In what has become an undying debate since its emergence in the 1980's, academic professors, economists, unions, and businesses have argued about the cause of the wage gap between skilled and unskilled workers in the United States. While other explanations have been offered, this paper will focus on the two most prominent and address their respective merits (or lack thereof). The first argument places blame for the wage gap on the combined forces of international trade and immigration, while the second argument suggests changes in physical capital and technology are responsible for the gap. The research done surrounding the growing wage gap between skilled and unskilled labor has provided mixed evidence, at best, to support the claim that international trade and immigration are responsible for the wage gap. However, the same research has overwhelmingly suggested that labor saving technological change is in fact responsible for the growth in the wage gap between skilled and unskilled labor.

Upon further investigation, it is clear that the aforementioned technological change is the result of a political blunder, rather than sound economic policy. Most unfortunate of all is that the U.S. has only itself to blame; the wage gap created by this change could have been easily prevented through laissez-faire economic policy. At this point, the most effective way to reduce our wage gap comes in the form of an adjustment to our minimum wage, perhaps in a counterintuitive way.

The figure below from The Quarterly Journal of Economics paints a clear picture of technology's role as a driving force of the wage gap. The graph, comparing employment trends with trends in output, capital, and materials from 1959 through 1990, at the heart of the technological boom, shows that the growth rates between capital, materials, and output are relatively uniform, all while employment, "especially of non-

skilled workers, grew much more slowly." (U.S. Bureau of Labor Statistics, n.p.) These changes in overall U.S. labor supply seem to suggest that immigration did not have a significant effect on the on the overall growth rate. What the graph *does* suggest is that labor grew less rapidly than output, meaning that there must have been a significant amount of labor saving technological change. It is this technological change, not the immigration of unskilled workers, which accounts for the slow growth in domestic unskilled employment, thus producing the widening gap between nonproduction (skilled) and production (unskilled) labor that is apparent over time.

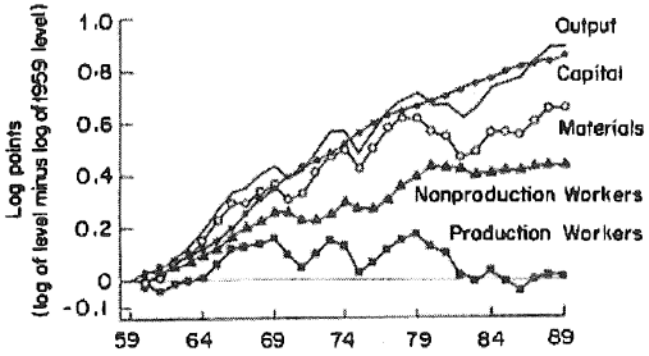

FIGURE III
Output and Inputs in Manufacturing

The graph above is hardly the only indication of rapid technological development during the same period as the growing wage gap. The table below from the National Science Foundation and Bureau of Economic Analysis shows the possible contributors to the increased relative demand for skilled labor. The key point established by this data is that as R & D expenditures rose, expenditures on "high tech capital", including computers and communications equipment, increased at a much greater rate.

	1959	1973	1979	1987
R & D expenditures as a fraction of manufacturing shipments				
Total	2.6	2.4	2.2	3.9
Privately funded	1.6	0.9	0.7	1.3
Government funded	1.1	1.5	1.5	2.6
Share of high tech capital in total manufacturing capital stock				
Total	1.0	1.4	3.3	6.9
Computing eq.	0.3	0.2	0.5	2.3
Communications eq.	0.2	0.3	0.6	2.2
Scientific eq.	0.5	0.6	1.3	1.2
Photocopy eq.	0.0	0.3	1.0	1.2
Imports and exports as a fraction of manufacturing shipments				
Exports	4.5	8.4	10.6	10.7
Imports	4.2	8.2	12.3	17.3
Department of Defense purchases as a fraction of manufacturing shipments				
Purchases	5.9	2.1	2.0	4.2

Source. Rows 1–3, National Science Foundation [1991] and ASM; Rows 4–8, unpublished tabulations, Bureau of Economic Analysis; Rows 9–11 National Income and Products Accounts and ASM.

Additionally, data from the Bureau of Labor Statistics (BLS), reported that "multifactor productivity rose by 1.6 percent per year between 1979 and 1988, 40 percent faster than in the previous twenty years." (Berman, Bound, and Griliches, 375) The technological revolution clearly contributed to the wage gap in the following way: Improvements in physical capital reduced the demand for unskilled workers while the supply remained constant, thus, by classical economic theory, driving down unskilled wage. Meanwhile, those same technological innovations created an increase in demand for skilled labor to manage and program the advanced technology, while supply also remained relatively constant, thus *increasing* wages for skilled workers. The net effect on the wage gap is clear; as a result of improvements to physical capital, the combined effect of the wage reduction for unskilled labor and the wage increase for skilled labor further drove a significant wedge between the earnings for both groups.

Those who argue that international trade and immigration are responsible for the wage gap base their arguments on two key principles:

1. The increase in the national trade deficit is creating a wage gap between skilled and unskilled domestic workers.

2. A decrease in the prices of labor-intensive goods has caused the price of the inputs (namely, the wages of unskilled workers), to decline.

While both of these points may seem valid on the surface, upon further investigation, it is clear that the arguments set forth by both are flawed. Robert Lawrence and Matthew Slaughter from Harvard University and the Massachusetts Institute of Technology, respectively, explain the invalidity of these points best through their economic research on International Trade and its impact on the skilled/unskilled worker

wage gap. In their research, they address the notion of wage gap being caused by both international trade and technological advances, respectively. They suggest the growing wage difference between labor types in the United States is not the result of "an inexorable shift in the economic structure of advanced capitalist countries, but a reflection of specific developments in the U.S. labor market." (Lawrence and Slaughter, 164) Essentially, Lawrence and Slaughter acknowledge the fallacy that a rather arbitrary increase in the national trade deficit changed the economic structure of our entire country in such a way that it created a massive, unprecedented gap between skilled and unskilled labor. Lawrence and Slaughter's research suggests the increase in the national trade deficit is not the source of the wage gap. Rather, the cause of the wage gap lies in the "specific developments" in the labor market that Lawrence and Slaughter refer to; namely, *unskilled-labor-saving technology*.

Standard international trade theory, formed by Stolper and Samuelson, "suggests that changes in the relative returns of factors will reflect changes in the prices of the goods that they produce." (Stolper and Samuelson 58-73) This notion provides us with the Stolper-Samuelson theorem, which states that "an increase in the price of a good will cause an increase in the price of the factor used intensively in that industry and a decrease in the price of the other factor." (Suranovic, Chapter 60-5)

For example, a decrease in the price of clothing will result in a decrease in the wages of workers because clothing is a labor-intensive industry. On the other hand, a decrease in the price of steel, a capital-intensive industry, will decrease the cost of machinery (physical capital) rather than the wages of workers (human capital). Even though lower prices occur across all industries and goods, the Stolper-Samuleson theory

suggests that the price decreases have not significantly affected the salaries of skilled workers in capital-intensive industries, because the reduction in price occurs to the physical capital instead, (i.e. lower consumer prices hurt unskilled workers while having a minimal effect on skilled workers).

Many studies of relative wage performance have ignored this process." (Lawrence and Slaughter, 165) Instead, they focus on trade volumes and trade deficits. As Jagdish Bhagwati, hailed as "one of the world's leading economists" (Princeton University, 1) has emphasized, "trade deficits are not the most suitable measures of the effects of trade because they are not necessarily associated with relative wage behavior" (Bhagwati, n.p.) as demonstrated through the Stolper-Samuelson theory. Bhagwati has found no evidence that the relative prices of goods that use production labor relatively intensively have declined, and therefore the Stolper-Samuelson theory does not apply, leading us to conclude that "relative U.S. wages have not been driven by Stolper-Samuelson effects." (Lawrence and Slaughter, 165) This conclusion would invalidate the second point, proving that the change in price of labor-intensive goods driven was not significant enough to have been the cause of the relative decline in the wages of unskilled workers.

Further disproving that the wage gap is due to trade and immigration was a study published in the Quarterly Journal of Economics by economists Berman, Bound, and Griliches, examining changes in the demand of skilled labor in the U.S. manufacturing sector, where they "did not find much role for trade" related to the growing wage gap. (Berman, Bound, and Griliches, 367-97) A similar study done by John Bound and George Johnson at Stanford University found that "trade [has] played basically no role in

America's wage changes." Instead, they ascribe these changes to "technological change and changes in unmeasured labor quality." (Bound and Johnson, 389).

The role of government in setting the minimum wage is best stated by one of the core principles of economics. Adam Smith, a pioneer of neoclassical economic theory, suggested that economies produce the maximum social and economic benefit when left to their own devices. He called this phenomenon the "invisible hand." The idea of the invisible hand can be applied to wages, meaning that the prices of wages set by the market should automatically produce the most socially desirable end. (Thornton, 27-46) From an economic perspective, the best way to reduce the wage gap would have been by simply doing nothing. The markets would have shifted the price of both skilled and unskilled labor down proportionally, rather than driving a wedge between them.

Widely accepted economic theory suggests that "as labor costs (generally) rise, producers will hire less labor and [employ] more [physical] capital", suggesting that "there is no worse time for labor generally (and unskilled labor specifically) to contemplate an increase in the minimum wage than when technological advances are reducing the cost of capital." (Laband, 1) Why then, during a clear time of technological advance, would the government raise the minimum wage? The answer is unfortunate, but clear: politics. The U.S. Government has continued to be extremely resistant to laissez-faire economic policy, because vote-seeking politicians must create the impression that they are "creating desirable change", even though a change to the system may do far more harm than good. In our case, the increases in the minimum wage did exactly that by setting off a snowball of technological innovation, and in turn, driving down unskilled wages and driving up skilled wages, the complete opposite of the government's

intentions. All in all, the growth in the domestic wage gap is a classic example of a brutal failure occurring as a result of placing political agendas over common sense.

Based on this policy's failure, it is clear that best way to offset this trend is to return economic conditions, as nearly as possible, to the way they were before the minimum wage hike. The best way to do this over the long term, perhaps unsurprisingly, is to reduce the minimum wage. By reducing the minimum wage, the government can spark a decrease in physical capital use, and in turn, increase the wages of the unskilled labor force while decreasing the wages of skilled workers, resulting from the likely decrease in maintenance demand for physical capital. The combination of these two forces does exactly what we are seeking to do: reduce the growing wage gap between skilled and unskilled labor.

Between job creation, economic expansion, and lower prices for U.S. consumers, both international trade and immigration have proven to be overwhelmingly beneficial for the United States economy as a whole. The evidence for their effect on the domestic wage gap is mixed at best. Time and time again, research done by some of the world's most prominent economic authorities suggests that the growing wage gap is the result of technological development. In a nutshell, this problem is our own fault. Government imposed increases in the minimum wage prompted said technological development, leading to disproportionally higher wages for skilled workers, and disproportionately lower wages for unskilled workers. By instituting a more laissez-faire economic policy, we will allow the minimum wage to return to an equilibrium level that makes human capital competitive with physical capital, ultimately accomplishing our end goal of reducing the wage gap between skilled and unskilled labor.

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