

Rising Tide: Is Growth in Emerging Economies Good for the United States?

By

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“As they say on my own Cape Cod, a rising tide lifts all the boats. And a partnership, by definition, serves both partners, without domination or unfair advantage.”

[1963 J. F. Kennedy *Address* 25 June in *Public Papers of Presidents of U.S.* (1964)]

Perceptions about the benefits of globalization have undergone radical changes. As of 2000, it was conventional wisdom that global trade had been good for developed countries such as the United States and some countries in Asia such as China and India that had escaped the Asian financial crisis, but bad for developing countries especially those in Africa and Latin America that had experienced two decades of economic stagnation. Partly in response to this view, in 2001, a new round of multilateral trade negotiations was launched with the principle goal of creating a trading system that would be more beneficial to developing countries – the Doha Development Agenda. Ironically, however, over the next seven years global growth was robust and concentrated in emerging markets. Not only were China and India able to sustain their rapid growth but growth in Africa, the Middle East, Latin America and the rest of Asia was strong. In many countries, growth was driven by domestic dynamics – such as growth in the middle class -- but the pervasiveness of the growth also pointed to the important role of global factors such as buoyant commodity markets, strong export growth and large capital flows.

By contrast, after 2000, US economic performance was modest. The longest postwar expansion lasted from 1993 to 2000 but it was rudely ended when the bursting of the speculative “dot.com” bubble in the stock market led to falling investment in capital goods and a recession in which the US manufacturing sector lost almost 3 million jobs. While the economy recovered after 2003, manufacturing employment remained stagnant and GDP growth averaged just 2.3 percent between 2000 and 2007. Moreover, the gains from even this tepid growth were not widely shared. Although the top one percent of US income-earners did well and corporate profits reached the highest share of national income in 80 years, wage growth for both skilled and unskilled Americans was slow and real median household income actually fell. But their slow income growth did not prevent American consumers from responding to low interest rates and strong housing and equity

prices by going on a spending spree. The US current account reached record levels as American imports from developing countries, especially China, increased rapidly.¹

The difference between US and foreign economic performance was striking. The US share in the world economy had declined between 1950 and 1980 as Western Europe and Japan converged toward American income levels. But between 1980 and 2000, the United States had actually grown about as rapidly as the rest of the world -- a remarkable achievement for the world's richest economy. Between 2000 and 2007, though, the combination of weak American growth and rapid growth in emerging economies reduced the US share in global GDP by about ten percent.²

There were also notable differences in economic performances in the developed and emerging markets in response to the 2008 global financial crisis. While no country was spared its effects, economies like China and India were able to maintain positive growth and recover quickly. With their financial sectors relatively unaffected, inflation rates relatively low and large holdings of foreign exchange reserves, many developing countries were able to offset the loss in exports with stimulatory domestic policies. These actions in turn bolstered primary commodity markets helping other troubled developing country producers. In the developed countries however, falling demand devastated the manufacturing sector -- in the US, between 2007 and 2009 an additional two million jobs were lost in manufacturing -- while troubles in the financial system shackled the recovery. Long term forecasts by the International Monetary Fund suggested that the US share in global output was likely to decline further.

It was not surprising, therefore, that even prior to the global financial crisis, Americans had become increasingly disillusioned with international trade. The coincidence of trade deficits and increased imports from developing countries with several years of sluggish real wage growth, growing income inequality, and declining manufacturing employment all contributed to these perceptions. In addition the rapid growth in the off-shoring of business services sparked considerable concern. In 2004 it was hard to open a newspaper without reading stories about the off-shoring of jobs going to India". Strikingly, however, the stories disappeared from the headlines as it emerged that the scale on which this had happened was actually quite modest. Nonetheless, it was clear that the concerns had struck a cord with the public and helped contribute to concerns about trade.

In January 2008, for example, the negative views about trade were reflected in responses to a poll by Fortune magazine in which 63 percent of the US respondents indicated that "trade had made matters worse for the United States as a whole." 78 percent felt it "made things worse for US workers" and 55 percent felt it "made things

¹ US imports from China grew from \$100 billion in 2000 to \$323 billion in 2007!

² According to the IMF, the US averaged 3.3 percent GDP growth in both the 80s and the 90s. The rest of the world grew at annual rates of 3.1 and 2.8 percent in the 80s and 90s respectively

worse for US business.”³ And 68 percent said that “the benefits of trade to other countries were greater than those for the United States.”⁴

But was not just the populace at large that voiced negative views about trade. Some very distinguished economists also raised doubts. Emblematic was an op-ed published in the Financial Times in April 2008 by former US Treasury Secretary Lawrence Summers who would become the director of the National Economic Council in the Obama Administration. Summers’ piece entitled “America needs to make a new case for trade” raised several concerns.⁵ First, he invoked the authority of Nobel Laureate Paul Samuelson who had pointed out that growth in developing countries could reduce America’s gains from trade.⁶ Moreover, Summers was not alone in agreeing with Samuelson. In her 2008 campaign for the American Presidency, for example, Hilary Clinton referred to Samuelson’s argument as providing support for her position that the US call a “time-out” on negotiating any new trade agreements to reconsider whether these were in America’s interest.⁷

Second, Summers observed that while global growth might benefit Americans who were already highly paid for their intellectual creations -- such as those making movies -- it could put downward pressure on US wages in industries such as computers that the US produces on a significant scale. Again Summers was not alone. In making this claim, he was joining another Nobel Laureate, Paul Krugman who had raised similar alarms a year earlier writing that “growing U.S. trade with third world countries reduces the real wages of many and perhaps most workers in this country.”⁸

Third, Summers observed that growth in countries like China had increased the price of oil for the US and he also pointed out that such growth also increased competition for “environmental resources”.⁹

³ In September 2009, in response to a Rasmussen Poll, Only 14 percent of Americans said what is good for the World economy is always good for the night States. Seventy-five percent disagreed with the statement. http://www.rasmussenreports.com/public_content/politics/general_politics/september_2009/60_favor_less_international_economic_oversight_not_more

⁴ <http://money.cnn.com/magazines/fortune/electionpoll/2008/pollresults.html>

⁵ Lawrence Summers, “America needs to make a new case for trade”, Financial Times April 27 2008.

⁶ “As Paul Samuelson pointed out several years ago, the valid proposition that trade barriers hurt an economy does not imply the corollary that it necessarily benefits from the economic success of its trading partners.When other countries develop, American producers benefit from having larger markets to sell into but are challenged by more formidable competition. Which effect predominates cannot be judged *a priori*. But there are reasons to think that economic success abroad will be more problematic for American workers in the future.”

⁷ “Clinton doubts benefits of Doha revival” Financial Times, December 2 2007. Senator Clinton was quoted as saying “I agree with Paul Samuelson, the very famous economist, who has recently spoken and written about how comparative advantage, as it is classically understood, may not be descriptive of the 21st century economy in which we find ourselves.” <http://www.ft.com/cms/s/0/bacd5572-a103-11dc-9f34-0000779fd2ac.html>.

⁸ Paul Krugman, “The Trouble with Trade; Keep Our Markets Open but Protect those who get Hurt” Pittsburgh Post-Gazette (Pennsylvania), December 29, 2007.

⁹ Summers also expressed concern that “growth in growth in the global economy encourages the development of stateless elites whose allegiance is to global economic success and their own prosperity rather than the interests of the nation where they are headquartered”..... “Even as globalisation increases inequality and insecurity, it is constantly and often legitimately invoked as an argument against the viability

The concerns raised by Summers and others are especially troubling because they relate to the long run impact of trade. They would not be mitigated by the passage of time. Traditional objections to trade often focus on “jobs”. Some believe that the growth in imports from developing countries prevents the US economy from reaching full employment. But this has not been the US experience. Since the acceleration in imports from developing countries the US economy has twice been able to reach close to historically low unemployment rates – 4.0 percent in 2000 and 4.5 percent in 2007. Others, more legitimately focus on the adjustment costs that trade imposes. Indeed, increased trade does cause short term pain in the form of job-loss and dislocation. Nonetheless the justification for open trade is that these adjustment costs will be more than offset by eventual gains from improved resource allocation once most of those who lose their jobs are reemployed.¹⁰

Support for free trade is very widespread among economists. Accustomed to being berated for their stupidity, free trade skeptics relish the sight of apparent cracks in the foundation on which that support rests. When those in the highest ranks of the economics profession raise questions about trade’s benefits, they attract lots of attention.¹¹ But the high-priests of the economics profession making these arguments are not apostates who advocate protectionism. They are also not challenging conventional trade theory and agreeing with those who claim that the theory requires making outdated assumptions that are “inappropriate for the 21st Century.” Instead, they are actually *invoking* standard trade theory to make empirical claims familiar to anyone who has taken an undergraduate course in international economics. The textbooks for these courses do of course demonstrate how trade could be more beneficial than self-sufficiency, but they also explain that these benefits could shrink or grow and that trade can create winners and losers within nations.

While they may not represent an intellectual challenge, therefore, if these concerns are valid, the implications for US policies could be profound. The downward pressures on US living standards from developing country growth would be occurring at a particularly inopportune time since Americans were already being forced to tighten their belts because of the global financial crisis. The US has been on a spending binge that has proven to be unsustainable. Since the late 1990s, US households have become increasingly indebted as their homes and stocks have appreciated while credit has been available at low real interest rates. Because home and equity prices declined precipitously when the financial crisis erupted in 2007-2008, it seems reasonable to foresee a period in which American households increase their savings and rebuild their wealth. More US growth will therefore have to come from exports and less from domestic consumption.

of progressive taxation, support for labour unions, strong regulation and substantial production of public goods that mitigate its adverse impacts.” These concerns are more fully discussed by Theodore H. Moran, “American Multinationals and American Economic Interests: New Dimensions to an Old Debate” Washington DC: Peterson Institute for International Economics Working Paper 09-3.

¹⁰ Cite benefit adjustment cost ratios.

¹¹ This is documented by Jagdish Bhagwati, “Don’t Cry for Free Trade” in Jagdish Bhagwati and Alan Blinder, *Offshoring of American Jobs? What Response from U.S. Economic Policy?* Cambridge MA: MIT Press 2009 pp 8. They include Aaron Bernstein, “Shaking UP Trade Theory” *Businessweek*, Dec 6 (2004).

Thus it is likely that whatever the trend effects of growth in emerging economies, a weaker dollar and lower US terms of trade will be part of the adjustment process.¹²

The US economy responded to the recession caused by the global financial crisis with expansionary monetary and fiscal policies. But over time will become increasingly dependent on foreign growth to maintain the recovery. If the critics are correct, the US is caught between a rock and a hard place. On the one hand, it needs foreign growth to maintain demand; on the other hand, the costs of this dependence could rise if such growth reduces America's terms of trade.

US foreign policy might also be affected. As exemplified by the Marshall Plan after the Second World War, American global economic leadership has been predicated on the view that a "rising tide lifts all boats." The American case for a liberal economic order is that it is "win-win." Open markets are conducive to growth in foreign economies and that growth is in America's economic interest. But the claim that the US is hurt by developing country growth could provide an economic rationale for policies that would seek to preserve US incomes by keeping the rest of the world poor. Given the emergence of countries such as China and India as major global players, an American repositioning on this issue and the policies that might follow could seriously threaten the current global order which is increasingly centered on the G20 group that gives more decision-making power to developing countries.¹³ It could, to be sure, still be in America's interest to foster foreign economic growth, either because of altruism or non-economic benefits such as greater stability and peace but the case for doing so would be much weaker than if foreign growth also provides material advantages for Americans.

Even if trade with developing countries does benefit the US as a whole, if it also harms large numbers of US workers, there could be reasons for concern. In addition political opposition to open trade could be strong. If American workers were generally doing well, some pressures on US wages because of trade might be acceptable, but in a context of stagnant compensation, rising income inequality and high unemployment, they could engender more powerful protectionist responses. The conventional nostrum, adjustment assistance for workers displaced by trade, is of no help to workers that remain employed but experience real wage reductions. A response that could help would be more progressive tax and transfer policies to redistribute gains from winners to losers. In practice, however, it is politically difficult to raise taxes on the rich, and workers have justifiable reasons for skepticism that they will be fully compensated. As Paul Samuelson observed in his article, "Marie Antoinette said, 'Let them eat cake' But history records no transfer of sugar and flour to her peasant subjects".¹⁴

¹² See for example, Bergsten C Fred and Williamson, John (eds) 2004 *Dollar Adjustment, How Far? Against What?* Washington DC Peterson Institute for International Economics and Bergsten C. Fred (ed) 2009 *The Long Term International Position of the United States*, Special Report no 20.(Washington DC: Peterson Institute for International Economics).

¹³ At the Pittsburgh Summit in September 2009 it was decided to designate the G-20 to be the premier forum international economic cooperation.

¹⁴ Samuelson (2004) page 144.

The implications of higher oil prices are also significant. The middle class in India and China is growing rapidly. This will result in rapid increases in automobile purchases and use and put upward pressure on oil prices. America's urban geography and transportation system are premised on abundant and inexpensive gasoline. Oil is also the most important reason for the strategic significance of the Middle East because the United States imports about fifty-eight percent of its needs. The oil price influences politics in US allies and adversaries. By its impact on oil prices, therefore, developing country growth could fundamentally change both America's domestic lifestyle and its foreign policies.

Finally, developing country growth will have a major effect on Green –House Gas (GHG) emissions. With the US committed to taking action on global climate change, frictions over costs and obligations are bound to grow. Without meaningful action by developing countries, costly conservation efforts by developed countries might do little to prevent global warming. Indeed, in the Byrd-Hagel resolution passed by the US Senate in 1997 by a 95-0 vote, developing country participation was endorsed as a critical precondition for US participation in commitments under the Kyoto protocols. But developing countries have not accepted binding obligations to reduce their emissions because of their concerns such policies would limit their growth. The great challenge in this area, therefore, is how to reconcile developing country growth with effective action on climate change.

Study Outline and Findings. Does growth in developing countries reduce US welfare? Does it significantly increase wage inequality? Does it raise the cost of oil imports? Will it doom efforts to prevent climate change? In this study, we evaluate the concerns voiced by the economists we have quoted and draw policy implications.¹⁵ Not surprisingly, given their eminence, the economists' concerns about US welfare; wage inequality and oil prices all rest on firm theoretical grounds. Our consideration of each topic, therefore, begins with a discussion of the theories on which these concerns are based; this is followed by an examination of the evidence. A final chapter concludes and draws policy implications

We will cast doubt on several of the critics' claims. We do not find that trade with developing countries has reduced American living standards. On the contrary, we find that such trade has improved America's terms of trade and increased its product choices. We also do not find that recently trade with developing countries has exerted major pressures for increased US wage inequality. The core explanation for both these outcomes is the same: the US and the developing countries have specialized in very different products and processes and this makes their growth complementary rather than competitive. Developing country growth provides US exporters with larger markets and

¹⁵ For discussions of the issue see William C Cline, *The Economics of Global Warming*, 1992, David G. Victor, *Climate Change: Debating America's Options*, Council on Foreign Relations, Washington DC: Brookings Institution Press, 2004 Gary Clyde Hufbauer , Steve Charnovitz and Jisun Kim , *Global Warming and the World Trading System* Washington DC: The Peterson Institute for International Economics, March 2009 and Trevor Houser , Rob Bradley , Britt Childs , Jacob Werksman and Robert Heilmayr *Levelling the Carbon Playing Field: International Competition and US Climate Policy Design*, May 2008

with the possible exception of some computer and electronics products, as yet developing countries are not major competitors for US exporters. In addition, close substitutes for many of the finished and intermediate products the US imports are no longer produced at home. American producers are not adversely affected by these imports, but US buyers enjoy lower prices and more choice.

Oil however is an exception. The purchases of oil-importing countries do compete with each other and large differences in world oil prices can be occasioned by relatively small changes in the world oil supply-demand balance. In this regard demand generated by developing country growth has played a role in boosting oil prices. But the primary responsibility for the shortfall between demand and supply that caused oil prices to soar between 2003 and 2008 actually rests with the developed countries whose oil production failed to keep up with their demand and as a result accounted for eighty percent of the rise. The contribution of the US to these higher prices was actually as important as China. US policy should focus on reducing dependence on foreign oil, rather than reducing foreign economic growth.

In sum, the maxim that a rising tide raises all boats remains an appropriate guide for US international economic policy. Americans benefit from growth in developing countries and the effects on wage inequality in the US are modest.

Aggregate welfare. In Chapter 1, we consider the theory behind the concern that America's gains from trade are shrinking. Samuelson's basic point is that foreign growth could reduce US welfare by having an adverse impact on its terms of trade – the ratio of export to import prices – because these are the link between trade performance and welfare. In principle the impact of foreign growth on the terms of trade is ambiguous: As Samuelson showed using a conventional Ricardian model, the US gains if foreign productivity growth occurs equally in all foreign industries. It also gains with foreign productivity growth in export industries. But if foreign productivity growth occurs only in industries that compete with imports from the US -- import biased growth -- the US could lose because foreigners emerge as competitors for US exports. Since any of these outcomes is possible, empirical investigation is required to resolve the issue. But we can make presumptions on a priori grounds. John Hicks conjectured, for example, that in their early stages of development, countries are most likely to experience rapid productivity growth in the industries in which they have a comparative advantage. Such export-biased growth will improve the terms of trade of their developed country trading partners. He suggested that the negative case for the rich countries, in which developing country growth is biased towards their imports, is likely to occur only when they come close to developed country income levels.

As in most classical trade models Samuelson assumes that trade is balanced. However, to test the validity of his concern, we need to take account of the fact that the US has been running large trade deficits. This is necessary because the trade balance is likely to have an independent and systematic influence on the terms of trade. In the second section of chapter one therefore, we explicate the theory of how international transfers (net foreign borrowing or lending) might affect the terms of trade. We argue

that the relationship between the terms of trade and the trade balance can be captured as a “transfer” schedule. This schedule will have a negative slope if expenditure patterns are home biased. This allows us to distinguish between *movements along* the transfer schedule which are caused by spending changes (associated with net foreign borrowing and lending) and upward and downward *movements of* the transfer schedule which are associated with the forces explored by Samuelson that we can identify as shifts in competitiveness. This framework provides the basis for the empirical tests in the following two chapters.

In Chapter 2, we explore the behavior of the terms of trade over the postwar period and plot the relationship between the terms of trade and the trade balance. We find support for John Hick’s conjectures. From 1950 until the late 1960s, when today’s developed countries were relatively far behind the US, the US terms of trade had a strong upward trend. In the 1970s, as he predicted, when Japan and Europe converged more closely to US productivity levels, however, the improvement was more than reversed. More recently, countries such as China and Mexico with a sixth and fifth of US productivity levels respectively have become important US trading partners. Again, as Hicks would have anticipated, a trend of improving terms of trade has again become apparent. Between 1993 and 2008, we find that the US manufacturing (and non-oil goods and services) terms of trade steadily improved because the relative prices of US manufactured imports from developing countries declined. Between 1995 and 2006, Germany and Japan also experienced rising trends in their manufacturing terms of trade.

Although this price evidence is instructive, it is not completely dispositive of Samuelson’s concerns because these terms of trade improvements were associated with larger current account deficits. The relevant question is if the US was to go back to the trade balance it had prior to acceleration of growth with developing countries, what would the terms of trade be?

To answer this question we chart the relationship between the trade balance and the terms of trade. Using data from 1980 through 2008, we find a negative association that confirms our theoretical expectations. Each 1 percent improvement in the terms of trade of goods and services is associated with a 4 percent decline in the ratio of exports to imports. After 2003, the transfer schedule shifts downwards and lower terms of trade are consistent with any given trade balance. However, this decline in competitiveness is entirely due to oil. Once oil is excluded, after 2004, the schedule relating the (non-oil) terms of trade for any given (non-oil) trade balance in goods and services, actually shifts upwards. This is contrary to what we would expect if Samuelson's concerns about import biased growth in developing countries were increasingly relevant. Instead, the data point to strong export biased growth in foreign countries. In fact, the terms of trade improvement was sufficient to offset a decline in non-oil competitiveness that had occurred in the 1980s.

While the terms of trade are the relevant variable for appraising welfare, the real exchange rate is of independent interest as an indicator of required adjustment. In Chapter 3 we therefore explore the relationship between the trade balance and the real exchange

rate through plots and regression analysis. Both our plots and our regressions suggest that between 1980 and 2000 the relationship between the trade balance in goods and services and the real exchange rate was remarkably stable. Changes in the world economy associated with the rise of developing countries during this period did not have a material impact on the structural determinants of US trade flows.

After 2000, however, there are both unfavorable and favorable developments that change the relationships between the variables. On the one hand the plots indicate adverse shifts in the trade balance schedules relative to the exchange rate, even after we exclude oil. On this account a weaker exchange rate was required to achieve any given (non-oil) trade balance. Part of the reason is that merchandise export volumes declined relative to predictions after 2000. Our analysis indicates that this is not due to increased international competition from developing countries. Rather, we conjecture that the deep drop in domestic capital goods spending in the recession adversely impacted the industrial base that also produces for exports. We do, however, find that US comparative advantage in computers and electronics declined.

On the other hand, there were a number of favorable developments that more than offset the effect on US welfare associated with the relatively poor export performance. The pass through of real exchange rate changes into import prices has declined considerably. The implication is that after 2004, the US non-oil terms of trade were stronger than expected, given the depreciation of the dollar. The discipline played by China in generally restraining import prices played an important role in this outcome.

Our estimates of the US import relationship also point to an additional source of gain: the benefits from increased varieties of imports. Output growth in both industrialized and non-industrialized countries raises US import demand through production of new varieties.

In sum, our estimates suggest that even taking the impact of larger (non-oil) trade deficits on the terms of trade into account and the decline in export volumes relative to predictions, growth in developing countries has been good for the United States. Our estimates, for example, indicate that in addition to the increase in varieties, a restoration of the US trade balance from 2007 to 1990 levels would still leave the US with a 5 log point improvement in the non-oil terms of trade. Contrary to the concerns raised by Samuelson, that growth has improved the non-oil terms of trade and increased the variety of products available to Americans. Had developing countries grown even faster, the variety of imports available to Americans would have been even greater and the terms of trade associated with any given trade balance even higher.

Oil Prices. Despite the improvement in the manufacturing terms of trade, the aggregate US terms of trade in 2008 were lower than in the mid 90s. As we discuss in Chapter 4, higher oil-import prices account for the difference. We analyze the contributions of supply and demand in both developed and developing countries in driving oil prices higher between 2000 and 2008 when they averaged \$95 a barrel. While attention has been focused on the contribution of demand growth in China and other

emerging markets, the role of slow production growth in developed countries was far more important. *Ex ante* demand by OECD countries increased by 6.7 percent between 2000 and 2008, but their oil production declined by nine percent. This shortfall explains 81 percent of the price rise over the same period. The increase in net Chinese demand can explain 34 percent of the price rise, but increased supplies in other developing countries offset 15 percentage points, so that overall developing countries accounted for just 19 percent of the rise. The net-supply shortfalls created by the US alone, where production fell by 6 percent over the period, were actually quite similar to those created by China.

Strong emerging economy growth in the future will not necessarily lead to higher oil prices. Future outcomes are extremely sensitive to both supply growth and conservation trends. Scenarios modeled by the US Energy Information Agency suggest that increased supply (or reduced) demand of just one percent per year could reduce oil prices in 2030 by seventy-five percent compared with what they would otherwise be.

Developing country growth *is* a major problem for climate change. The business-as-usual emissions of growth in emerging economies especially China will dominate global aggregates GHG emissions and cannot be offset even with radical conservation by industrialized countries. Measures that reduce the carbon intensity of electricity generation in these countries are required.

Wage Inequality. Do the improvements in the US terms of trade and declines in the relative import prices from developing countries imply that trade with developing countries has increased US wage inequality? Section two of the study suggests the answer is no.

Chapter 5 explicates the theory. Orthodox trade theory highlights a key role for changes in the relative prices of skilled- and unskilled-labor intensive traded goods in relative wage determination within industries. Cheaper exports produced by developing countries could, according to this theory, cause inequality to rise in the US. This theory has also served as the basis of many studies of the effects of trade and relative wages. However, to link changes in relative traded goods prices directly with changes in relative wages requires the assumption that close substitutes for imports are produced domestically. If imported and domestic products are imperfect substitutes, or countries fully specialized, the transmission process could be attenuated. In fact, if they do not compete directly in making products similar to imports, lower priced imports from developing countries could actually raise the real wages of less skilled US workers by increasing their purchasing power.

In chapter 6 we survey several studies of the impact of trade on US relative wages since the mid 1990s. These have not found substantial effects. US industries with high shares of imports from developing countries actually do not employ relatively high shares of unskilled workers. As a result, estimates of the net factor content of trade that use US input coefficients do not imply that trade caused large relative wage changes. Approaches that estimate mandated wage effects or use general equilibrium simulation models also

suggest that over the past decade, the impact of trade on US wage inequality has not been large.

In chapter seven we confirm this conclusion. Although the US industries with high shares of developing imports have experienced declining relative prices, this has not translated into declining relative prices in unskilled-labor-intensive US industries. This is because, even highly disaggregated employment data indicate that manufactured imports from developing countries are not especially concentrated in unskilled-labor-intensive US manufacturing industries. Particularly once productivity growth is taken into account, US domestic price changes have not mandated increased wage inequality. The relative wage changes mandated specifically due to imports from developing countries have been negligible. Not only that there have not been major changes in US wage inequality since the late 1990s, but even without developing country trade, the outcomes would have been similar.

The assumptions for applying the conventional trade theory linking traded goods prices to relative wage changes are not met. Judged by US input coefficients US manufactured imports from developing countries are as skilled-labor-intensive as US manufactured imports from developed countries. They are actually *more* skilled-labor intensive than US manufacturing production in general. This means that declines in the relative prices of developing country imports do not necessarily result in more wage inequality.

One three digit US industry (NAICS 334) -- Computers and Electronics -- highlights the problems with assuming that declining import prices from developing countries automatically translate into wage inequality along skill lines. Viewed through the prism of conventional trade theory in which specialization is assumed to be incomplete, the computer and electronics sector (NAICS 334) is an anomaly. Developing countries account for three quarters of US imports in the sector. Yet the US industry employs very high shares of skilled workers and the pace of its productivity growth and price declines reflect rapid technological change. But it is problematic to assume that the skill-intensity of the computer and electronics sector in the US is an accurate measure of the skill-intensity of US imports from developing countries. Both horizontal- and vertical-specialization are important. Many of the electronics products made (and finished) in the US are different from those that are imported and tasks that add value to products within the US differ from those that are required to produce the components that are imported. The behavior of the computer industry is an extreme version of a more pervasive pattern of product and intra-industry specialization. These findings suggest either that the Heckscher-Ohlin theory fails to explain trade patterns, or that developed and developing countries use different production methods and/or produce different goods.

In Chapter 8 we distinguish among these explanations. We find that the evidence strongly suggests that developed and developing countries produce different products. Our analysis using value and unit value data at the six and ten digit Harmonized System level reveals that for the most part, developed and developing country exports do not overlap. And even when they share similar highly disaggregated product categories, there

is a high degree of within-product specialization by developed and developing countries. Export unit values of low and middle income countries are a fraction (typically between a third and a half) of the equivalent U.S. export products and high income OECD exports to the US. This suggests that they are not close substitutes.

While developing countries have experienced growth in exports classified as technology intensive or advanced-technology products, it has mainly been low priced varieties that differ substantially from those exported by high income OECD countries and the US. We also find no evidence of within-product quality upgrading by developing countries in these technology intensive products. The within-product relative price differentials in these high-tech sectors have remained remarkably stable over the entire time period we analyze. Growth in exports from developing countries to the US appears, therefore, to have been through increases in the supply of existing or very similar varieties, rather than through within-product upgrading of quality.

These findings suggest that great caution is required in using of measures of “advanced -technology” trade that are routinely produced by the US Department of Commerce in its monthly trade release to track performance. When imports from developing countries are important, the trade balances in particular high-tech products are likely to involve comparing apples and oranges. This is especially the case for information technology products.

All told this evidence confirms the impression that the key differences between developed and developing country exports do not only reflect differences in the industries from which they originate, but also the degree of sophistication of the products produced by those industries. The fact we find these differences at such disaggregated levels suggests that the most important explanation for the finding that imports from developing countries are not concentrated in unskilled-labor intensive US industries is due to that fact that they are different products rather than that they reflect aggregation bias or are the same products but produced using different technologies. The high degree of international specialization helps accounts for the weak link between import prices and industry relative wage behavior we and others have found. It also helps confirm our rejection of Samuelson’s fear that developing country growth could be biased towards producing US exports.

Chapter 9 concludes and draws four major policy implications. First, the US continues to benefit from developing country growth and if the Hicks conjecture is accurate, developing countries will pursue export-led growth for some time to come. US tariffs are generally lower than those in other countries. This suggests that the best policy for offsetting any adverse terms of trade movements in the future would be to persuade other countries to match US levels – as occurs in Free Trade Agreements. Rather than occasioning a time-out, therefore, the Samuelson concern is actually a reason for more vigor in negotiating new trade agreements.

Second, income inequality has increased in the US, but trade with developing country is a modest contributor. Here in any case the appropriate policy response is not

trade protection but income redistribution to deal with inequality and adjustment assistance to deal with dislocation.

Policies need to use different instruments to deal with oil and climate change. Even if effective policies are introduced to set a price on carbon emissions they will do little to alter US oil consumption patterns. Conversely, while they may help, even very high world oil prices would not generate sufficient reductions in GHG emissions to adequately mitigate threats of climate change. This leads to recommendations for two sets of policies. One should be prescheduled increases in measures in oil import tariffs or taxes that are designed to reduce US oil consumption and encourage the production of oil and oil-substitutes. The second set should be policies that gradually raise the price of GHG emissions at home. In addition, rather than policies to retard developing-country growth, policies should also assist these countries in the costs of conserving energy and achieving cleaner growth.