivers lining up on odd or even days to buy gasoline because of price controls or signs at gas stations that say "No gas." And until the recent slowdown--which is more the result of conditions in the residential housing market and in financial markets than of higher oil prices--economic growth was solid and unemployment remained low, unlike what we saw following oil price increases in the '70s.

For a central banker, a particularly critical difference between then and now is what has happened to inflation and inflation expectations. The overall inflation rate has averaged about 3-1/2 percent over the past four quarters, significantly higher than we would like but much less than the double-digit rates that inflation reached in the mid-1970s and then again in 1980. Moreover, the increase in inflation has been milder this time--on the order of 1 percentage point over the past year as compared with the

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<sup>3</sup> See Energy Information Administration (2008a).

6 percentage point jump that followed the 1973 oil price shock.<sup>4</sup> From the perspective of monetary policy, just as important as the behavior of actual inflation is what households and businesses *expect* to happen to inflation in the future, particularly over the longer term. If people expect an increase in inflation to be temporary and do not build it into their longer-term plans for setting wages and prices, then the inflation created by a shock to oil prices will tend to fade relatively quickly. Some indicators of longer-term inflation expectations have risen in recent months, which is a significant concern for the Federal Reserve. We will need to monitor that situation closely. However, changes in long-term inflation expectations have been measured in tenths of a percentage point this time around rather than in whole percentage points, as appeared to be the case in the mid-1970s. Importantly, we see little indication today of the beginnings of a 1970s-style wage-price spiral, in which wages and prices chased each other ever upward.

A good deal of economic research has looked at the question of why the inflation response to the oil shock has been relatively muted in the current instance.<sup>5</sup> One factor, which illustrates my point about the adaptability and flexibility of the U.S. economy, is the pronounced decline in the energy intensity of the economy since the 1970s. Since 1975, the energy required to produce a given amount of output in the United States has fallen by about half.<sup>6</sup> This great improvement in energy efficiency was less the result of government programs than of steps taken by households and businesses in response to higher energy prices, including substantial investments in more energy-efficient

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<sup>4</sup> Total PCE inflation (four-quarter change) went from 5 percent in 1973:Q2 to 11.4 percent in 1974:Q4, an increase of 6.4 percentage points. If we take 1972:Q4, in which inflation was 3.4 percent, as the starting point, the increase in inflation to the 1974 peak was 8 percentage points.

<sup>5</sup> See, for example, Blanchard and Gali (2007) and the references therein.

<sup>6</sup> In 1975, roughly 17,000 Btu of energy were required, on average, to produce a dollar's worth of output, with output being measured in chained (2000) dollars. In 2007 the corresponding figure was 8,800 Btu (see Table 1.7, "Energy Consumption per Real Dollar of Gross Domestic Product," in Energy Information Administration, 2008b).

equipment and means of transportation. This improvement in energy efficiency is one of the reasons why a given increase in crude oil prices does less damage to the U.S. economy today than it did in the 1970s.

Another reason is the performance of monetary policy. The Federal Reserve and other central banks have learned the lessons of the 1970s. Because monetary policy works with a lag, the short-term inflationary effects of a sharp increase in oil prices can generally not be fully offset. However, since Paul Volcker's time, the Federal Reserve has been firmly committed to maintaining a low and stable rate of inflation over the longer term. And we recognize that keeping longer-term inflation expectations well anchored is essential to achieving the goal of low and stable inflation. Maintaining confidence in the Fed's commitment to price stability remains a top priority as the central bank navigates the current complex situation.

Although our economy has thus far dealt with the current oil price shock comparatively well, the United States and the rest of the world still face significant challenges in dealing with the rising global demand for energy, especially if continued demand growth and constrained supplies maintain intense pressure on prices. The silver lining of high energy prices is that they provide a powerful incentive for action--for conservation, including investment in energy-saving technologies; for the investment needed to bring new oil supplies to market; and for the development of alternative conventional and nonconventional energy sources. The government, in addition to the market, can usefully address energy concerns, for example, by supporting basic research and adopting well-designed regulatory policies to promote important social objectives such as protecting the environment. As we saw after the oil price shock of the 1970s,

given some time, the economy can become much more energy-efficient even as it continues to grow and living standards improve.

Let me turn now to the other economic challenge that I want to highlight today-- the productivity performance of our economy. At this point you may be saying to yourself, "Is it too late to book Ali G?" However, anyone who stayed awake through EC 10 understands why this issue is so important.<sup>7</sup> As Adam Smith pointed out in 1776, in the long run, more than any other factor, the productivity of the workforce determines a nation's standard of living.

The decades following the end of World War II were remarkable for their industrial innovation and creativity. From 1948 to 1973, output per hour of work grew by nearly 3 percent per year, on average.<sup>8</sup> But then, for the next 20 years or so, productivity growth averaged only about 1-1/2 percent per year, barely half its previous rate. Predictably, the rate of increase in the standard of living slowed as well, and to about the same extent. The difference between 3 percent and 1-1/2 percent may sound small. But at 3 percent per year, the standard of living would double about every 23 years, or once every generation; by contrast, at 1-1/2 percent, a doubling would occur only roughly every 47 years, or once every other generation.

Among the many consequences of the productivity slowdown was a further complication for the monetary policy makers of the 1970s. Detecting shifts in economic trends is difficult in real time, and most economists and policymakers did not fully appreciate the extent of the productivity slowdown until the late 1970s. This further influenced the policymakers of the time toward running a monetary policy that was too

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<sup>7</sup> EC 10 is Harvard's introductory course in principles of economics.

<sup>8</sup> Output per hour worked reflects data from the Bureau of Labor Statistics for the private nonfarm business sector.

accommodative. The resulting overheating of the economy probably exacerbated the inflation problem of that decade.<sup>9</sup>

Productivity growth revived in the mid-1990s, as I mentioned, illustrating once again the resilience of the American economy.<sup>10</sup> Since 1995, productivity has increased at about a 2-1/2 percent annual rate. A great deal of intellectual effort has been expended in trying to explain the recent performance and to forecast the future evolution of productivity. Much very good work has been conducted here at Harvard by Dale Jorgenson (my senior thesis adviser in 1975, by the way) and his colleagues, and other important research in the area has been done at the Federal Reserve Board.<sup>11</sup> One key finding of that research is that, to have an economic impact, technological innovations must be translated into successful commercial applications. This country's competitive, market-based system, its flexible capital and labor markets, its tradition of entrepreneurship, and its technological strengths--to which Harvard and other universities make a critical contribution--help ensure that that happens on an ongoing basis.

While private-sector initiative was the key ingredient in generating the pickup in productivity growth, government policy was constructive, in part through support of basic research but also to a substantial degree by promoting economic competition. Beginning in the late 1970s, the federal government deregulated a number of key industries, including air travel, trucking, telecommunications, and energy. The resulting increase in competition promoted cost reductions and innovation, leading in turn to new

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<sup>9</sup> See Orphanides (2003).

<sup>10</sup> One of the earlier papers that was used by many observers to suggest the possibility of a mid-1990s inflection point in productivity growth was Corrado and Slifman (1999). The initial version of this paper was posted on the Federal Reserve's web site on November 18, 1996 at <http://www.federalreserve.gov/pubs/oss/oss1/oss1.doc.html>.

<sup>11</sup> Some of the important papers include Oliner, Sichel, and Stiroh (2007), Jorgenson, Ho, and Stiroh (2007), and Corrado and others (2007).

products and industries. It is difficult to imagine that we would have online retailing today if the transportation and telecommunications industries had not been deregulated. In addition, the lowering of trade barriers promoted productivity gains by increasing competition, expanding markets, and increasing the pace of technology transfer.<sup>12</sup>

Finally, as a central banker, I would be remiss if I failed to mention the contribution of monetary policy to the improved productivity performance. By damping business cycles and by keeping inflation under control, a sound monetary policy improves the ability of households and firms to plan and increases their willingness to undertake the investments in skills, research, and physical capital needed to support continuing gains in productivity.

Just as the productivity slowdown was associated with a slower growth of real per capita income, the productivity resurgence since the mid-1990s has been accompanied by a pickup in real income growth. One measure of average living standards, real consumption per capita, is nearly 35 percent higher today than in 1995. In addition, the flood of innovation that helped spur the productivity resurgence has created many new job opportunities, and more than a few fortunes. But changing technology has also reduced job opportunities for some others--bank tellers and assembly-line workers, for example. And that is the crux of a whole new set of challenges.

Even though *average* economic well-being has increased considerably over time, the degree of *inequality* in economic outcomes over the past three decades has increased as well. Economists continue to grapple with the reasons for this trend. But as best we can tell, the increase in inequality probably is due to a number of factors, notably including technological change that seems to have favored higher-skilled workers more

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<sup>12</sup> For example, see Doms and Jensen (1998), Corrado, Lengeremann, and Slifman (2007), and Kurz (2006).

than lower-skilled ones. In addition, some economists point to increased international trade and the declining role of labor unions as other, probably lesser contributing factors.

What should we do about rising economic inequality? Answering this question inevitably involves difficult value judgments and tradeoffs. But approaches that inhibit the dynamism of our economy would clearly be a step in the wrong direction. To be sure, new technologies and increased international trade can lead to painful dislocations as some workers lose their jobs or see the demand for their particular skills decline. However, hindering the adoption of new technologies or inhibiting trade flows would do far more harm than good over the longer haul. In the short term, the better approach is to adopt policies that help those who are displaced by economic change. By doing so, we not only provide assistance to those who need it but help to secure public support for the economic flexibility that is essential for prosperity.

In the long term, however, the best way by far to improve economic opportunity and to reduce inequality is to increase the educational attainment and skills of American workers. The productivity surge in the decades after World War II corresponded to a period in which educational attainment was increasing rapidly; in recent decades, progress on that front has been far slower. Moreover, inequalities in education and in access to education remain high. As we think about improving education and skills, we should also look beyond the traditional K-12 and 4-year-college system--as important as it is--to recognize that education should be lifelong and can come in many forms. Early childhood education, community colleges, vocational schools, on-the-job training, online courses, adult education--all of these are vehicles of demonstrated value in increasing skills and lifetime earning power. The use of a wide range of methods to address the

pressing problems of inadequate skills and economic inequality would be entirely consistent with the themes of economic adaptability and flexibility that I have emphasized in my remarks.

I will close by shifting from the topic of education in general to your education specifically. Through effort, talent, and doubtless some luck, you have succeeded in acquiring an excellent education. Your education--more precisely, your ability to think critically and creatively--is your greatest asset. And unlike many assets, the more you draw on it, the faster it grows. Put it to good use.

The poor forecasting record of economists is legendary, but I will make a forecast in which I am very confident: Whatever you expect your life and work to be like 10, 20, or 30 years from now, the reality will be quite different. In looking over the 30th anniversary report on my own class, I was struck by the great diversity of vocations and avocations that have engaged my classmates. To be sure, the volume was full of attorneys and physicians and professors as well as architects, engineers, editors, bankers, and even a few economists. Many listed the title "vice president," and, not a few, "president." But the class of 1975 also includes those who listed their occupations as composer, environmental advocate, musician, playwright, rabbi, conflict resolution coach, painter, community organizer, and essayist. And even for those of us with the more conventional job descriptions, the nature of our daily work and its relationship to the economy and society is, I am sure, very different from what we might have guessed in 1975. My point is only that you cannot predict your path. You can only try to be as prepared as possible for the opportunities, as well as the disappointments, that will come

your way. For people, as for economies, adaptability and flexibility count for a great deal.

Wherever your path leads, I hope you use your considerable talents and energy in endeavors that engage and excite you and benefit not only yourselves, but also in some measure your country and your world. Today, I wish you and your families a day of joyous celebration. Congratulations.

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