Globalization, Unemployment, and Excess Capacity:
A Model and A Conjecture

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Globalization, Unemployment, and Excess Capacity: A Model and A Conjecture

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Abstract

Using a theoretical model with an industrial world trading with a developing world and assuming no impediment to capital flows, it is shown that an abundant supply of unskilled labor will render real wages for the unskilled close to the subsistence level and will result in excess capacity. The rate of return for traditional manufacturing investment at the margin will decline so funds will seek to invest in financial assets and real property, boosting their prices. Under reasonable assumptions about the income elasticity and the price elasticity of demand for manufacturing products in rich and poor countries, it is shown that a global minimum wage may improve welfare. The paper discusses possible risks of such a strategy.

Keywords: Financialization, global minimum wage, capital flows, income gap, income elasticity of demand, price elasticity of demand, elasticity of substitution, unemployment rate, globalization

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I. Introduction

Globalized production has led to a paradoxical situation. Capital has been flowing to the developing world to capitalize on the abundant labor supply where wages have remained close to subsistence levels regardless of increases in productivity. The apparently inexhaustible supply of labor in emerging markets means that marginal product hardly has gone up, notwithstanding a dramatic increase in average productivity. As a result, the developing countries like China and Indonesia are now producing manufactured goods and exporting them to developed countries like the United States. At the same time the “industrialized” countries are now exporting heavily subsidized, technology-intensive agricultural products all over the world and in so doing are destroying the livelihood of many people who use traditional, labor intensive methods of cultivating crops.¹

To wit, according to a story by Patrisia Gonzales and Roberto Rodriguez in the San Diego Union Tribune (“Indigenous Peoples vs. the Multinationals”) January 2, 2004:

“Close to 2 million campesinos have been displaced from their lands due to US-subsidized agricultural imports (maize) flooding into Mexico. This has greatly accelerated a century-old uprooting and migration process to the cities and into the United States. NAFTA also has meant huge job losses in the US manufacturing sector (estimated at 3 million). At least a half-million have been certified by the US government as NAFTA-related.”

¹ Deardorff (2002) recently wrote: “[L]ike most economists, I condemn the subsidies that Europe especially, but also the United States, continue to provide in agriculture…. [I]f the subsidies were in fact delivering affordable food to the world’s hungry, I would not mind them at all, as long as they could be depended on to continue. But in fact, as I understand it, most of the hungry in developing countries are in rural areas where, instead of benefiting from this cheap food, they have to compete with it for a livelihood.”
Meanwhile, millions of manufacturing workers toil long hours to earn a meager some US$2-a-day to US$4-a-day wage\(^2\). With such meager incomes, it is no wonder that the millions of manufacturing workers living in the developing world cannot afford to buy the goods that they produce. Indeed there is a glut in the global markets for most manufactured goods. If those people who can afford it cannot consume more watches, sneakers, and rice-cookers than they need, while those who potentially want these things do not have the income to buy them, it is no wonder that many manufacturers are finding it difficult to further expand their markets. They can only struggle for market shares with prices lower than their competitors but their combined markets are growing very slowly.

Despite criticisms from many fronts, globalization has benefited large masses of population, notably in China, where all indicators of poverty have been declining rather dramatically across the country, even though large pockets of severe poverty remain. Moreover, even though income gap measures suggest otherwise, “human development index” (HDI) indicators show that “today’s poor countries are well ahead of where the leading countries were in 1870. This is largely because medical advances and improved living standards have brought strong increases in life expectancy.” (Globalization: Threat or Opportunity? IMF, 2000) Peter Lindert and Jeffrey Williamson (2001) also found that globalization appears to reduce inequality by availing poor countries who choose to open up the opportunity to raise their incomes. "Does Globalization Make the World More Unequal?" NBER Working Paper No. 8228, April 2001, National Bureau of Economic Research.

Even though progress is being made, pressures for cost cutting across the world mean that the search for a cheaper place to do business continues. As indicated in the previous footnote, already there are pressures for manufacturing plants in South China to migrate further north and inland.

\(^2\) A Reuters report says that manufacturers are thinking of moving their plants to Jiangxi from the Pearl River Delta, because the minimum wage there stands at 230 yuan (about 30 US dollars) a month, as compared with 610 yuan in Shenzhen, which has the highest minimum wage in China. (“Manufacturers sing Pearl River Delta blues”, reported in Mingpao, June 23, 2004)
This continuing migration of the lowest tier jobs to the poorest places and the next lowest tier jobs to the next poorest places and so on appears as natural as water flows down. Perhaps this is the way wealth diffuses out and trickles down to benefit the neediest. But the continuing relocation of investment and the structural changes of economies are causing stress across communities and may be the source of much waste.

Can the process of globalization be improved? Can we create more jobs to absorb the unemployed? Is there a better alternative than protectionism? How do alternative policy regimes affect distribution? These are some of the questions that we will address in this paper. Section 2 will describe the phenomena of “financialization” and prevalence of excess capacity in manufacturing, which we will seek to explain. Section 3 describes a two country model of globalization that explains the phenomena. Section 4 recapitulates the phenomena that can be explained and goes on to explore the impact of an introduction of global minimum wage. Section 5 considers the possible risks of such an initiative. Finally Section 6 concludes the paper

2. Financialization and Excess Capacity

With widespread excess capacity in just about every industry, profitable investment opportunities are drying up in the industrial sector. Vast amounts of corporate and household savings are now pouring into financial investment and the real estate market rather than into manufacturing. This recent global phenomenon is now known as “financialization.” It is noted that the ratio of portfolio returns/cash flow in productive firms (consisting of profits and depreciation allowance) has been rising over an extended period since 1968 circa. The ratio of financial investment to fixed investment also has been rising.

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4 This subject is fast gaining attention. For example, the Political Economy Research Institute of the University of Massachusetts held a conference on the subject of “Financialization of the Global Economy” on December 7-8, 2001.
For example, Engelbert Stockhammer in a recent paper on the subject has found that, among four key industrialized countries studied including the US, the UK, France, and Germany, a secular trend of rising financial investment among non-financial businesses apparently at the expense of accumulation of capital goods, which has been declining.

This is consistent with the story of a drying up of profitable investment opportunities in manufacturing. Stockhammer, however, interpreted the results as indicating a negative effect of financialization on accumulation of productive assets. Such an interpretation would reverse the direction of causality. I would contend that the falling returns to industrial investment, leaving little outlet for the huge accumulation of funds other than financial assets and real property, is the cause of financialization. This indeed explains an increasing and disproportionate flow of investment into real estate markets, hedge funds, and equity funds. On account of a saturation of consumption of products that meet real needs ("regular products") among the well-to-do, huge amounts of funds have been flowing into real estate, leading to secularly falling rental yields and a rising price-of-housing to annual-labor-income ratio, while "premium" products and services are fetching increasing premiums over regular product prices.

The loss of manufacturing jobs in industrial countries to the developing emerging markets has so far been more than offset by the increase in service sector jobs. But for many of the displaced workers who have to find alternative employment pay is declining. So there is an ongoing trend of rising inequality.

In a recent 2003 paper entitled “Twenty Years of Rising Inequality in US Lifetime Labor Income Values”, Audra J. Bowlus and Jean-Marc Robin found that both lifetime income inequality and current earnings inequality have been rising over the past 20 years.

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Toward the latter half of the 1990s, in particular, there were spurts of increasing lifetime income inequality. These spurts are likely the results of financialization that was producing large swings in asset values. The same forces that generate the phenomenon of financialization are also causing sharp increases in the prices of collectibles and luxury goods. When incomes minus daily needs are very much in surplus the spending goes to items that carry very high “value-added,” which generate big profits for such brand names as Louis Vuiton. Just as the huge inflow of funds into assets markets boost up the prices of these assets (with the incidental higher risks of collapse when investors simultaneously want to withdraw them), so the huge inflow of funds into the luxury goods markets has boosted their prices relative to those of goods commonly consumed in the mass markets.
3. A Model and Hypothesis about Globalization and Excess Capacity Today

Given the huge supply of labor, regardless of how productive labor is, ultimately the wage will be pushed down to the subsistence level\(^6\). As a result a significant percentage of the world’s population will continue to have no ability to purchase and enjoy manufactured goods. In the developed world, with a far smaller and hardly growing population the prospect for any growth in demand for manufactured goods is limited. So excess capacity abounds. The rich are finding it more and more difficult to discover investment opportunities in manufacturing. Hence the phenomenon of “financialization.”

Consider a world with 2 countries, three goods (manufactured low skill intensive, manufactured high skill intensive, and agricultural goods), and one non-tradable service. The industrialized country (dubbed the “industrial world”) owns the capital used in the production of manufactured goods (both low skill intensive and high intensive goods) in developing countries (dubbed the “developing world”), recycles the profit (through taxes on corporations) and taxes on the working population to subsidize agricultural production in the industrialized country and fund transfers to the unemployed. The developing world exports manufactured goods and imports agricultural goods from the industrialized world. Commercially rendered services are assumed to be consumed entirely in the industrialized world.

Each individual \(i\) maximizes\(^7\):

\[
U_i = u(x_i) + (x_i-x)\alpha y_n^{\beta_1} y_s^{\beta_2} z_i^{\gamma}
\]

subject to:

\[
Y_i = x_i P_x + y_n P_{yn} + y_s P_{ys} + z_i P_z
\]

\(x\) is agricultural goods; \(x =\) required for survival

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\(^6\) This idea is not new and can be traced to Lewis(1955).

\(^7\) This specification of the utility function is similar to Murphy, Shleifer, and Vishny(1989a)
\( y_n \) is manufactured goods, non-skill-intensive;
\( y_s \) is manufactured goods, skill-intensive;
\( z \) is services, assumed to be non-tradeable;
\( Y_i \) is i’s total income, which is equal to the marginal product of the worker, and stands at \( Y_{ni} \) and \( Y_{si} \) respectively for the non-skilled and skilled categories;

For the very poor, only \( x \) is consumed and it is assumed that \( u(x_i) \) results. For others some of each of the other consumption items is consumed.

The following are the production functions of \( x, y_n, y_s, \) and \( z \) respectively:

\[
x = x(L_{LS}, L_{HS}, K_x),
\]
Traditional production uses little capital and much low skill labor. Modern production uses much capital and a little high skill labor.

\[
y_n = y_n(L_{LS}, L_{HS}, K_n)
\]
Non-skill-intensive or low skill intensive products may also be produced with traditional methods or modern technology. It is however assumed that in practice traditional methods have been rendered obsolete. Modern production is capital intensive and relatively intensive in low skill labor, with only a small input of high skill labor.

\[
y_s = y_s(L_{LS}, L_{HS}, K_s)
\]
High skill intensive products requires a small input of low skill labor and a large input of capital.

\[
z = y_n(L_{LS}, L_{HS}, K_z)
\]
Commercially rendered services are assumed to require a large input of capital, and modest inputs of both low and high skill labor.
A typical development process for a developing country in an increasingly globalized world can be described as follows:

**Stage One:** Agricultural economy, subsistence farming. Closed economy.

**Stage Two:** Agricultural economy, with cottage industries. Some international trade.

**Stage Three:** Agricultural economy shrinks. Low skill manufacturing develops with large inflows of capital. Export-oriented, globalizing economy. Some commercially rendered services. Most developing countries are stuck in this mode for a long time.

From Stage One through Stage Three, overall incomes are rising. This is in line with the findings of Lindert and Williamson (2001). Globalization is benefiting those poor countries that open up. Others who stay less open lag behind.

Meanwhile, however, industrialized countries profit from the low cost production and the repatriation of these profits drive up the prices of assets in the industrialized countries (financialization). Former manufacturing workers must transfer to the service sector or upgrade to become a skilled worker. Their wages will rise, benefiting from the surge in service sector jobs and the repatriation of profits. Unskilled workers earn a wage considerably higher than that in the developing world reflecting the higher cost of living, such as resulting from higher housing costs. What is interesting is that even when workers are unemployed, their unemployment benefits are usually higher than the manufacturing wages that are now earned by the emerging economy. The unemployed receive transfers derived from taxes and determined through a political process. The skilled

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8 It may be thought that the relative abundance of capital in the industrialized world increases the marginal product of unskilled labor thus allowing the wage to fetch higher levels. This traditional analysis however does not seem pertinent in a number of cases, such as barbers, who just work with scissors and combs. In Hong Kong today, moreover, it will prove impossible to survive on a HK$1000 a month salary, even though that is not a bad salary on the mainland.
manufacturing workers are facing an erosion of job opportunities as more jobs are outsourced to the developing world.

The decline in the manufacturing wage on account of the opening up of emerging markets is evident from the following data. In the third quarter of 1983, Hong Kong had over 900,000 manufacturing workers (cf. around 100,000 in 2004). The 1984 HK Report (official report) reads: "In September of 1983 75% of manual workers in manufacturing earn a daily wage (inclusive of fringe benefits), of 64 dollars or above (male workers 73 dollars, female workers 62 dollars. The other 25% make 94 dollars or more (male workers 109 dollars, female workers 88 dollars). Average daily wage worked out to 81 dollars a day." (p.46, Chinese version). In nominal terms this works out to about 3 times what the mainland manufacturing worker makes today. And think about the inflation since 1983!

Those without a job in the poor world survive barely in the rural sector and do not trade. The unskilled manufacturing worker in the developing world earns “subsistence income” equal to xPₓ. This is a level of income that reflects the cost of living where they work but hardly allows them to buy even basic manufactured goods, let alone the high skill intensive products. The skilled manufacturing worker earns a wage that allows savings, part of which are in turn spent on high skill intensive manufactured goods. Skilled workers are available along an upward sloping supply curve in the developing world. Their wages are determined in the free market and is equal to µ times the wages in developed countries, where µ is smaller than 1. The outsourcing from industrialized countries means that their wages are rising (Figure 1).
Workers in rich country work as skilled manufacturing worker, as worker in services, or in capital intensive agriculture. They are employed until their marginal product is equal to the market wage or the legal minimum wage, depending on their skill levels.(Figure 2)
As work is increasingly outsourced, skilled workers in the industrial work face a continuing decline in the wage. The unemployed receive unemployment benefits paid by taxes on the profit of the MNCs and income taxes on wage-earners.


The above theory explains quite a number of phenomena that are observed:

- The phenomenon of financialization and an ongoing trend of higher and higher values of financial assets and real property, and higher prices of premium products over regular products;
- The decline of the real manufacturing wage globally as emerging markets opened up;
- Large inflow of capital into the emerging markets;
- Globalization benefit the emerging countries that open up
- Exports of manufacturing products from emerging markets to the industrial world;
- Exports of agricultural products from the industrial world to emerging markets;
- Globalization causes an ongoing declining trend for the real wages of the highly skilled in the industrial world and a rising trend for the same in the emerging markets, resulting in a projected convergence in the future;
- Large and persisting global unemployment;
- Widening gap between the very rich and the very poor, with convergence of pay for the highly skilled in the industrial world and the developing world.

Now consider this conjecture. Suppose a global minimum wage is imposed. Assuming that the global demand for manufacturing labor is very inelastic, the total income of manufacturing workers is suddenly increased tremendously. As a result, a huge potential demand for manufactured goods is now unleashed. This results in a shift in the demand for manufactured goods, to the extent that the

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9 Ardon, a chemistry professor from Hebrew University, was probably the first to discuss this concept. (Ardon2002)
demand for labor is now shifted to the right, resulting in an expansion of employment notwithstanding an increase in real wage. Imposing a minimum wage would reduce employment under partial equilibrium analysis, i.e., when other things are assumed the same. Under general equilibrium analysis, however, when wages are raised globally and the extra income is spent, the demand for final products will increase, thus pulling the demand for manufacturing workers up. It is an empirical question as to how far to the right will the demand for manufacturing workers shift.

![Figure 3: Market for Unskilled Work in Developing Country](image)

Note: Global labor demand for the unskilled labor refers to the joint demand for labor among producers. It is far less elastic than a single producer’s demand for labor at a particular location, where an increase in the wage rate would lead to a drastic decline in the demand for labor in that location.

The demand for low skill intensive manufactured goods is a function of Price and Income of Consumers. Assuming that i is a consumer with income \( Y_i \) and the quantity demanded by him depends on this income and the market price \( P \). Total market demand (Global demand for Low-Skill intensive Manufactured or “regular” goods) can be written:

\[
Q_{GLSM} = \int_i Q_i (Y_i, P) \, di
\]
Qi is income-elastic up to some income level Y but income-inelastic beyond it. Demand for such goods will therefore rise with the onset of the global minimum wage that raises the incomes of large numbers of low skill manufacturing workers. The assumption about income inelasticity fits in well with the observed difficulty of expanding the market for such goods in mature markets even when income is rising. Thus people may buy a rice cooker or an electric fan when they can afford it, but may not buy more rice cookers or electric fans when their incomes rise.\textsuperscript{10} Qi is also hypothesized to be price-inelastic when income is beyond some level Y*. Under this assumption, when the prices of the basic manufactured goods rise subsequent to the wage increases of low skilled workers, the demand for them in the industrial world may not fall, so that total output and employment will increase. Thus, suppose consumers in the industrial world has an income Y* while potential consumers in the developing world has an income below Y. When a global minimum wage is imposed and boosts income in the range where demand is income-elastic, total demand for the good will be increased significantly, resulting in an increase in employment. When market demand increases we expect P to rise, but demand in the industrial world is price-inelastic, so total output increases.

While the increase in low skill manufacturing wage will raise the costs, and prices will increase, this is not just an inflationary situation, as the relative wages of unskilled workers have now risen relative to those of skilled workers. The skilled workers’ real incomes will likely fall. However, an interesting possibility is that as the demand for low-skill intensive manufactured goods increases, the demand for high-skill intensive manufactured goods may also rise, as savings over time from those benefiting from the GMW accumulate savings translate into demand for higher quality goods. There is the

\footnote{Atidol Dachakaisaya found that among appliances the highest income elasticity was the computer which was equal to 0.74, while the lowest was fan for which the elasticity was 0.23. The electric fan is more like the basic manufacturing goods discussed in the text. McConnell and Brue(2002), in their popular text, cited the price elasticity of clothing at 0.49 and home appliances at 0.63, much lower than that for restaurant meals at 2.27.}
possibility that the unskilled workers may upgrade their skills and enjoy higher wages and better job opportunities too.

There will be a decline in the relative wages of service workers. Their nominal wages will rise slower than the increase of manufactured good prices. In particular, when they travel to the developing countries they will discover that they will have to pay much more than they do now, since general wage levels will also be much higher than they are today.

Manufacturers now sell more and have to invest more. It is an empirical question whether their combined sales and profits will increase or decrease. However, with a quantum leap in the demand for manufactured goods, it is likely that excess capacity will disappear.

The reappearance of profitable manufacturing investment may mean that the demand for real assets as a financial investment may decline, thus averting the ongoing trends of financialization. Those who hold heavily leveraged investment in assets may suffer big losses.

5. Risks and Alternatives

The analysis in the previous section is based on some stylized facts and a demand-side general equilibrium model. A complete general equilibrium model would have to take into account the response of producers, in particular the multinational corporations which may substitute low skill labor with high skill labor or capital, when faced with a surge in the wages of low skill workers. The risks of this scenario must not be ignored, though they should be considered in perspective.

For the firms there are actually two things happening at the same time. First is that the prices of their products are rising. Second is that low skill labor cost is rising. The increase in low skill labor cost relative to capital cost and high skill labor cost will indeed cause substitution. Claro(2003) based on sectoral data on capital stock that is estimated for 34 developed and developing countries in 1990, found that most estimates of the elasticity of substitution between labor and
capital are close to one. This means that a one per cent increase in the relative price of labor to capital would result in a one per cent rise in the ratio of capital to labor. This effect will clearly reduce the demand for labor. On the other hand there is an output effect, which will increase the demand for all factors when the demand for the final products surge. It is an empirical question as to whether the output effect dominates or the substitution effect dominates. There is the worry that a substitution away from low skill labor could end up reducing jobs.

While this scenario cannot be ruled out, the approach can be tried at a considered pace to minimize risks. For example, the GMW in real terms may be raised by 20% every ten years, until such times as we have studied the subject and know better about the possible adverse substitution effects. The proposal will certainly not solve all of our problems, but will be a start for a new direction of globalization, and the alternative could be increasing unemployment and continued excess capacity, with the benefits of productivity increases eluding billions of hard working population in the world.

6. Conclusions

The idea that “demand spillover” generating important second order effects from final goods to factor markets could produce a major breakthrough, offering new impetus to economic growth and global income brings to mind the thesis, first introduced by Rosenstein-Rodan(1943) about the possibility of a “big push.” There, however, Rosenstein-Rodan was talking about increasing returns technology generating incomes that could make industrialization profitable, even when isolated investment projects were not so profitable. The idea was further formalized by Murphy et.al.(1989b) who demonstrated the possibility of “complementarities between industrializing sectors work[ing] through market size effects.”(p.1024) In contrast, our discussion in this paper made no reference to increasing returns production, but with demand for final goods globally inelastic with respect to price and globally elastic with respect to the wage in the developing world, we show that a globally administered minimum wage can have significant income effects on
the demand for final goods and hence significant effects on the demand for unskilled labor. Provided that such a minimum wage can be effectively enforced and does not prompt a major substitution away from unskilled labor, both of which admittedly are non-trivial issues and cannot be taken for granted, a global minimum wage will reduce global unemployment, absorb the excess capacity, create more profitable investment opportunities in manufacturing, moderate the pace of financialization, and reduce the gap between the very rich and the very poor.
References

Albo, Gregory, “Cracks in the Facade: The U.S. and the World Economy,” Department of Political Science, York University, Toronto, downloadable from:  
http://evakreisky.at/onlinetexte/gregory_albo_the_us_and_the_world_economy.pdf

http://www.commondreams.org/views02/0123-03.htm

http://www.umass.edu/peri/pdfs/fin_darista.pdf

Bowlus, Audra J. and Jean-Marc Robin (2003): “Twenty Years of Rising Inequality in US Lifetime Labor Income Values.”  
http://eurequa.univ-paris1.fr/membres/robin/papiers/RESJune03.pdf


Dachakaisaya, Atidol (no date) “Demand Forecasting of Electronic and Electric Appliances from Household Income of the Users in Metropolitan Electricity Authority Area during the 9th National Economic and Social Development Plan in Year 2002 to 2006” student thesis, Marketing, Rajabhat Institute Suan Dusit. Abstract downloadable from:  
http://www.arc.dusit.ac.th/bdusit/index.php?abstract=115


Stockhammer, Engelbert “Financialization and the Slowdown of Accumulation,” Cambridge Journal of Economics, forthcoming, 
http://www.wu-wien.ac.at/inst/vw1/stockham/papers/fin%20accu%20slow_CJE.pdf