
Social Justice and Innovation Economics: Meeting Summary

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This note summarizes key themes from a meeting held in May 2010 in Chicago co-hosted by the Information Technology and Innovation Foundation (ITIF) and the Center for Labor and Community Research (CLCR).

The meeting brought together innovation economists, social justice activists from a range of organizations, and thinkers from the environmental movement. The primary objective was to explore the intersection between these domains, and in particular to discuss possible applications of Innovation Economics to social justice and environmental initiatives.

Overall, there was considerable interest in Innovation Economics (IE) from all participants. Many saw the need for an approach that could challenge mainstream neo-classical economics and the straightjacket it places on an activist or progressive public policy.

There was also considerable interest in the role of innovation and growth in helping to solve a range of problems. From a social activist perspective, targeted innovation-based growth such as that described by Dan Swinney of CLCR offers opportunities for revitalizing declining inner city neighborhoods and communities and offering economic opportunity and social mobility.

From an environmental perspective, participants from the Breakthrough Institute (and ITIF) were emphatic that the problems of climate change could not be solved without a dramatic infusion of new technology in energy and related fields that would sharply reduce the world's carbon footprint.

It had been anticipated that there would be some conflict at the level of principles:

For some of its members, the environmental movement is explicitly about reducing the human global footprint by cutting consumption and hence reducing or eliminating economic growth altogether

For many members of the social activist community, innovation has become identified with factory closings, outsourcing, and the ruin of once thriving communities. Not all economic change, in their view, is good.

For both communities, questions of distribution remain central.

At the meeting, these themes did emerge from time to time, but were generally submerged by a range of more practical concerns, discussed below. Even when they did emerge, there was reasoned discussion and movement toward consensus. And while some noted the second point, it did not become central to the discussion. It appears that those in the room accepted that globalization and the acceleration of economic change are not reversible, and that the question is now how to use innovation for positive purposes rather than simply trying to either slow it down or mitigate some of its negative effects. We will return to questions of distribution shortly.

Much of the discussion in fact centered not on issues of principle, but on questions surrounding the application of IE principles to the practical problems facing local activists and environmentalists (although there were some conflicts of principles, also discussed below). Several core themes emerged.

AREAS OF AGREEMENT

A number of areas of agreement emerged from the discussion:

1. Economic policy must move beyond a focus on purely price mediated market-based systems to recognize that individuals and institutions matter.
2. Innovation is something we want more of - new products and services, systems, social structures, and companies (although several speakers said the kind of innovation matters).
3. “Market only” is not what we are looking for, but neither is state (or community cooperative) control of the economy.
4. We all have to take responsibility for the health of the production system, especially at local levels (Alinskyism – with its identification of social and public concerns with the redistribution of wealth - is not the future of the movement).
5. Redistribution need not harm efficiency but can in some circumstances benefit it (but IE seems to have little to say on this latter point, which worried many participants - see below).
6. We want a “high road” strategy for everyone (a strategy that seeks to improve productivity and wage levels).
7. Manufacturing is good and inherently useful, and should be a foundation of our economy, but will not alone be the salvation (when it accounts for only 11% of jobs).
8. Businesses can and should be partners on important projects even if they are opponents on other issues.

Many of these commonalities represent shifts in the position of social activists and environmentalists. They also reflect a distinct shift away from neoclassical (NC) and neo-Keynesian (NK) economics.

AREAS OF TENSION

In only a few cases were there direct and principled disagreement between IE and other communities in the room. Most of the questions came in the form of a disconnect between IE and social activists, rather than opposition between them. However, it is possible that once some ambiguities are clarified, there will indeed be some areas of conflict.

Questions of Principle

There were some differences of principle. Among them were:

- a) **Is growth good?** Several speakers indicated concern here, either with the overall view that growth is good and is a potential solution to current problems, or sought a more nuanced version of growth. As one social justice activist pointed out, it matters who the winners and losers are from accelerating economic change, and political philosophies should not be simply neutral on that. In contrast, IE supporters question whether the focus of the social justice (S.J.) community on distribution provides an adequate framework to create the policies that produce the growth needed to support increased standards of living for working people.
- b) **Is all growth equal?** Several speakers wanted to discuss what kind of growth should be supported. All the innovation in financial sectors had not been especially positive while environmental and energy innovation is critical to the future.
- c) **Does innovation really generate jobs or is it the source of job loss?** Some discussion focused on the issue of replacing labor with capital as technical change accelerated. A Levy Institute review of the literature indicated that net job losses were more than replaced between 5 and 8 years after they occurred.ⁱ
- d) **Does ownership structure matter?** Much of the history of the left has been driven by questions of ownership. Today, co-ops are a potential alternative (see the Cleveland case below as well as numerous references to the Basque region of Mondragon throughout the discussion).
- e) **How should IE handle the tension between economic and non-economic objectives?** Is IE a theory or philosophy only about economic outcomes? At its core IE is about maximizing productivity and innovation, with the view that these outcomes benefit society. But what about distribution of this benefit? How much emphasis should IE place on distribution? IE proponents did state that competitiveness can and should be defined as meeting international competition in way that raised the incomes of the vast majority of Americans.

Practical policy guidelines based on IE principles

If IE is to successfully dominate mainstream economics, then it must function as mainstream economics does – as a philosophical AND practical guide to policy decisions. The group as a whole clearly had difficulty applying IE to questions of immediate and practical importance in their communities.

This difficulty reflects the still unfolding application of IE to political issues at both the national and sub national levels.

This issue was reflected in a number of comments on different topics throughout the day:

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- a) **Practical aspects.** At a project level how do you build innovation ecosystems (e.g. Jumpstart in northeastern Ohio)? How do you get more innovation to occur? How do you make it happen? What does IE have to say on this highly specific topic? Clearly IE has said much on this topic, through forums such as SSTI.org and the ONRIS network at University of Toronto.
 - b) **Capital.** What does IE have to say about efforts to build supplements to traditional capital models in the financial sector? Is there a distinctive IE position?
 - c) **Education agenda.** How might IE fit with the specifics of what Chicago Manufacturing Renaissance Council is doing in Chicago, or other activist groups are doing in Los Angeles or elsewhere?
 - d) **Service sector.** Services account for almost 90% of jobs in the U.S. What is an IE agenda for services?
 - e) **Labor.** IE is positive about labor standards, minimum wage, and poverty alleviation on the grounds that these can accelerate growth. How does that limited endorsement play out in practice? And what about other aspects of organized labor, such as resistance to organizational restructuring to improve productivity?
 - f) **Climate change.** IE is strongly positive about the need for new technology to address climate change. IE also rejects the notion that modest changes in price signals alone (e.g., carbon pricing) can drive the amount of clean energy innovation that is needed. At the same time, IE suggests that some community-based green jobs efforts are neither sustainable (they require continuing subsidies) nor transformative enough (e.g., insulation is a short-term, but not a long-term solution).
 - g) **Sectoral investment choices.** Several speakers mentioned the need to find guidelines or criteria that would help make choices among sectors. This came up in the discussion of advanced manufacturing. This seemed to be an area where IE could be applied in part because in contrast to the dominant neo-classical doctrines IE does not see “picking winners” as necessarily economic welfare-reducing.

Questions About Politics

A continuing theme throughout the discussion was the need to build political support for progressive policies and also for IE. Both Dan Swinney and Gar Alperowitz emphasized the importance of local coalition building for effective action.

Some comments were closely aligned with the overall message of IE, namely that there should be a constituency for growth that transcends some traditional battle lines. It was noted that the CMRC coalition has held for 5 years now, and that participants understand that they can fight about other issues while aligning behind CMRC projects. In Cleveland, the coalition has been building slowly behind the Evergreen project.

Many speakers commented on the politics of developing progressive coalitions. There seemed to be hope that IE could help, but not a confident understanding of how. In contrast, ITIF’s Rob Atkinson described IE as essentially a doctrine that addresses how to better shape coalition policies and arguments, but it is not a philosophy to inform mobilization itself.

The problems identified in 1) above also ran over into politics. Politics is often about specific public policies, such as those described in 1), or bundles of policies related to

projects, like CMRC and Evergreen. So in order for IE to become useful in building the political side of an innovation coalition, IE has to address a deeper range of specifics that apply more locally.

Questions About Levels of Action

The demand for specifics in turn reflected an important difference between participants – their level of operation. Some, like ITIF and perhaps Breakthrough, operate largely (though not exclusively) at the national level, focused on national and even international politics. But most others operate at the city or state level. There were clear tensions between the theoretically driven and somewhat abstract focus of national level operatives, and the very practical concerns of locally-focused activists. Of course, it is easy to turn this into a caricature - ITIF has worked at the state level, and many local activists are interested in national politics and policies too. But there is still a useful distinction here.

This point also emerged in relation to the IE message for specific communities. For example, how does IE address the needs of low income communities?

But at the same time, many in the social justice communities work at the national level as well, and it is here perhaps that IE can have the most immediate benefit. But at all levels of the political spectrum (neighborhood, city, state and national), action is guided and justified by theory and rationale. In this way IE could provide useful insight at the level of theory and rationale, and as described above, in real world examples.

Questions About the Relationship Between Production and Distribution

IE is primarily focused on production and growth. Rob Atkinson made the point several times that except for questions about the appropriate level of investment (vs. consumption), IE has relatively little to say about distribution. IE recognizes any number of distributive arrangements could result in efficient outcomes, thus it does not clearly indicate which is preferable other than to be generally sympathetic with concerns that current distributional outcomes have gone too far in the direction of unfairness. This is noticeably different from NC theory in which only one outcome is optimal.

IE also does not specifically address ownership arrangements – about employee-owned cooperatives, for example. IE's position is largely agnostic on the question of ownership, seeing it as an empirical question as to which form (in which situation) can produce the highest productivity (defined as output per hour worked) and most innovation (defined as new products, services and business models). An S.J. view would be concerned with which ownership form can produce the most positive externalities (e.g., community stability related to business dynamics, environmental sustainability, and quality of work life). However, IE would respond that as long as these factors are measured accurately and at the national level, they are appropriate measures to include in any analysis of ownership structure.

That agnostic stance made a number of people uneasy. Several people seemed to want IE to take a stand in favor of more progressive distribution of wealth, but that does not in fact flow from the IE analysis which is overwhelmingly focused on the production side of the economy. Matt Hancock, for example, argued that IE's value base – a market economy – is the same as NCs and NKs, and that it was not favored by a majority of participants. IE's

response would be that without a rising tide that it will be difficult to raise all boats, or to get support for policies to do so.

So IE may be able to act as a shield for example on tax issues, by claiming that a more progressive tax system, or one with a larger tax base and higher public share of GDP, can be intrinsically economically efficient (unlike NC would claim). But IE does not directly provide arguments that support these policies.

In short, IE does not have an explicit social agenda, and that made social activist participants uneasy. Conversely, S.J. does not have an explicit economic agenda for production, and that made some IE participants uneasy.

Missing Links

Aside from points raised elsewhere, some participants simply wanted IE to take on pressing issues of the day more directly. For example, it was noted that the financial sector, as currently structured, did not provide funding for sufficient growth-oriented (and job-creating) activities in local communities. IE seems to have little to say about the financial sector. But while IE states that it is not solely the amount of capital that matters, it does recognize that questions of how capital is mobilized are important. IE also recognizes that existing capital market failures can be remedied with smart public actions and/or public private partnerships. But IE recognizes effective capital allocation as simply one of a number of factors that support growth and innovation (others being workforce skills, regional agglomerations, regulatory and tax climate, and most importantly, the technology base).

Low Road vs. High Road Strategies

There was little disagreement that the high road strategyⁱⁱ should be adopted in all cases. However, there was some question about how IE principles could explicitly lead to or support a high road strategy. Where IE can make an important contribution is in the situation when an economy can be in (what neoclassical economics call) equilibrium at both a high road and low road level, and therefore, the choice of which road to take is not one that can be left up solely to “market forces” allocating factors of production.

There was a considerable amount of discussion about low road vs. high road strategies and that both low and high road practices are present in every sector. Some argued that the low road needed to be confronted whether in business, labor, community activism, or government to differentiate in practice between high road and low road strategies.

However, successful high road strategies would require that activists engage the business community – particularly technology-based small and medium-sized businesses – and that IE provided a basis for engagement.

But there was still some tension or at least unresolved issues regarding what constituted the low road and high road. Did high use of automation and technology (leading to fewer workers) constitute low road or high road? The choice could be between automation and some jobs or no automation and no jobs (due to loss of competitiveness). Likewise, is the high road simply the presence of higher wages (e.g., achieved through collective bargaining) or does it need to be accompanied by higher productivity?

NEXT STEPS

While it would probably be possible to undertake another round of discussion similar to that completed in Chicago, there are some other possibilities:

- 1) **Focus on selected policy areas.** There was considerable interest in and need for the application of IE thinking to issues of local economic and sustainable development. Hence one way to proceed might be to focus on some selected issues areas. These might for example be:
 - a) Economic and community development in low income neighborhoods.
 - b) Advanced manufacturing, where it might be possible to abstract from CLCR's work and link to more concrete applications of IE
 - c) IE and redistribution of wealth, assets, income, and power, as this was clearly an area of concern.
 - d) IE and education, perhaps again seeking to cross fertilize practice in Chicago and elsewhere with IE principles and theory.
 - e) IE and capital markets, especially the provision of capital at the regional and local level. This might help to apply IE principles to the concrete problems of ensuring sufficient investment in community-based projects, or in growth-oriented projects at the local level.
- 2) **Options for continued discussion.** There seemed to be considerable interest in continuing the discussion, perhaps in a more targeted way in areas listed above. Now that the initial face-to-face meeting has been completed, there are several modalities that could be engaged.
 - a) Another large group meeting;
 - b) Smaller more targeted meetings focused on particular issues, probably bringing in new expertise to assist; or
 - c) Online discussions. These could perhaps be focused on specific issues selected by the group as a whole.

Note that these options are not exclusive.

Appendix A. Innovation Economics and the Mainstream

ROB ATKINSON: INTRODUCTION TO INNOVATION ECONOMICS, DIFFERENCES WITH MAINSTREAM ECONOMICS

Economics structures change. Economic doctrines determine economic thinking and influence economic policies. Doctrines need to evolve to reflect economic change. Ours have not.

Currently, economics and related public policies are dominated by 3 competing doctrines:

- conservative neoclassical;
- liberal neoclassical; and
- neo-Keynesian.

All of these – in different ways – profoundly limit the role of the government in supporting economic growth or intervening in the economy at all.

The Neoclassical Straightjacket

Neoclassical economics (NC) is the predominant economic doctrine influencing policy in the U.S. It should be distinguished from neo-liberal politics, which is a broader political philosophy emphasizing limited government and markets. NC is fundamentally at odds with a social justice approach with the NC “priesthood” believing that they and only they hold the secret keys for growth. Thus, S.J. gets confined to the “equity” sidelines at best, and to something antithetical to a healthy economy at worst.

Neoclassical economic doctrine is guided by five key principles:

1) **The accumulation of capital drives economic growth.**

Perhaps the most important NC principle is that the accumulation of capital is what drives growth. This belief leads NC economists to recommend and focus almost exclusively on policies designed to spur private savings (for conservative neoclassicists, a.k.a. “supply-siders”) or public and private savings (for liberal neoclassicalists aka “Rubinomics”).

As a result, technology is outside the model. Indeed, as former *Business Week* Chief Economist Mike Mandel noted, NC economists are “capital fundamentalists who believe that savings and investment in physical capital and (sometimes) human capital are the only forces driving growth. [They] generally ignore or minimize the role of technology.”

For the most part, therefore, neoclassical economists “remain profoundly ambivalent toward most areas of technology... They grudgingly acknowledge the importance of technological change, but they don’t understand it or trust it.”ⁱⁱⁱ

So if capital is the key, policies that raise taxes on the rich or that spur consumer or government spending reduce growth. End of story.

Doctrines are real:
Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist.

(John Maynard Keynes)”

2) **Economic growth is achieved by maximizing allocative efficiency.**

Allocative efficiency exists when resources are allocated so that the net benefit from their use is maximized; which in turn means that goods are produced that most benefit society. As markets and prices (in this model) are the best way to signal what to produce, an allocatively efficient market is one where scarce goods and services are produced to the point where marginal cost equals marginal revenue.

NC economists must therefore reject any policy that would alter the “natural” allocation of factors—that is, capital, labor, and goods and services—produced by market price signals determined by individuals and firms making free choices not distorted by regulations, taxes, market power or other “distortions.”

Redistributive policies. Both conservative supply-sider NCs and liberal NCs believe that any policy that distorts allocative efficiency harms growth. The difference is that liberal NCs will sometimes accept policies that harm allocative efficiency if they lead to greater economic fairness, while conservative NCs will not.

So redistribution is okay, but it’s a bitter medicine that we take at the cost of growth.

Conservative NCs in contrast seek a tax code with low rates and few distortions. Decisions should be made by economic actors driven by the market and not the tax code. Similarly, most NCs reject proactive policies to spur organizations’ productivity or innovation because they “distort” the market by “picking winners.”

As liberal neoclassical economist Alan Blinder states: “We need not summarily reject a substantial redistributive program just because it inflicts some minor harm to economic efficiency... Policy changes that promoted equity (such as making the tax code more progressive or raising welfare benefits) would often harm efficiency.”^{vi}

3) **The focus is on markets and prices.**

If one factor defines an NC economist, it is a predominant focus on the economy as a market determined by price signals. Indeed, the whole concept of allocative efficiency revolves around the responsiveness of economic agents—firms and consumers—to price signals.

So NC economists focus on processes of exchange, rather than processes of production and innovation.^{iv} They simply don’t understand the real economy. It’s a bit like asking a physicist to design a bridge.

4) **The economy tends to equilibrium.**

If markets are left to their own devices, with minimal regulation and interference from government policy, markets will tend to find their “natural” equilibrium – that is, prices will settle to a point where markets “clear” at a price where the amount of a product that buyers seek equal the amount that sellers are prepared to provide. The market can be for good, service, labor, or even capital.

NC economists believe that markets reach one and only one equilibrium, and that there is no better mechanism for reaching equilibrium than price-mediated interactions in markets.

5) **Individuals and firms are rational maximizers and respond to incentives.**

Under the NC model, people and organizations are largely rational and they respond rationally to incentives (e.g., changes in price). Blinder argues: “[E]very tax influences incentives, as supply-siders correctly emphasize... Unless the market is malfunctioning, such tax-induced redirections of resources reduce economic efficiency. They are therefore to be minimized.”^v

Because of this, the role for government is to get out of the way and to let markets work and do their magic. This was the intellectual reason why Rubin, Summers and Greenspan so strongly supported deregulating financial services over the last decade.

Conservative Neoclassicalists vs. Liberal Neoclassicalists

For conservative NCs private capital is the key. All growth is driven by the utilization of accumulated capital. So the only sensible approach is to adopt policies that maximize capital accumulation.

Liberal NCs see an additional role for government in accumulating capital through the development of budget surpluses. This explains much of why current OMB Director Peter Orszag (a liberal NC) wants to cut public expenditures to balance the budget.

For liberal NCs, the fundamental benefit of higher national savings—achieved by preserving a substantial portion of the projected budget surplus—is that it will expand economic output in the future. Higher national saving leads to higher investment, which means that future workers have more capital with which to work and are more productive as a result.^{vi}

Liberal NCs also are more willing to support public spending if it is focused on helping economic disadvantaged individuals, but they would usually see decisions about such spending as involving a tradeoff between growth and fairness.

However, both liberal and conservative NCs agree on one core point: in the absence of market failures, nothing can better boost growth than government freeing up capital.

Liberal NC arguments

Alan Blinder: *“Although economics can tell the government much about how to influence aggregate demand, they can tell it precious little about how to influence aggregate supply.”* ...
*“Nothing—repeat, nothing—that economists know about growth gives us a recipe for adding a percentage point or more to the nation’s growth rate on a sustained basis. Much as we might wish otherwise, it just isn’t so.”*¹

Paul Krugman: *“Productivity growth is the single most important factor affecting our economic well-being. But it is not a policy issue, because we are not going to do anything about it.”*²

These views aren’t outliers. The dominant economic thinking embodied in the liberal neoclassical economics doctrine minimizes the role of innovation in growth and government’s capability to spur innovation and largely counsels policymakers to manage the business cycle, reduce allocation inefficiencies, and support greater fairness.

Why NC Economics Is a Flawed Guide to Policy

Despite some positive contributions, NC is a flawed guide to economic policy in the global, knowledge-based economy of the 21st century. Some key problems are highlighted below.

1) Innovation is a much larger driver of growth than capital.

NC economics “explains” only a portion of actual observed growth, even according to NC economists. A considerable amount is left over, called the “residual.” Innovation economists show that this unexplained residual is in large part a result of innovation (the development and adoption of new products, processes, business processes, and firms or work organization).

Growth requires capital. But there is no evidence of capital shortages at the aggregate macroeconomic level. To wit, in the last decade there was a surfeit of capital to invest in get rich quick investments in finance or real estate.

So the problem in the U.S. economy has been not a lack of investment capital but a lack of good investment opportunities, uncertainty and risk such that capital is correctly allocating to investment opportunities that maximize new products, processes, services and societal welfare.

2) Productive efficiency and adaptive efficiency are much more important to growth than maximizing allocative efficiency.

Productive efficiency is the ability of organizations to produce in ways that lead to maximum output per unit of input, including labor. To be clear, productivity does not mean producing more with more (e.g., extending work hours). Productivity is defined as output per hour of work.

Adaptive efficiency is the ability of economies and institutions to change over time to respond to successive new situations, in part by developing and adopting technological innovations as well as developing new institutional forms.

In this sense, while some more doctrinaire conservative NC economists see the R&D tax credit (a provision in the tax code that gives companies a tax credit on a portion of their expenditures on research) as “distorting” allocative efficiency, IE sees the benefits of higher productivity and innovation from such a “distortion” as vastly outweighing any minor loss to allocation efficiency.

3) Outmoded assumptions

NC theory is an elegant explanation of growth, but it relies on a number of assumptions, few of which are true in today’s economy. In particular, it works best when there is perfect competition, constant returns to scale, and the absence of market failures. All three assumptions have been questioned, often convincingly, by innovation economist theorists.^{vii}

The core of the IE critique is that the real world of the 21st economy is not reflected in NC models. Moreover, in what has become known as “innovation economics” knowledge has been explicitly recognized as a crucial factor generating economic growth.^{viii} In the new knowledge economy, knowledgeable people, including creative entrepreneurs, skilled shop-floor workers, cutting-edge researchers, innovative companies, and digital-savvy “prosumers” are the drivers of growth.

Without an economic theory and doctrine that match the new realities, it will be very hard for policymakers to take the steps needed to effectively foster economic growth.

4) Innovation

NC does explain a share of the economy. But innovation in the neoclassical economic model is an exogenous process—occurring in a black box, if you will, where price signals work their magic. In this sense, the neoclassical model sees innovation as falling like “manna from heaven,” and has few tools or theories for either effectively explaining it, or designing effective policy to promote it. As noted innovation economist Joseph Schumpeter stated, “Add successively as many mail coaches as you please, you never get a railway thereby.”^{ix}

Conclusions: NC

NC prides itself on being a science which implies a single set of applicable laws.

In contrast, IE sees that the guidelines for economics (as opposed to scientific laws) need to change as economies change. And while the U.S. economy has been transformed by the forces of technology, globalization, and entrepreneurship, the doctrines guiding economic policymakers have not kept pace and continue to be informed by 20th century conceptualizations, models, and theories.

Innovation and entrepreneurship has replaced mass-production and large capital-intensive factories as the engines of growth, jobs, and competitiveness. Thus, economic policy must also shift from its old economy concern of stimulating consumer demand while restraining the market power of oligopolies to the new economy concern of boosting innovation and productivity.

An opening exists to challenge the neoclassical hegemony it enjoys in Washington.

The Neo-Keynesian (NK) Populist Economic Doctrine

While the two NC doctrines dominate economic thinking in the U.S., neo-Keynesian economics has tried to provide a compelling counter narrative. And while there are some similarities between NK and IE, (e.g., both recognize the importance of institutions as well as markets), there are significant differences. NK economic thinking is guided by three key principles, outlined below.

1) Demand drives economic growth.

Keynesians believe that the demand for goods and services—coming from business investment, government spending, consumer spending, or exports—drives growth.

In recent years, NKs have tried to update the liberal demand-side story for the new economy. They acknowledge that investment is the key to productivity, but claim that consumer spending drives investment.^x Instead of simply claiming that spending leads to more jobs, they now argue that consumer demand is the fuel that induces companies to invest in new machinery and equipment: if companies think consumer demand is increasing, they will have an incentive to invest more.

Because NKs focus on aggregate demand, many NK policies revolve around increased government spending to keep the economy growing. As former Economic Policy Institute President Jeff Faux writes, NK argues that the federal government should “jump-start

consumer demand and through its spending keep it up.”^{xi} Similarly, NK economist James Galbraith argues:

Consumption is also an important and much maligned policy objective. People should have the incomes they need to be well fed, housed, and clothed—and also to enjoy life. Public services can help: day care, education, public health, culture, and the arts all deserve far more support than they are getting.^{xii}

2) Equitable distribution of wealth is critical.

NKs see most economic issues as a question of “who benefits”: working people or rich people and corporations. So NKs focus on the fair distribution of economic output and growth. MIT economist Frank Levy argues: “We cannot legislate the rate of productivity growth ... That is why equalizing institutions are so important.”^{xiii} Thus, ironically, both NC and NK limit the role of government in intervening in the “economic engine”, the former because government intervention distorts allocation efficiency and the latter because the proper role of government is seen as focused on questions of redistribution, not production.

3) Managing the short-term business cycle is the primary objective

In part because Keynesianism was largely a response to the Great Depression, NKs focus predominantly on the short-term business cycle, usually at the expense of long-term growth.

Innovation Economics (IE)

In the last decade, a new theory and narrative of economic growth has emerged, focused on innovation. Known as “innovation economics,”^{xiv} this doctrine provides an economic framework that explains and helps support growth in today’s knowledge-based economy.

IE reformulates the traditional model of economic growth so that knowledge, technology, entrepreneurship, and innovation are positioned at the center of the model rather than being viewed as independent forces largely unaffected by policy.

IE is based on two fundamental tenets:

- 1) The primary goal of economic policy should be to spur higher productivity and hence a better standard of living (which can be distributed in many different ways – including more leisure time without a loss of income.).
- 2) Markets acting alone and relying on price signals alone will be less effective in meeting these objectives than smart public-private partnerships.

Unlike either liberal or conservative NC or NK, IE postulates that innovation drives economic growth. Thus, IE does not treat knowledge and technology as something that happens outside economic activity (“exogenous factors” in standard economic models).

Instead, IE makes an explicit effort to understand how technological advances occur, and sees such advances as a result of intentional activities by economic actors, including government.^{xv}

Principles Guiding Innovation Economics
Innovation economics is guided by six core principles.

- 1) **Innovation drives economic growth.** The major changes in the economy have occurred not because the economy accumulated more capital to invest in even bigger steel mills or car factories; rather they have occurred because of innovation (defined as new products, production processes, services, and business models).
- 2) **The major drivers of economic growth are productive efficiency and adaptive efficiency.** IE focuses on the “study of how societies create new forms of production, products, and business models to expand wealth and quality of life.” In a world in which productive efficiency and adaptive efficiency are what matters, and where market failures are more the norm, the role for explicit and effective IE policies is more compelling. This contrasts sharply with NC emphasis on allocative efficiency, the NK emphasis on redistribution.
- 3) **Public-private partnerships to spur evolving institutions are key.** Innovation is central, and IE recognizes that innovation and productivity growth take place in the context of institutions. The “social technologies” of institutions, culture, norms, laws, and networks are central to growth, yet are so difficult for conventional economics to model or study. It views innovation as an evolutionary process in a market where firms act on imperfect information and where market failures are common.

The evolutionary process occurs with the interaction and learning of firms, industries, public authorities, and other organizations that collectively make up an overall national innovation system. The role of government is central to ensuring that policy enables innovation-friendly institutional arrangements that facilitate learning and innovation among economic actors. Thus, national innovation policies and the systems they create encourage innovation and differ significantly from country to country, depending upon culture, history, attitudes, and institutions and laws.

IE is not a single theory that can be applied to all situations for all time periods (like NC, which claims that markets always set prices best). It is based on a set of practical guidelines that change depending on the context. Hence, its focus is not just on economics but also on technology, business, regional development, culture, and law. Thus, innovation economists are pragmatic and empirical, analyzing what has worked and is likely to work in the future.

If there is a “bible” for innovation economics it is perhaps Joseph Schumpeter’s classic 1942 book *Capitalism, Socialism and Democracy*. In it, Schumpeter explained:

The essential point to grasp is that in dealing with capitalism we are dealing with an evolutionary process ... the fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers’ goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates.¹

- 4) **The new knowledge-based economy tends toward change rather than toward equilibrium.** IE holds that although there is equilibrium in some markets at some times, in growing share of markets in the new knowledge-based economy, equilibrium is a fleeting moment. As Schumpeter pointed out over half a century ago:
“A system which is efficient in the static sense at every point in time can be inferior to a system which is never efficient in this sense, because the reason for its static inefficiency can be the driver for its long-term performance.”^{xvi}
- 5) **Individuals and firms are not rational maximizers.** It is difficult, if not impossible, for individuals and firms to make effective decisions under conditions of uncertainty relying only on price signals.
- 6) **Smart public-private partnerships are the best way to implement policy.** IE suggests that the roles of the state and the market should not be framed, as it is currently by policymakers and others in Washington, as the state *versus* the market. Instead, as Eric Beinhocker, the author of *The Origin of Wealth*, suggests, the issue should be framed as “how to combine states *and* markets to create an effective evolutionary system.”^{xvii}

Applying Economic Doctrines to Real-World Policy Issues

Economic doctrines have profound implications for all the policy issues of relevance to the social justice and environmental movements. As the following brief review indicates, NC has the effect of invalidating progressive policies in almost all areas of public policy. Its profound built-in bias for private sector only, market-based solutions means that they inevitably act as road blocks against progressive policies – even in a progressive Administration. We can see this in a variety of policy areas.

Tax Policy

NC tax policy: Taxes should be limited and simple and focused on activities that have the least distortions (e.g. a national sales tax). Their mantra is simplification and they oppose tax policy being used to achieve particular social or economic goals.

NK tax policy: The goals of tax policy are to generate the revenues needed for a generous welfare state and to raise the taxes in ways that create more equitable after-tax distribution, thereby stimulating demand.

IE tax policy: Taxes should be targeted to enhance socially desirable outcomes, i.e. be focused on supporting investment in and growth of strategically important activities (e.g. R&D and new IT investment) and industry sectors (those with high value-added).

Budget Policy

NC budget policy: Large deficits are always bad.

NK budget policy: Large deficits are often OK, especially when the economy is in decline.

IE budget policy: Large deficits are sometimes OK if the revenue is invested in the right things that will boost productivity and/or innovation.

Trade Policy

NC trade policy: With their overriding focus on promoting allocative efficiency and consumer welfare, NCs strongly favor free trade. They oppose tariffs or other restrictions because these reduce allocative efficiency. NCs believe that if each country specializes in what it is best at producing, efficiency is increased (in the classic example, a sheep producing country trades with a wine-producing country and both benefit). Fighting back against other mercantilist nations is seen as protectionism.

Moreover, NC's large focus on the benefits to consumers from low-wage production overseas, largely ignores transitional or permanent costs to displaced workers. Conservative NCs also argue that there are significant economic downsides from more generous policies to help those who are hurt by trade. In contrast, liberal NCs support helping workers who are hurt by trade, in part because they believe this is necessary to maintain support for free trade.

NK trade policy: Because NKs are concerned primarily with workers' welfare, they are more skeptical of free trade, seeing that it leads to some jobs being lost (even if other jobs are gained). NKs also believe that many U.S. wage increases are restricted because of downward pressures from low-wage workers in developing nations. Hence, most NKs favor more limited market-opening steps, particularly with lower-wage countries that have weaker labor and environmental standards. NKs sometimes even favor reversing past market-opening steps. Because they want to blunt low-wage competition, neo-Keynesians' preferred solution to globalization is to push for stronger labor and environment standards: if wages go up in other nations they believe that American workers will benefit indirectly. For the same reason, NKs have pressed countries like China to re-value their currency against the U.S. dollar.

IE trade policy: IE supports global trade for three main reasons. First, increased competition can spur companies to be more innovative and productive. Second, the natural evolution to a global trading system should benefit high-wage countries by creating a new global division of labor where the industrial base of these economies evolves toward more high-value-added and innovation-based goods and services. Third, globalization increases innovation through greater learning and collaboration across borders.

Yet unlike NC which sees foreign export subsidies (including currency manipulation as a gift to U.S. consumers), IE believes that mercantilist policies (e.g., tariffs, unfair taxes, currency manipulation, and discriminatory standards) can capture sectors with high growth potential, and hence can damage the U.S. economy in both the short and long term and at the same time reduce global economic welfare.^{xviii} For example, China's "green" mercantilism directly hurt the competitiveness of the United States in those industries; Chinese subsidize U.S. consumers to have cheaper imported wind turbines; but this is at the expense of wind turbine industry jobs in the United States.

Hence IE advocates international efforts to move the global trading system away from national economic policies that promote exports in a beggar-thy-neighbor fashion (as is currently the case today in many nations) and toward policies that support domestic innovation and productivity.

Like NKs and liberal NCs, IE favors policies to help workers and communities adjust to trade-related dislocations. However, it generally opposes policies to protect domestic

companies from legitimate trade impacts (as opposed to protecting them from the impacts of foreign mercantilist policies).

Finally, IE argues that trade must be complemented by domestic innovation policies to help the economy move up the value chain and take advantage of global economic opportunities and respond to global challenges. Unlike NCs who believe that trade simply allows nations' competitive advantage to be "revealed," innovation economists believe that competitive advantage has to be created.^{xix}

Minimum wage and worker benefits

NC minimum wage and worker benefits: NC economists have problems with the minimum wage (and higher mandated worker benefits) because it replaces market driven prices with regulated prices – an outcome which they believe by definition leads to incorrect allocation of labor. So for NC, the minimum wage distorts allocation efficiency and should be eliminated if possible.

NK minimum wage and worker benefits: NK believes a higher minimum wage is not only fair but because it supports increased consumer demand it spurs growth.

IE minimum wage and worker benefits: IE takes this argument considerably further, by claiming that provided the minimum wage is not set too high, it spurs productivity by spurring organizations to invest in ways to boost productivity. For example, following a page out of the IE playbook, Singapore has pushed up wages to drive productivity growth.

Worker tenure

NC worker tenure: As with all policy decisions, NC argues that any regulation by definition interferes with and hence reduces allocative efficiency, which in turn hurts productivity. So almost all regulation imposes costs on the economy – including those affecting tenure (such as plant closure legislation) but also (in the purest case) hours worked, child labor, and health and safety at work.

NK worker tenure: Again, as with most other policies, NKs focus on worker welfare more than consumer welfare. Thus if worker tenure policies lead to firms keeping workers they don't need, they ignore or minimize costs to consumers, in part by assuming that the costs come out of profits. This is one of the reasons why they generally oppose the use of cost-benefit analysis in judging regulation. And once more, social activists see these as justice issues, not connected to broader economic outcomes.

IE worker tenure: IE has a different view. Regulations regarding tenure (and effective transition benefits) need to balance the risk that change will be slowed down because of lack of flexibility and that change will slow down because without rules and help, workers will fight, rather than accept risk and churn. This can help create a culture where workers and unions can say "we don't fear new technology, we fear old technology." They can say that because if they lose their job they don't lose everything.

Poverty and Skills

NC Poverty: NC views poverty as a natural outcome of poor personal choices and historical tendencies, and any change in skills as exogenous to the economy – something that simply happens. As always, conservative NC argues that the economic costs of action to address

poverty or improve skills will often outweigh any social or economic benefit (partly because they appear to see few if any social benefits).

Liberal NC is slightly different, as negative outcomes from markets induce a sense of obligation which in turn permits action.

NK Poverty: NKs and social activists are concerned with helping those who need it. For them downstream impacts are not really relevant. Alleviating real pain and suffering in real people is the preeminent goal.

IE Poverty: Some IE economists, disputing the neoclassical view that the economy tends toward one equilibrium, have argued that economic systems can have multiple equilibria, with significant consequences for economic welfare. This implies that government policy, which moves an economy to a higher output equilibrium, can spur growth.^{xx} As such, IE believes that the market is characterized not by equilibrium or multiple equilibria but instead is roiled by constant change. So over a long period, reducing poverty and enhancing skills improve the human capital in the economy, opening the door for higher value production. That can help move the economy to a higher wage, higher skill equilibrium. In addition, the costs imposed on society from poverty and personal dysfunction can be considerable (and are principally borne by society itself, not firms in the “market”). Therefore, addressing issues of poverty (not by treating the symptom, but by treating the cause) can lead to higher economic growth with more resources going to things society and individuals value (e.g., higher education, healthier food) and fewer going to things society does not value (e.g., expenditures on criminal justice).

Climate Change

A healthy engine (e.g. clean innovation) is key to solving climate change. Social justice theorists cannot simply rely on the market to drive the engine and hope to pick off the surplus to redistribute. This is what conservatives believe. Social activists have to be engaged in helping the engine, that is in helping support national and regional policies to help the private sector better develop, commercialize, produce and deploy cleaner energy technologies.

APPENDIX B. DAN SWINNEY: VIEW FROM A LOCAL ACTIVIST PERSPECTIVE

CLCR BACKGROUND

Center for Labor and Community Research (CLCR) was formed in reaction to manufacturing crisis, and has focused on the micro level of economy. Dan Swinney, Executive Director of CLCR, believes that IE offers a framework that does not exclude more transformative models.

In particular, IE can help to bridge traditional ideological boundaries between:

- Republicans and Democrats
- Business and Democrats
- Traditional labor organizations and business

We are now entering a critical period. He believes that we are in a structural crisis, and that there is – among activists at least – a broadly accepted necessity to change the development paradigm.

The economy is now at a crossroads, and the next 10 year period will be critical. Hence rather than utilizing IE at the margins, he believes strategically that this is the time to challenge the dominant frameworks.

Change must extend deeply to the social relations of production. Currently dominant forces are destroying the productive capacity of the economy

CHICAGO MANUFACTURING RENAISSANCE COUNCIL (CMRC)

Local action in Chicago offers some significant examples. Projects embody comprehensive vision, as well as powerful coalition building to the business communities and government.

The Chicago Manufacturing Renaissance Council (CMRC) grew out of a study in the year 2000 on education and training related to manufacturing in Cook County. Though Cook County still has 6-7,000 manufacturing companies there is movement to higher value-added products partial because offshore production is focused on lower value-added products. On average, manufacturing jobs pay \$65,000 a year and 10,000 jobs need to be filled every year.

This led to the conclusion that:

- The crisis in manufacturing drove urban poverty.
- The decline in manufacturing is not inevitable.
- Manufacturing could be rebuilt and sustained.
- The public education system is failing to meet needs of these companies.

The CMRC vision is to have Chicago become a global leader in high end manufacturing. The objective is development that is economically, socially, and environmentally sustainable and restorative.

There is a need for:

- smaller schools

- transformation of community colleges
- new public attitudes

CMRC partnered with Illinois Manufacturers Association, a typically Republican organization and with the Chicago Federation of Labor, a typically Democrat organization. Their signature project is Austin Polytech (AP) and the Chicago Academy for Advanced Technology (CAAT). The Austin area of Chicago used to have 20-25,000 manufacturing jobs, but now has 2,000. The manufacturing-focused high school was founded on the principle that creation of a high-skill labor pool will re-attract companies. The school is a way to reindustrialize the community.

In addition, there is an enormous opportunity for people doing skilled work within the manufacturing sector. These are not vocational or trade schools. The objective is to develop leaders in manufacturing – skilled production, management, ownership. 99 percent of manufacturing companies are white-owned. Companies fall thru the cracks because of succession issues. AP encourages young people to be owners of means of production in their communities.

The schools teach a 4 year pre-engineering program and partner with 60 companies. 75-100 companies partner with CAAT. The companies are generally small and deeply engaged in innovation. They offer internships, summer jobs etc. The school integrates manufacturing deep into the curriculum – manufacturers come in to meet teachers in English, economics, etc.

These schools are not just college preparatory schools. The purpose is to build the community. There has been a \$150,000 investment by small companies to bring in tools for an advanced manufacturing center. They plan to open this for parents and community in the evening. The program is being coordinated with community colleges and with national standards organizations (NIMS). Similar programs are being developed for people returning from prison.

CMRC intervention has pushed the community college system to become accredited by NIMS, and to see the need to meet needs of companies as well as residents.

CMRC is also moving on more sector projects – for example, helping local companies become part of the supply chain for the wind turbine industry.

PRINCIPLES

All work is premised on:

- 1) **Development vision.** We must rebuild the American economy as a productive society. We should be the global leader in advanced products.
- 2) **Advanced manufacturing is where we have an advantage.** Also the place where we have a fusion of public and private interests. It is the only sector that can rebuild the middle class, and the only sector that can solve the environmental crisis.
- 3) **Work has changed in manufacturing.** Even in small companies, this is transformative work, not toiling work. Employees need to know math, critical thinking, have to be able to work in groups, and collaborate.

- 4) **Work is more demanding and requires constant change.** Some small companies now support continuing education up to the Ph.D level.
- 5) **Centrality of education.** If change and education are a given, then good quality education is critical. Without intervention in education, everything else becomes impossible.
- 6) **Providing key infrastructure based on our values and needs.** The community that has been deindustrialized should be the first to benefit from re-industrialization.
- 7) **The government is a key actor to support manufacturing.**

OBSTACLES AND OPPORTUNITIES

1) **Low-road strategies as a core problem**

- a. There are low-road strategies in the social movement (e.g., community benefits agreements, where a specific organization makes an agreement with a development project that destroys the community.)
- b. Need to confront the Alinsky tradition focused on confronting the private tech sector rather than enlisting them as partners in community revival.

2) **High-road strategies – based on coalition building for a purpose.**

- a. Engage and lead in the creating of wealth as well as in redistribution. Alinsky vs. Arizmendi (Mondragon)
- b. Recognize the market as an equally important arena in which to contend. (e.g. struggles over ownership)
- c. Sections of the business community are ripe for coalition building around selected issues.
 - i. Especially small, privately held companies.
 - ii. Dependence for survival on a competent public sector should be a strategic, not just tactical matter.
- d. Need to change our anti-corporate language and strategy.
- e. Need for profound reform of education for anything to work. Key ally has to be the teachers unions.

3) **Surprised by the breadth if the coalition we've been able to maintain.**

Gathering around a limited number of objectives including community development. Partners fight about many other issues.

4) **Relationship between IE and more traditional social activist agenda.** IE has relatively little to say about transforming relations of production on the job – in the school, or in the community.

- Getting people to participate transforms their consciousness.
- Without a theoretical grounding, policy quickly becomes little more than opportunistic tradeoffs. One example was the proposed renewable energy investments in the 2009-10 federal budget. These were traded away for coal votes without protests even from advocacy groups. Groups abandon their position because there was nothing grounding them in theory.

Appendix C. Green economy, climate change, and IE [Introduction by Breakthrough Institute]

Human history is about the rise of energy consumption. However, the UN policy on climate change seeks carbon production levels equivalent to those in Somalia – pre-1800.

According to the UN, carbon levels need to be reduced worldwide by 50% by 2050. That will require a 6 fold improvement in energy efficiency. At the same time, solar energy is currently 5 times more expensive than coal.

The obvious implication is that given these extraordinary demands, we cannot price or conserve or caulk our way to climate stabilization.

Affecting behavior by pricing alone would require very high carbon prices, with consequent very substantial economic costs.

Two countries have had some success in reducing their carbon trajectory – France and Sweden – but both have been based primarily on using nuclear power.

The inevitable conclusion: radical technological change is needed to drive down the price of noncarbon energy.

However, the political will is still not there. There is no firm political base yet for major technology investments from government. As a result, it will not be easy to follow EU patterns.

Appendix D. Meeting Agenda

MAY 17, 2010	Informal Welcome Dinner
7:00 PM	Bistro 110, 110 East Pearson Street, Chicago, IL 60611
MAY 18, 2010	Social Justice and Innovation Economics Meeting Agenda
8:30	Breakfast
9:00	Introduction and review of the purpose of the meeting
9:15	Introductions of participants
9:45	The Neo-Classical Model Review of the neo-classical doctrine (its limitations and the source of its dominance in policy circles; and its impact on the climate change debate).
10:30	Innovation Economics (IE) Review of innovation economics and in particular its differences with the neo-classical model.
11:00	Coffee break
11:15	Social Justice and Community Development (SJ/CD) Review of core doctrines.
12:00	Sustainable and/or green development (GD) Review of principles and practices.
12:45	Lunch
1:30	Areas of agreement Between and among IE, SJ/CD, GD
2:30	Areas of contention Where more dialogue can reduce the disagreement and areas that may be more difficult to resolve.
3:30	Coffee break
3:45	Roundtable Discussion Identification of : opportunities to build new coalitions and policy action, implications for local and national strategy and tactics and next steps.
4:30	Conclusions and Summary

Appendix E. Meeting Participants

Innovation Economics and Social Justice Roundtable Chicago, IL May 18, 2010

Antwi Akom

Professor, Ella Baker Center, Lawrence Berkeley Laboratory, Environmental Sustainability Planning Network

Gar Alperovitz

Lionel R. Bauman Professor of Political Economy, University of Maryland, College Park

Rob Atkinson

President and Founder, Information Technology and Innovation Foundation (ITIF)

Elsa Barboza

Campaign Director, Strategic Concepts in Organising and Policy Education (SCOPE)

Michael Bennett

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Cindy Chavez

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*Senior Vice President, Cloud Computing and Chief Sustainability Officer, Sun Microsystems
Senior Fellow, Breakthrough Institute*

Steve Durchslag

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Mike Egan

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Robin Gaster

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Matt Hancock

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Steve Herzenberg

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Ted Nordhaus

Chairman, Breakthrough Institute

Juan Salgado

President and CEO, Instituto del Progreso Latino

David Schweickart
*Professor of Philosophy, Loyola University
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Environment/Contemplative Practice,
Nathan Cummings Foundation*

Gus Tucker
*Vice President, Entrepreneurship, Chicago
Urban League*

Bob Weissbourd
President, RW Ventures

ENDNOTES

- ⁱ Daniel Castro, “Embracing the Self-Service Economy,” (Washington, D.C.: Information Technology and Innovation Foundation, 2010) www.itif.org/files/2010-self-service.pdf.
- ⁱⁱ In general, a “high road” strategy is one guided by a long-term commitment to increased innovation and development, a commitment to stewardship, and fairness to all key stakeholders and high productivity and wages.
- ⁱⁱⁱ In the famous Solow growth model, technological change was interpreted as being represented by the unexplained residual. It was often pointed out this meant that technological change was important but exogenous and fell like “manna from heaven”.
- ^{iv} Allan Naes Gjerding, “Innovation Economics: Part I: An Introduction to its Birth and International Context,” (Aalborg, Denmark: Aalborg University, Center for International Studies, 1997) www.business.aau.dk/ivo/publications/working/wp25.pdf.
- ^v Alan S. Blinder, “*Hard Heads, Soft Hearts*” (Cambridge, Massachusetts: Perseus Books, 1987)
- ^{vi} Peter R. Orszag, “Marginal Tax Rate Reductions and the Economy: What Would be the Long-Term Effects of the Bush Tax Cut?”, (Washington, D.C.: Center on Budgets and Policy Priorities, 2001) www.cbpp.org/cms/index.cfm?fa=view&id=1701.
- ^{vii} Jonathan Temple, “The New Growth Evidence,” *Journal of Economic Literature*, 37 (1999): 112–156.
- ^{viii} Paul Romer, “Endogenous Technological Change,” *Journal of Political Economy* 98, (1990): 71-102.
- ^{ix} James A. Schumpeter, *Capitalism, Socialism and Democracy*, (New York: McGraw Hill, 1998) 4.
- ^x In their 2000 book *Growing Prosperity: The Battle for Growth with Equity in the Twenty-First Century*, liberal economists Barry Bluestone and Bennett Harrison argue this. They state that, “what initially energized the post-WWII economy boom had less to do with supply-side factors [like technology] and more to do with extraordinary buoyant demand.”
- ^{xi} Jeff Faux, “You Are Not Alone”, in *The New Majority*. ed. Stanley Greenberg and Theda Skocpol (New Haven, CT: Yale University Press, 1997).
- ^{xii} James K Galbraith, “The Surrender of Economic Policy,” *The American Prospect* (1996).
- ^{xiii} As quoted in Robert D. Atkinson and David B Audretsch, “Economic Doctrines and Policy Differences: Has the Washington Policy Debate Been Asking the Wrong Questions?” (Washington, D.C.: Information Technology and Innovation Foundation, 2008) www.itif.org/files/EconomicDoctrine.pdf.
- ^{xiv} Also known as “new institutional economics,” “new growth economics,” “endogenous growth theory,” “evolutionary economics,” or “neo-Schumpeterian economics.”
- ^{xv} One of the first articles articulating the new growth theory was Paul Romer, “Endogenous Technological Change,” *Journal of Political Economy* 98 (1990): 71-102.
- ^{xvi} As quoted in Atkinson and Audretsch, “Economic Doctrines and Policy Differences,” 17.
- ^{xvii} Eric Beinhocker, *Origin of Wealth: Evolution, Complexity, and the Radical Remaking of Economics*, (McKinsey & Company, Inc, 2006), 427 (emphasis in original).
- ^{xviii} Julie A. Hedlund and Robert D. Atkinson, “The Rise of the New Mercantilists: Unfair Trade Practices in the Innovation Economy,” (Washington, D.C.: Information Technology and Innovation Foundation, 2007) <http://www.itif.org/files/ITMercantilism.pdf>.
- ^{xix} A number of trade scholars have argued that in the new world economy, more industries are characterized by increasing returns to scale; hence, nations that start to produce first in such industries can acquire comparative advantage. This means that there exist multiple possible equilibria.
- ^{xx} For example, research by economist Elvio Accinelli has shown that there is strategic complementarity between the percentage of high-skill workers and high-value-added, innovative firms in an economy. Accinelli finds that economies can be in perfect neo-classical equilibrium at either high levels of innovation, or in a “poverty trap” of low skills and underinvestment in innovation. Since the poverty trap can be avoided if the number of innovative firms in an economy exceeds a threshold level leading to an increased number of skilled workers, there is a role for public policy to move economies to a high-level equilibrium on innovation. Elvio Accinelli, Silvia London, Edgar J. Sanchez Carrera, “Complimentarity and Imitative Behavior in the Populations of Firms and Workers,” 2008 <ssrn.com/abstract=1136323> (accessed on February 28, 2008).