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Evolutionary Economics, Classical Development Economics, and the History of Economic Policy: A Plea for Theorizing by Inclusion.

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This paper argues that bringing evolutionary and Schumpeterian economics to the Third World would benefit greatly from including insights and elements from pre-Smithian economics, from the history of economic policy, and from classical development economics (post World War II). This is particularly important when evolutionary theory is introduced into new contexts where institutions and circumstances that can be taken for granted in the First World are not necessarily present. The paper argues that a truly evolutionary theory of economic change requires that all neo-classical assumptions be relaxed at the same time, while re-introducing the many factors that used to be recognised long ago as contributing to the unevenness of economic development.

'New institutional economics' became neoclassical economics with institutions (mainly property rights) added; which is a very different type of theory from a much broader 'old' institutional school tracing its roots back to Thorstein Veblen. As I see it, there is a risk of a similar development within evolutionary economics, that a 'new' evolutionary theory is created consisting essentially of standard economics with an added 'Schumpeterian' variable. Keynesian economics was usurped by mainstream economics in a similar development. This risk of blending neoclassical and evolutionary elements is evident today in the European Union. The Lisbon Strategy – in its conception an evolutionary theory – is increasingly becoming a Schumpeterian icing on a solidly neo-classical cake. The same danger is present when applying evolutionary theories in the Third World, where – in its simplest form – we risk that 'evolutionary economics' is created by substituting 'investment' for 'innovation' in an otherwise standard neoclassical approach. I suggest here going in another direction: that a series of old insights – particularly as these are brought together systemically – are both useful and necessary to complement present approaches. As I see it, by bringing in underlying technological elements, evolutionary economics may sometimes even reinforce old arguments and explain why both mercantilists and classical development economists were often right. This will be illustrated by a discussion of Hans Singer's seminal article (1950) below. This paper attempts to map the most important of these factors which, alone and cumulatively, add to the complexities of innovation economics.

Economics as theorising by exclusion.

'Zuerst war die Ganzheit'; 'In the beginning there was the totality'. This is a typical statement from the German historical tradition in economics. This wish to embrace and qualitatively understand 'the whole' necessarily yields a large toolbox for the profession and, on the other hand, not a very abstract theory. 'The economy as a whole' (*Das Gesamtbild der Volkswirtschaft*) is also the title of the last chapter of Joseph Schumpeter's

Theory of Economic Development (Schumpeter 1912), the chapter he left out of all subsequent editions and translations, arguable to anglo-saxonise his theory when embarking on a career in the United States². Economics, Schumpeter says, presents us with an eternal trade-off of accuracy versus relevance: 'We must make up our minds whether we want *simple* answers to our questions or *useful* ones – in economic matters we cannot have both'.³ As a very young man, Schumpeter's Salomonic solution to the fierce *Methodenstreit* of the economics profession was to have theories at various levels of abstraction, and then go into the theory at a level of abstraction where one is likely to find an answer to the question at hand (Schumpeter 1908). A main contention of this paper is that today's standard economics operates at a level of abstraction that is too high to capture key factors responsible for uneven development. Patching this up by adding a 'Schumpeterian' variable is not possible. 'The whole' must be considered.

Until the mid-eighteenth century the trade-off between accuracy and relevance was generally solved by using holistic theories favouring relevance rather than abstraction. Although the writers all considered their field a 'science', compared to the present situation one could almost call these pre-disciplinary approaches. Whatever was relevant was part of the theory. As an example: to the extent malnutrition affects economic performance, nutrition is part of economics. Early attempts at reaching higher levels of abstraction through the use of mathematics – by Italian eighteenth century economists – were rapidly abandoned because, as mathematician Ignazio Radicati warned his economist friends in 1752: 'You will do with political economy what the scholastics did with philosophy. In making things more and more subtle, you do not know where to stop' (Tubaro 2000: 15; S. Reinert 2005).

When, with Adam Smith and later with David Ricardo, economics increased its level of abstraction, this was done at the cost of excluding a number of factors that were integral parts of economics in the 1750s: the importance of synergies and of balancing different economic activities in a country, institutions, the role of increasing returns combined with a large division of labour, the role of innovations and technical change (for example Francis Bacon⁴, Cary 1695, Steuart 1769), and the fact that economic activities are qualitatively different as carriers of economic growth. For most of the history of the profession, these are all factors that have been seen as impor-

² The chapter is both reproduced in German and translated into English in Backhaus (2003).

³ Schumpeter in the foreword to Zeuthen (1930).

⁴ For a discussion on the introduction of the concept of innovation into the social sciences, see Reinert and Daastøl (1997).

tant in explaining why economic development is such an uneven process. Achieving a higher degree of abstraction was made at the cost of reducing complexity and excluding variables. In economics this is a process which moves back and forth over time almost as 'fashions'. It is possible to see the history of economic thought as consisting of long and almost monotonous sequences of the same economic factors entering the theory, later to be thrown out, later to be included again: Increasing returns as an economic factor were described by the Greeks, and codified into a theory of uneven growth by Antonio Serra in 1613, forgotten, but resurrected in Italy in the 1750s, abandoned again by Smith and Ricardo, only to be rediscovered by German economists in the 1840s and 1850s, kept by Alfred Marshall⁵, formally developed by US economist Frank Graham (1923), thrown out again by Jacob Viner in the 1930s on the account that it was incompatible with equilibrium, reintroduced by Paul Krugman in the 1980s, but its importance again dismissed by Jagdish Bhagwati as Krugman's 'youthful surrender to irrational exuberance' (Bhagwati 2002: 22).

The guiding insight of French philosopher Jacques Derrida's deconstruction is highly relevant to economics: every structure - be it literary, psychological, social, economic, political or religious - that organizes our experience is constituted and maintained through such acts of exclusion. In the process of creating something, something else inevitably gets left out. These exclusive structures can become repressive - and that repression comes with consequences. In a manner reminiscent of Freud, Derrida insists that what is repressed does not disappear but always returns to unsettle every construction, no matter how secure it seems (Taylor 2004). We suggest that a 'new and improved' development economics must keep Derrida's caveat in mind. Over the last years, the immense economic and political weight of The Washington Institutions have created a series of single-issue fads, factors that - added to standard economics - shall solve the problems of poverty: institutions, property rights, 'competitiveness', governance, and so forth⁶. Care should be taken that 'innovation' does not become yet another buzzword with which neo-classical economics is kept alive by adding new factors in the margin. My suggestion for creating an evolutionary development economics requires an inclusive approach where long-existent and still relevant notions would be re-introduced in the theoretical structure. I have referred to this alternative type of economics as The Other Canon (Reinert 2004a).

⁵ See particularly Marshall (1890: 201) for a policy statement.

⁶ This is discussed in the foreword to Reinert (2004a).

A study in the history of theorizing by inclusion: why economic development requires ‘manufacturing’.

From the point of view of the Third World, the most salient feature of standard economics since Adam Smith is probably that a theory of the international economy as a harmony-making machinery has been constructed. This was achieved at the time of Adam Smith mainly by introducing two fundamental changes in the way economic theory was built, effectively through exclusion of factors that previously had been deemed important for economic growth. Successful catching up – from that of the United States and Continental Europe to East Asia – has therefore all retained key elements of pre-Smithian economics: among them insisting not to join the world economy fully until industrialisation had been achieved. In this section we shall look at how the understanding of the need for manufacturing for development has evolved over time, and suggest how evolutionary economics can improve this very long sequence of analysis.

The fundamental changes introduced by Adam Smith to economics were:

1. From Emperor Justinian’s codification of Roman Law around AD 400 until Adam Smith, the metaphor for human society had been the **human body**, with its diversity, synergies and division of labour (Reinert and Reinert 2005). Starting with Adam Smith physics-based metaphors have dominated economics, leading both to methodological individualism (the exclusion of society as such as a unit of analysis) and an underlying ‘equality assumption’ in the profession (Buchanan 1979), leaving out the diversities, complexities, and synergies of real life that, in the end, contribute decisively to making the process of economic growth, by its very nature, into a very uneven process.

2. Adam Smith unified ‘production’ and ‘trade’ into ‘labour hours’ (Biernacki 1995). As a result of this, economics abdicated from studying the complexities and vicissitudes inherent in the world of production, and – with David Ricardo – trade theory could consequently be reduced to an exercise in bartering of labour hours. These labour hours and the theory itself are void of any qualitative attributes of understanding of production (skills, innovations, learning, increasing and diminishing returns, technology, and so forth).⁷ Human knowledge, wit and will were excluded from economics and the profession came to focus on the *accumulation of capital* rather than on the *diffusion of knowledge* (Nelson 2006).

⁷ Technology continued to play an important role in the Continental European, and particularly German economic tradition continuously through Marx and Schumpeter. Economics professor Johann Beckmann published his seminal work on technology the year after Smith’s *Wealth of Nations* (Beckmann 1777). For an overview of this tradition see Reinert (2005).

It is interesting to note that the theoretical insights that point to wealth as a product of **systemic factors** – as in today’s National Systems of Innovation approach – are among the oldest of the important economic insights. This view was ‘mainstream’ from the 1200s with Florentine chancellor Brunetto Latini (ca.1210-1294) and his concept of wealth being a result of a *ben comune*, a *common weale* (Baron 1966; Latini 1993)⁸. However, as physics-based metaphors came to dominate economics, such systemic elements tended to disappear because theory lost the tools with which to handle them.

But the most serious consequence of the adoption of physics-based models in economics was the creation of the ‘equality assumption’⁹; abandoning the common sense notion that not all activities are qualitatively alike as promoters of growth and development. As a consequence the whole debate on increasing and diminishing returns was silenced, although these clearly are at the core of the vicious and virtuous cumulative effects in economics. The elegance of economics was achieved at the price of ignoring the different conditions and contexts in which wealth creation takes place, and with it some of the most crucial insights of the mechanisms that cause wealth and poverty were lost. In the same century when mankind created order in our world through taxonomic systems – that of Linnaeus being the most famous – Adam Smith gave birth to an equality assumption that rid economics of all taxonomies. The irony in this is that England’s own economic policy was based on a simple taxonomy: ‘buy raw materials, sell manufactured goods, a formula which, as Friedrich List acutely observed, for centuries took the place of a whole economic theory in England’¹⁰.

Diminishing returns has been with us as an economic fact and factor since the Bible, where it explains why Abraham and Lot parted because ‘the land was not able to bear them that they might dwell together’ (*Genesis* xii: 6). Diminishing returns happens when, at some point, each additional labourer will add relatively less output than his predecessor did, because he has less and less of the fixed amount of land to work with, and/or when more marginal land has to be brought into production.¹¹ Antonio Serra, whom Schumpeter names ‘the first to write a scientific treatise in economics’, explained the increasing gap between the wealth of Venice and the poverty of Naples by juxtaposing the increasing returns, falling costs, increasing

⁸ When Machiavelli, 300 years later, explains why cities are rich, he echoes Latini: *il ben comune fa grandi le città* (Reinert and Daastøl 1997).

⁹ See James Buchanan’s chapter on ‘Equality as Fact and Norm’ (Buchanan 1979: 231-252).

¹⁰ In the foreword to List (1841). I have not found this observation in the English translation.

¹¹ Genuine diminishing returns are only found in economic activities where one factor of production has been ‘produced’ by nature, in agriculture, mining or fisheries. In other activities all factors of production are essentially expandable at the same or better quality.

'barriers to entry', and increasing standard of living in Venice with the poverty of Naples' production of raw materials where diminishing returns produced an opposite effect (Reinert and Reinert 2003). Although diminishing returns are counteracted by technological change, in de-industrialised countries population pressures combined with diminishing returns to this very day can produce disasters of almost biblical proportions.¹²

Although conceptually clearly separable, Schumpeter noted the difficulty of separating increasing returns and technical change in practice. Since Henry Ford's production technology was not available in the scale previously employed in car production, it was impossible to separate the effects of the two factors. Schumpeter therefore coined the term *historical increasing returns* in order to cover both phenomena (Schumpeter 1996: 263).¹³ This insight is even more important today, when the growth of intangibles, services and intellectual value added have become such a major feature of the so-called Knowledge Society. At the same time, the process of segmentation and differentiation in manufacturing markets, as the total market grows, creates scale and barriers to entry in smaller and smaller niches. Some types of agricultural production may acquire characteristics that were previously associated with manufacturing, while some manufactured goods may behave more like commodities (although with constant rather than diminishing returns). This development blurs the traditional distinctions between sectors.

Nevertheless in both cases – the growth of intangible value and the differentiation processes – a key question remains whether the fruits of production can be retained thanks to having control over the sources of productivity and the prices to market. This traditionally happened in manufacturing through having control of technical change and through the barriers to entry created by increasing returns.

A key insight from classical development economics was Hans Singer's seminal paper discussing how the fruits of technological change spread differently in the manufacturing industry of the First World and in the raw materials production of the Third World (Singer 1950). This was an important part of the Prebisch-Singer thesis, which contained important discussions of technology and development that at the time were obliterated by the general preoccupation with the Terms of Trade.

Evolutionary economics potentially brings new insights to the Terms of Trade debate and the Prebisch-Singer thesis of classical development eco-

¹² See Reinert (2004b) for a case study of such developments in Mongolia. See also Reinert (1996b).

¹³ Schumpeter attributes this insight to Scottish economist James Anderson (1777).

nomics. This thesis is based on the idea that developing countries' terms of trade are determined by asymmetries in the operation of the labour markets in the country of the centre and of the periphery' (Ocampo and Parra 2006: 169). Evolutionary economics may in fact move this analysis one step further back, by analysing the technological variables – such as product and process innovations – that contribute to the asymmetries in the labour markets. In commodity agriculture, the fact that the sources of innovation tended to be outside the sector itself – in Ford's tractor factory or in Monsanto's seed factory – coupled with the low barriers to entry, diminishing returns, climatic volatility and perfect competition together explain why agriculture has failed to retain the fruits of technical change. A proper analysis of technological change will, in many ways, be able to supplement and enrich the explanations as to why the perceived differences between 'manufacturing' and 'agriculture' actually came about.

Table 1 puts together this historical process of trying to understand the sources of wealth and prosperity of nations by understanding the contrast between manufacturing and agriculture, the city and the countryside, the self-propelled growth of technology-intensive activities under increasing returns and the constricted potential for wealth creation of land restrained commodity production under diminishing returns. These elements work together cumulatively creating both path dependence and lock-in effects (Arthur 1989 and 1994).

It is important to keep in mind that it is not manufacturing *per se* and agriculture *per se* that produce these effects, but a bundle of characteristics that for centuries – and with reasonable accuracy – have been perceived as typical of the two types of economic activities.¹⁴ Today there are many manufacturing segments and types of services that live under constant returns to scale, few barriers to entry and almost under commodity competition. On the other hand, there are both knowledge-intensive services and some niches in agriculture that can behave like high tech manufactures. Therefore, the insights and the understanding of the contrast between manufacturing and agriculture still hold, as long as one keeps in mind who has the levers of productivity and pricing as growth proceeds.

It must also be emphasised that at the time great care was generally taken to differentiate purely administrative cities – like Madrid or Naples – from the manufacturing cities like Milan or Venice. It was the typical urban activities – subject to increasing returns and a great division of labour in synergy – that created wealth, not the agglomeration of people *per se*.

¹⁴ The discussion of 'good' and 'bad' trade in the 1700s is a particularly sophisticated version of this type of analysis (King 1721; Reinert and Reinert 2005)

Table 1:

Theorising by Inclusion: The qualitative differences between manufacturing and agriculture as perceived over time as *ideal types* or *stylised facts*.

'Manufacturing'	'Agriculture'
Generalised wealth only found in cities with artisans and manufacturing, and explained as a systemic effect: <i>il ben comune</i> (Florence 1200s).	Traditionally very little systemic effects, no <i>ben comune</i> (common weale)
The experience of 1500s Spain: The real gold mines are the manufacturing industries, because the gold from the Americas ends up in the manufacturing cities outside Spain (generalised knowledge 1600s)	The experience of 1500s Spain: de-industrialisation and return to agriculture creates increased poverty: a nation is better off with a relatively ineffective manufacturing sector than with none
Windows of opportunity for innovation concentrated in few activities (all urban: Botero 1589) (Perez and Soete 1988)	Few windows of opportunity for innovation (until very recent history)
Generalised wealth caused by a large diversity/large division of labour/ maximising the number of professions (Serra 1613)	Traditionally only a minimum of diversity and very little division of labour.
International specialisation leads to increasing returns/ economies of scale, producing falling costs, barriers to entry and higher profits (Serra 1613)	Specialisation will meet the flexible wall of diminishing returns and increasing costs/falling productivity (From Bible's <i>Genesis</i> to Ricardo and John Stuart Mill).
Increased population a necessity in order to create scale/markets for manufactures (European pre-Malthusian population theory)	Increased population a problem because of diminishing returns and no new land (Malthus)
Important synergies between city and countryside: Only farmers near manufacturing cities produce efficiently (Europe 1700s to George Marshall 1947)	Only farmers who share a labour market with manufacturing activities are wealthy: market for products, market for excess labour, access to technology (US/Europe 1800s)
Export of manufactured goods and import of raw materials, but also exchanging manufactures for other manufactures, is 'good trade' for a nation (King 1721). ¹⁵	Export of raw materials and import of manufactured goods is 'bad trade' for a nation (King 1721)

¹⁵ If we assume that manufactures are produced under increasing returns and raw materials under diminishing returns this is perfectly compatible with Krugman's New Trade Theory (Krugman 1980).

Dynamic imperfect competition	Perfect competition <i>(commodity competition)</i>
Activities with high growth in demand as income grows/Verdoorn's Law ties increase in demand to increase in productivity	Activities with low income elasticity of demand
Subject to 'productivity explosions' since the 1400s	Slow growth in productivity until after World War II.
Stable production that can be fine-tuned to demand. Overproduction avoided by storing raw materials and semimanufactures.	Cyclical production/overproduction (no possibility of storing semimanufactures)
Stable prices	Large price fluctuations. Timing of sales often more important for income than production skills
Creates a middle class and conditions for democracy ('City air makes free')	Generally creates a feudal class structure
Creates bargaining power for labour and irreversible wages: 'stickiness' of wages in money	Reversible wages and payment in kind
Dominated by product innovations which, when products mature, turn to process innovations	Dominated by process innovations, product innovations for agriculture are made outside the agricultural sector (Ford's tractors, Monsanto's seeds, biotechnology)
Technological change leads to higher wages, profits and taxes in the producing countries ('a Fordist wage regime')	Technological change leads mainly to lower prices in the consuming countries (Singer 1950)
Terms of Trade tend to improve over time compared to agriculture	Terms of Trade tend to deteriorate over time compared to industrial products
Creates large synergies (linkages, clusters)	Creates few synergies

How the benefits from innovation spread: a key question for evolutionary development economics today.

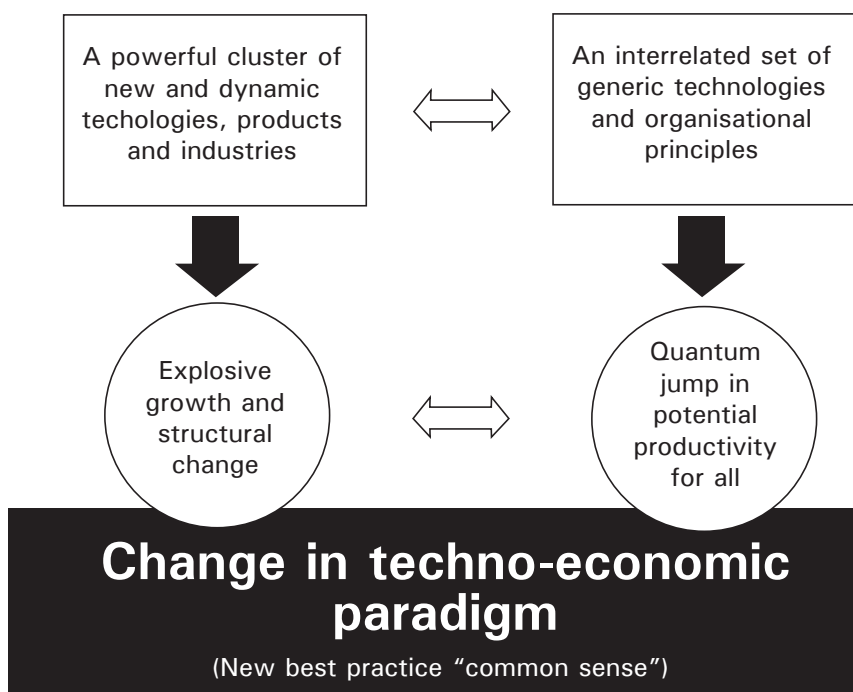
In order to understand wealth and poverty outside the already industrialised First World, it is necessary to go beyond the promotion of innovation *per se* in order to understand in which cases innovation benefits the producing country or the consuming country or both. Evolutionary economics has, as I see it, not paid sufficient attention to how different types of innovations affect different businesses. For example, information technology creates very different results around Microsoft's headquarters in Seattle than what the same information technology does in the hotel industry in Venice or on the Costa del Sol. In the hotel business as well as in the used book business across Europe, new technology has caused more perfect information that leads to falling margins and increased downward pressures on wages and profits. If we use the standard definition of the term 'competitiveness' – its ability to create higher real wages – recent innovations in these industries, seen in isolation, have caused *decreased* rather than *increased* competitiveness. Innovations have made people in those activities poorer.¹⁶ Innovations may also create pressures towards de-skilling, as when the fast food industry created new cash registers that could be operated by illiterate workers.

Although it is well known in innovation economics that product innovations and process innovations often have different effects on employment (see Vivarelli and Pianta 2000, Reinert 2000, Pianta 2005), not enough emphasis has been given to the fact that innovations actually may reduce the realized value added in certain industries and geographic areas. When extending innovation economics to the Third World these types of considerations become much more important than they are in the First World.

Carlota Perez (2002) considers that each major technological revolution has two complementary but very different aspects: a) a cluster of new basic innovations creating distinct dynamic inter-related industries, and b) a techno-economic paradigm that defines the way in which these new generic technologies will transform how the other activities in the economy will go about their businesses in the most effective and efficient manner. Figure 1 illustrates these two aspects of paradigm shifts.

¹⁶ It may be argued that those hotels that transformed their offer into a special niche product through service innovations and segment differentiation may have escaped this fate. But the essential point holds for the great majority, which obviously encompasses the majority of those employed in the sector.

Figure 1: The two main aspects of a techno-economic paradigm shift.



Source: Carlota Perez.

The two aspects of the paradigm shift explain two very different types of innovations. The paradigm carrying industries generally produce *product innovations* that create dynamic imperfect competition. In the rest of the economy the paradigm shift tends to produce *process innovations* that either do not shift the degree of imperfect competition, or - as in the case of the airline industry - may unleash a price and productivity competition that will benefit consumers rather than producers. Such innovations may produce lower rather than higher monetary wages in the industry affected, but will result in higher *real* wages for the people consuming their services. Should one group of nations specialize in *product innovations* while the other specializes in *process innovations*, the standard of living is very likely to rise much faster in the *product-innovating* compared to the *process-innovating* country, where it might actually fall.

The increased wealth produced by innovations may reach us in two different ways, either through increased monetary wages or through lowered prices for what we consume. To the classical economists, productivity improvements would show up in the economy as lowered prices for the goods which experienced these improvements (Smith 1776/1976: 269; Ricardo 1817/1974: 46-47).

At the time of Smith and Ricardo, the gold standard facilitated the result they predicted. In a closed economy, holding velocity of circulation constant, the increase of goods in the economy resulting from technological progress would chase only the same amount of bullion. Prices *would have to fall*. Rapid technological progress would therefore lead to deflation - which it in fact often did until the gold standard was abolished.

Once without the gold standard, people in the industrialized countries got rich in a different way. Instead of seeing the price of industrial goods fall, they now saw their monetary income rise in *nominal* terms. Previously deflation had caused awkward social problems: it was difficult to convince people who had to take continuous pay cuts that, in spite of these pay cuts, they were still getting richer, because the price of the goods they purchased fell at an even faster rate than their wages. From the point of view of the industrialized nations, the monetary policy that followed after abolishing the gold standard was a more sensible one: money supply kept rising with the amount of goods in the economy, or slightly faster, creating a small inflation which seems to have served to lubricate the machinery of development. Now the producer in an activity not exhibiting productivity improvements - for example the barber - got rich by raising his prices at the rate everybody else had their salaries raised, not only by having the price of manufactured goods lowered.

A monetary policy that increased supply at par with productivity improvements not only prevented deflation, combined with the new-won power of labour unions it made possible what the French regulation school calls 'Fordist wage regime': the regime which dominated wage formation in all the developed world, particularly after World War II, where it was accepted that nominal wages to industrial workers would roughly correspond to the productivity increases in industry. This was the underlying cause of the asymmetry in the labour markets in Singer's analysis. This Fordist wage regime could not be copied in the Third World because these countries generally failed to have the market power required to achieve this effect, created as it was by the First World 'countervailing powers' of imperfect oligopoly competition of industry and labour union power. This mechanism increased the wage differential between the First and the Third World significantly during most of the twentieth century.

A previous paper (Reinert 1994) elaborates a number of factors which determine whether innovations and productivity improvements spread in the economy as lower prices to the consumers (which I call a 'classical' spread¹⁷) or as higher prices to the producers (a 'collusive' spread). When

¹⁷ Because this is the effect assumed by classical economists Smith and Ricardo.

bringing evolutionary economics to the Third World this type of analysis is in my view crucial, particularly because what little there was of a Fordist wage regime in the Third World has now completely broken down. This is shown dramatically by the percentage of wages and salaries falling rapidly as a percentage of GDP in most Third World countries. While wages and salaries constitute close to 70 per cent of GDP in Norway, in Peru this percentage had dropped to around 23 per cent in 1990 when the statistical office stopped calculating this figure.

Adding the technology element brings new perspectives to the terms of trade debate. History shows that the terms of trade *do not* move against the industrialised countries with the most technology-intensive production. If the terms of trade - the relationship between the relative prices of exports and imports - remain unchanged over time, this must mean in practice that, on the average, every nation can 'pocket' its own average productivity improvements in the form of higher welfare. Faced with a large diversity between economic activities, a world with fixed terms of trade would bring with it a new logic. If the potential - the windows of opportunity - for productivity improvements are much higher in some economic activities than in others, national welfare may be increased by imposing an import duty on the product with the high-productivity potential. This would make it possible to capture what we could call a Schumpeterian rent. This argument becomes even stronger if the presence of the high-tech industries, their high wages, their potential for creating jobs, the markets and the technologies they bring with them are each and all a necessity in order to create an efficient agricultural sector (as was accepted common sense in the eighteenth and nineteenth centuries).

Schumpeterian economics also bring new perspectives on colonialism. From an innovation economics point of view, colonialism was - and is - in its very essence a technology policy. In 1729 English economist Joshua Gee described 'Colonialism 101' in a nutshell:

'That all Negroes shall be prohibited from weaving either Linnen or Woollen, or spinning or combing of Wooll, or working at any Manufacture of Iron, further than making it into Pig or Bar iron: That they be also prohibited from manufacturing of Hats, Stockings, or Leather of any Kind... Indeed, if they set up Manufactures, and the Government afterwards shall be under a Necessity of stopping their Progress, we must not expect that it will be done with the same Ease that now it may"¹⁸.

¹⁸ Quoted in Reinert and Reinert (2005).

Colonialism made the metropolitan country benefit doubly from technological change. On the one hand the colonial power pockets the fruits from technological change at home through the Fordist wage regime, a *collusive* spread of the fruits of technological change. On the other hand the colonial power also benefits from the productivity improvements in the colonies, since the fruits of the improvements hit the mother country as lowered prices (*classical* spread). Technologically, the colonial power wins doubly while the colony loses doubly.

The transfer of technological dead-ends, bereft of any scale effects, to poor countries (maquila-type industries) is a variant of the same system.¹⁹ Once the world has been divided into a high-wage and a low-wage area, the market logic will automatically assign the technological dead-ends to the poor.

Increased poverty as the result of the break-down of the Fordist wage regime.

High wages in a country are the result of combined effects of technological change and Schumpeterian imperfect competition; of market power exercised both by industry and labour unions under technical change. This increases both wages and purchasing power, which feeds back to more growth in a virtuous circle aided by Schumpeter's historical increasing returns. A core problem of standard economics and of the economics of the Washington Institutions is that they see 'perfect competition' as a goal, not realising what every businessman knows, that perfect competition is a formula for not making money and not being able to pay high wages. The havoc created in the world coffee market is just one example of how the Washington Institutions have produced a race to the bottom. This section will look at some of the mechanisms that made this race almost the only game in town.

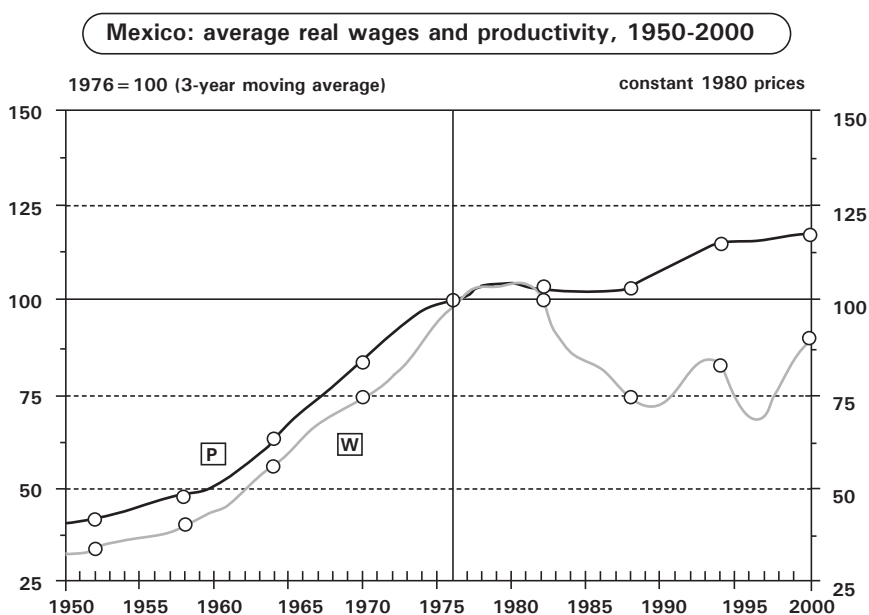
What we call 'development' is in a sense a gigantic Schumpeterian rent which a relatively small percentage of the world population has achieved. It is not understood that today's policies may lead into a depression spiral built up through the cumulative interaction of falling wages and falling demand into a 'classical' overproduction crisis of the capitalist system. 2.5 Billion Chinese and Indians - rapidly upgrading technologically but not in wages - added to the global labour market only fuel these pressures. Why do economists seem to assume that the famous factor-price equalisation should be upwards? More perfect competition in labour markets would make it most likely that factor-price equalisation will be **downwards**. Both the United States and core European Union countries are experiencing falling real wages (often through longer hours for the same pay), in Europe for the first time since the 1930s.

¹⁹ I have referred to this as Schumpeterian Underdevelopment (Reinert 1996a).

The break-down of the Fordist wage regime is clearly an important element in the vicious circles of faltering demand and jobless growth in many Third World countries (Cimoli, Correa and Primi 2005). The world is shifting to a 'classical' form of distribution of the gains from technological change, which means that rich countries will get richer through cheaper imports and improving terms of trade while poor countries see their exports rise while their real wages fall.

Import substitution policies in Latin America brought with it elements of the Fordist wage regime. In fact, real wages in most Latin American countries where I have had access to data peak some time in the 1970s. Freer trade at the wrong time did not necessarily bring with a lowering of GDP, but it did bring with it falling real wages and salaries for the common man. The percentage of GDP 'reserved' for wages, which English classical economists thought was fixed for eternity at a very low level (the wage fund doctrine), collapsed as discussed above. Figure 2 shows how the Fordist wage regime collapsed in Mexico in the late 1970s, wages and productivity split up: productivity continues up while wages fall. The resulting lack of demand is a key element in the 'jobless growth' that followed through what is called 'the lost decades' in Latin America. Falling real wages prevent the growth of the high end of the service sector which is so important in the developed world.

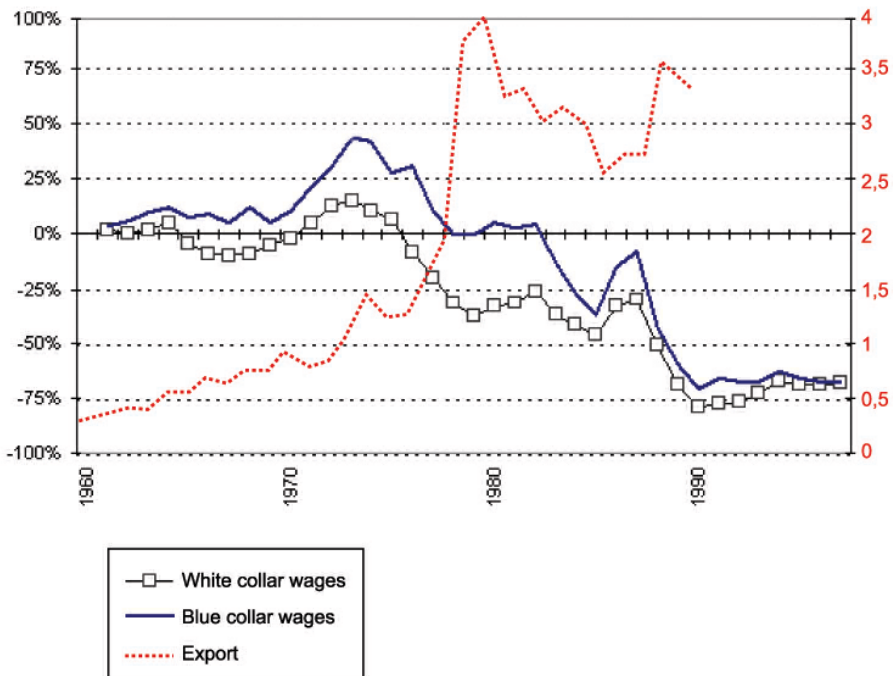
Figure 2: The break-down of the Fordist wage regime: The case of Mexico.



Source: Palma (2002)

Figure 3 shows a similar development in Peru, but focusing on exports and wages. The export figures show a resounding success, which is combined with falling real wages and, in most years, with a big trade deficit. The global economy has created a system that maximises international trade (and accompanying transportation costs and pollution) while decreasing the real wages of a majority of the population in many countries. Wages and salaries compose a sharply falling percentage of national GDP. The FIRE sector (finance, insurance and real estate) appropriates not only all that is registered as economic growth, but also an increasing share of what used to go to wages and salaries. We have established a type of winner-take-all globalisation (Frank and Cook 1995).

Figure 3. Peru 1960-1990: Diverging paths of real wages and exports.



The export figures are in current US dollars, exaggerating the visual effect.

Source: Income data from Roca and Simabuco (2004), export data from (Webb and Fernández Baca 2001)

An increased focus on innovation alone will not solve these structural problems. If the fruits of innovation all go to the customers abroad, a poor nation must look for other alternatives where it is possible to create a 'collusive' distribution of technology rents. The long list of arguments in table 1 will prove still to be valid, adapted to today's context.

Conclusion - creating evolutionary development economics.

'He who heals is right' goes an old saying in medicine. This paper has made a plea for returning to the type of analysis that has successfully 'healed' poverty and created wealth from fifteenth century England to Korea in the 1970s. In this tradition economic development is *activity-specific*, tied to certain economic activities exhibiting high productivity growth and increasing returns in a synergetic system formed by the presence of a large division of labour (Reinert 1994), in short what German economist Werner Sombart called 'the industrial system'. That only the presence of such an industrial system will create efficient agriculture was a key insight of the 1700s. Historically, successful processes of catching-up have created copies of the economic structures dominating in the wealthy countries at any time, that is the same balance between manufacturing and agriculture and the same paradigm-carrying industries. Initially, for a variety of reasons, these copies are initially necessarily less efficient than the original economic structure they try to emulate, and therefore need some form of targeting and protection.

Werner Sombart defined capitalism as consisting of 1) *the entrepreneur*, 2) *the modern state*, and 3) *the industrial system* (Sombart 1928). By this definition, the production system of the colonies was never capitalism. As we have argued, from an evolutionary point of view colonialism was for centuries in effect a technology policy aimed at keeping industrial dynamics out of the colonies. Today's world order has kept a similar pattern, with the new element that some manufacturing industries with little technological change and void of scale effects are farmed out to poor countries (*maquila* type assembly activities). Changing this centuries-old path-dependence will require strong policies.

The economics of innovation today brings together elements describing what Sombart calls *the industrial system*, a system similar to what Friedrich List in 1841 called the *national system of political economy*, what we today would call national innovation systems, associated with the names of Christopher Freeman, Bengt-Åke Lundvall and Richard Nelson. As has been pointed out (Lundvall et al. 2002: 226), one of the greatest challenges facing this body of theory is that much of the work done on national systems of innovation is *post facto*, in the sense that most research is done on systems that are already mature, already diversified and successful. Theories and concepts that work wonders in countries with an industrial tradition dating back centuries, may, however, become much less productive-if not downright destructive-in the context of developing countries unless filtered through a historical lens.

In this paper I have argued that a necessary part of the solution to this problem lies in the introduction of a number of factors, some of which have been part of the economic discourse for centuries, but also elements (like the different effects of process and product innovations) that are part of evolutionary economics itself, but which will be much more central to a Third World discourse. In order to create a qualitative understanding of the factors polarising the world in growing wealth and growing poverty we need to create ***economics by inclusion***, a system where all relevant factors are considered simultaneously. This will bring back the historical/institutional approach to economics that died after World War II. This economics by inclusion will also open the way for ***policies of inclusion***, a system that will put the accent on the wellbeing of the majority and not on the growth of the export sector.

A marriage of evolutionary economics, as is gathered in this issue, and New Development Economics (Chang 2003, de Paula and Dymski 2005, Jomo and Fine 2006) would enlarge the toolboxes and the potential explanatory powers of both economic schools. Doing so would bring back the key insights from classical development economics, and also insights from the only laboratory economists have: the history of economic policy (Jomo and Reinert 2005). The resulting synergy would create ***economics without equilibrium*** (to use Nicolas Kaldor's term), something very close to the approach of the now extinct historical schools of economics where relevance was the only criterion by which the economists' tolls were chosen. Instead of equilibrium, we would have an ***optimum*** as a moving target ahead of us as the never-ending frontier of knowledge is pushed ahead, but with the fruits of technological change distributed in a more equitable way by re-distributing production rather than by redistributing income in the form of aid.

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