"A maximization-and-equilibrium kind of guy":
Paul Krugman gets his 'Nobel'

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Abstract.

Paul Krugman's 'new economic geography' currently enjoys a high profile due to his recent Nobel award for contributions to the economics of geography and trade; it also conveniently focuses a number of wider issues regarding the relations of economics with its neighboring social science disciplines. Krugman describes himself as " basically a maximization-and-equilibrium kind of guy…, quite fanatical about defending the relevance of standard economic models in many situations." In contrast, the incumbent sub-discipline of economic geography has long played host to a zealous critique of such 'standard', that is, neoclassical models, and has fiercely defended its pluralistic traditions of research against the 'monism', or 'economics imperialism', of invasive initiatives such as Krugman's. This paper surveys the lively polemical literature between these two very different kinds of guys on how to address the question of the global pattern of distribution of economic wealth and activity. It is argued that neither side in the interdisciplinary polemic has focussed sufficiently sharply on the political economy and intellectual and historical legacy of the colonial era. In conclusion, it is suggested that only by rectifying this shortcoming can the current inter-disciplinary standoff be shifted away from narrowly theoretical and methodological issues onto terrain where a more telling blow to economics imperialism can be made than the geographical critique has hitherto managed to deliver.

1. Introduction.

In October of last year (2008), the National Bank of Sweden awarded Paul Krugman its "Prize in Economic Sciences in Memory of Alfred Nobel"[1] in recognition of his "analysis of trade patterns and location of economic activity". Yet Krugman's 'new economic geography' has met with resounding rejection from practitioners of the incumbent discipline, that is, from economic geographers as they exist within the discipline of geography. This is, of course, only one among many examples of unsatisfactory inter-disciplinary relations between economics and its neighboring social science disciplines. But whereas this usually just means that economists, or at any rate mainstream economists, just ignore their work, there has in this case not only been an explicit rejection by Krugman of the entire research culture dominating within the field of geography in recent decades, but also a vigorous counterattack by geographers.

The resulting polemic conveniently illustrates a number of wider issues regarding the relations of economics with its neighboring social science disciplines. In particular, it illustrates how both sides have focused on incompatibilities between their respective theoretical and methodological approaches– incompatibilities which are so fundamental that the outcome can only be the perpetuation of an intrinsically unresolvable inter-disciplinary standoff. The aim of the following critical survey of this polemical literature is consequently to shift debate onto terrain where a more telling blow against mainstream economics can be made than the critical geographical literature has hitherto managed to deliver. It is argued that this can be achieved by focusing more sharply on the political economy and intellectual and historical legacy of the colonial era and its formative influence on the pattern of distribution of economic wealth and activity in the world today.

[1] Members of the Nobel family are contesting use of the term "Nobel Prize in Economics".

2. Krugman's 'new economic geography'.

Paul Krugman's 'new economic geography' aims to explain "concentrations of population and of economic activity" by means of models which capture the "tension", or "tug-of-war", between centripetal and centrifugal forces, in the context of the "three-way interaction among increasing returns, transportation costs, and the movement of productive factors".[2] Centripetal forces include 'positive locational externalities' such as the benefits of large markets, the ready supply of intermediate goods, and spillovers of knowledge and skills.[3] Centrifugal forces include the immobility of some factors of production, such as agricultural land, or labour in cases where there are barriers to migration; the advantages of access to dispersed markets, particularly in the presence of high transport costs; high urban land rents and house prices; and negative externalities of spatial concentration such as congestion and pollution.

This 'tug-of-war' had previously been regarded as intractable to incorporation within the neo-classical framework. On one hand, the benefits of spatial concentration require the presence of economies of scale, and in traditional microeconomics this feature was assumed to be inseparable from the emergence of a monopolistic market structure – the bigger firms become, the more they out-compete their smaller rivals and eventually drive them out of business. On the other hand, a requirement of a model of spatial concentration is, clearly, that there should be free entry and exit of producers in response to locational market advantages, and these features, in contrast, were traditionally perceived as inseparable from a perfectly competitive market structure.[4] However, a way was eventually found of getting round this problem by the development since the 1970s of new "modeling tricks" which made it possible to capture the effects of increasing returns in conditions of 'monopolistic competition'. These 'tricks' were before long taken up in the three fields of industrial organization, international trade, and economic growth, and Krugman accordingly sees his

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[2] Fujita *et al.*, eds 1999 [hereinafter abbreviated to FKV]: 4, xi, 4-5. Krugman 1998: 8f ("tug-of-war"), and also Krugman 1999: 143-145.

[3] Marshall 1890 [1920] (eighth edition): Book 4, Chapter 10 ("The concentration of specialised industries in particular localities"), particularly 271f; see also Part 4, Chapter 12, particularly p. 296 (on cutlery manufacture in Sheffield). Krugman 1991: 36-38 conveniently quotes some of the relevant passages. See also FKV: 4f and 18, Krugman 1995: 49-52, Krugman 1998: 8f (which includes a tabular presentation), and Krugman 1999: 143-145.

[4] For a critical account of the competition issue as it is represented within spatial economics, see Sheppard 2000b: 171f and *passim*.

‘new economic geography’ as a “fourth wave” in an “increasing returns revolution in economics”.[5]

As a result of this ‘revolution’, then, Krugman was now able to model a situation in which firms have free entry to (and exit from) markets (i.e. locations), and yet benefit from increasing returns to scale when they get there. The basic ‘trick’ is the assumption that each firm produces a good individually differentiated from all others and benefits not only from the quantity but also the variety of locally-produced inputs.[6] Consumers are modeled in an algebraically-equivalent way by means of the behavioral assumption that they value variety as well as quantity.[7] Transport costs are modeled by the ‘iceberg’ method: a proportion of each item transported simply melts away en route at a certain rate per distance.[8]

Krugman’s modeling techniques are exemplified by a ‘core-periphery’ model, a “minimal model that shows how a two-region economy can become differentiated between an industrialized core and an agricultural periphery”.[9] In this model, there are two initially identical two-sector economies, or locations; the manufacturing sector consists of mobile, or ‘footloose’, firms (or workers), while the agricultural sector is immobile. Initially, manufacturing is divided exactly evenly between two locations. This situation constitutes a ‘symmetrical equilibrium’ so long as transport costs are so high as to render trade between the locations impractical. Once transport costs fall to a sufficient extent, however, trade becomes feasible; firms begin to move to whichever location gains an initial advantage from economies of scale in production and other advantages of spatial concentration there, and a process of cumulative causation sets in: more firms move into the advantaged location and this, in turn, attracts yet more firms. Eventually a new equilibrium emerges, in which manufacturing is concentrated exclusively in the advantaged location – the “industrialized core” – and the other is reduced to “an agricultural periphery”. This pattern is, like the initial symmetrical one, a stable equilibrium.

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[5] Dixit and Stiglitz 1977.

[6] Schmutzler 1999: 361 usefully summarises these modeling advantages in informal terms.

[7] Schmutzler 1999: 360. “A unit of a product that is not yet consumed is always preferred to an additional unit of a product that is already consumed.”

[8] FKV: 49, as also Krugman 1998: 10f. The ‘iceberg’ concept derives from a 1952 article by Samuelson, whose iceberg is, of course, prefigured in Wat Waller’s sturgeon, as discussed in Sections 4.2.1 and 4.4.1.

[9] FKV: 11. For a highly condensed exposition, see Krugman 2000: 53-55, where the model is described as “a basic introductory framework” for MCSE; “in this sense it is like the two-by-two models of textbook trade theory”. Other thumbnail versions are provided by Boddy 1999, Lanaspa *et al*. 2001, and Meardon 2002: 229-232.

The model does not, however, necessarily 'end' at this point. In particular, if it is taken to represent the 'history of the world' as a whole, then so far, only 'part one' has been concluded; we have, so to speak, a 'workshop of the world' and its global periphery of suppliers of agricultural goods (which might be taken as a proxy for raw materials as a whole). But as transport costs continue to fall yet further, we enter the 'history of the world part two', when firms begin to desert back to the periphery, since benefits of concentration start to be outweighed by benefits of dispersal – lower real wages in the periphery, closer access to dispersed markets, avoidance of negative externalities of concentration, and so on. This in turn sets off a process of cumulative causation which throws the model into reverse, and eventually the core-periphery pattern gives way to a return of symmetrical equilibrium – the stage of 'globalisation'.

The model thus considers two possible stable equilibria – symmetrical and core-periphery. There are also intermediate situations where further, unstable equilibria are possible.[10] The model assesses the sustainability or otherwise of each of these equilibria when subjected to changes in various parameters, including transport costs, and parameters representing the strength of the effects from which economies of scale derive. Of these parameter changes, it is transport costs which focus much of the 'action' in the model;[11] not only do they function as a proxy, or 'metaphor', for all transaction costs over space,[12] but also, on the assumption that they have a long-term tendency to fall, they equivalently serve as a reverse expression for time. Thus, the model is largely driven by the long-term decline in transport costs, or, equivalently, improvement in modes of conveyance – "first caravels, then steamships and railroads, then air freight…"[13]

This model exemplifies Krugman's application of a "common grammar" to spatial-economic analysis, since it can be applied at any level of scale – from regions within an economy, such as the Italian North and Mezzogiorno, right up to the 'world' and the globalisation version outlined above. He, along with his co-authors and other adherents of the 'new economic geography', have further demonstrated, with great ingenuity, that such a grammar can be adapted and elaborated to construct a range of models confronting a variety

[10] Traditional microeconomics had, in general, regarded the presence of more than one equilibrium as a 'nuisance', or at any rate exceptional, whereas in models such as those of Krugman, it is, as we have seen, precisely in such a system of multiple equilibria that the 'action' takes place. Krugman 2000: 54. Krugman 1995: 47, Krugman 1998: 12. See also Section 5.1.5, and, for examples of such use of multiple equilibria in other fields of economics, Schmutzler 1999: 377 (note 31).

[11] See Krugman 1998: 11f and FKV: 65-68. For a formal introduction to bifurcation diagrams, see FKV: 34-41.

[12] FKV: 98.

[13] FKV: 253.

of spatial-economic issues. One such model, for example, captures the process of "sequential and rapid" development in a world with multiple economies, that is, development that affects individual economies in series, rather than being a gradual process spread evenly across the global periphery as a whole; this model could apply, for example, to the successive waves of rapid industrialization in East Asia, with other emerging economies in Africa and elsewhere waiting further down the queue.[14] Another model combines international and domestic features to capture the effect of a country's external trade on its regional pattern of production, with explicit reference to the clustering of Mexico's 'maquiladora' industries on its border with the US.[15]

For those whose aim is to apply equilibrium analysis to spatial-economic issues, Krugman has strong claims to success; his models certainly have a 'dynamic' character lacking in previous neo-classical strategies for modeling patterns of global trade and economic activity, whose static character is exemplified in the Heckscher-Ohlin 'factor endowment' model. While he freely acknowledges that the effects he models had long since been identified in informal terms by former writers, he is justified in claiming that he has succeeded in providing these effects with 'microfoundations', that is, that he has constructed models of a mathematical type which capture these effects in terms of optimization by rational individuals, in other words the fundamental theoretical and methodological principles of neoclassical economics. As he says:

> I like to think that I am more open-minded about alternative approaches to economics than most, but I am basically a maximization-and-equilibrium kind of guy. Indeed, I am quite fanatical about defending the relevance of standard economic models in many situations.[16]

We shall next turn to the reaction which his initiative has received from other kinds of guys.

[14] See Venables 1998: 2 and 5 ("sequential and rapid").

[15] FKV: Chapter 16.

[16] Krugman 1996.

3. Economists and geographers in unresolved inter-disciplinary stand-off.

Krugman's 'new economic geography' is one of a family of initiatives launched from within the economics mainstream which seek to 'colonise' neighbouring disciplines and re-cast them in accordance with the methodological principles prevailing within economics itself, a strategy which has been termed the 'new economics imperialism'.[17] Other examples of such 'imperialism' include the new growth theory, the new development economics, the new economic history, and so on.[18] These initiatives share Krugman's goal of applying a formalistic modeling framework to a wider range of social behaviour and social institutions than was previously considered feasible. This is achieved by modeling such behavior and institutions as 'market imperfections', that is, as features of the economy which interfere with the process of market competition. Since these imperfections are most commonly represented as lying in the informational sphere, the resulting family of models is generally termed 'information-theoretic', though in the case of Krugman's initiative, where the 'imperfections' are spatial, the term 'location-theoretic' is used.

Reception of these invasive initiatives by practitioners of the incumbent social science disciplines has in general been unfavourable, these disciplines having commonly played host to pluralistic and often radical currents of theory and methodology inimical to those of mainstream economics. There are, however, a number of particular reasons why Krugman's 'new economic geography' would appear to have offered a more promising opportunity for constructive interdisciplinary interchange with a critical social science literature than some of the other 'news'. First of all, Krugman has explicitly repudiated the neo-liberalism of the so-called 'Washington Consensus' which represented a high point in the international influence of mainstream economics in its undiluted form.[19] Indeed, he has, most notably in his journalistic writings, established himself as a prominent US radical, courageously going against the tide with an oppositional stance on many economic and political issues of current concern. Moreover, in launching his geographical initiative, he claimed that his aim was to introduce to economists the insights they had formally ignored in the historically-oriented approach of pioneers of development economics such as Myrdal and Hirschman. His initiative was accordingly initially greeted with optimism by a number of economic geographers as "a propitious event…", to be "commended", "congratulated", "welcomed"

[17] See Fine 2001: 7-13, 2002a: 9-16.

[18] For a more extended list of such 'news', see Fine 2002a: 15, who describes them as an "epidemic".

[19] For example in *New York Times*, 9 August 2002, cited in Peet *et al*. 2003: 216.

or “applauded”, since “at least it is a start”, an initial acknowledgement that ‘space matters’, and at the very least grounds on which to hope for “some kind of peaceful coexistence”[20] between economists and geographers.

However, this optimism was short-lived. Geographers soon felt the full force of Krugman’s declaration that he was “quite fanatical about defending the relevance of standard economic models” and were left in no doubt that by this he indicated his utterly inflexible commitment to the fundamentals of neo-classical economics. This commitment consistently took precedence over any gesture towards constructive interchange with geographers; indeed, his attitude to the pluralistic and discursive research culture predominating among them was contemptuous to the point of hostility. From their side, geographers were before long flatly refusing even to acknowledge his ‘new economic geography’ to be geography at all, preferring to label it ‘geographical economics’ instead. His use of a priori concepts to construct abstract geometrical landscapes in the framework of a ‘common grammar’, is, from their point of view, the very opposite of the geographical project, whose focus is, on the contrary, the specificity of the characteristics of the different levels of scale of ‘real places’, and thus fundamentally incompatible with what they see as Krugman’s ‘scale-independent’ approach. For them, the spatial economy is “socially constructed”, or “part of a larger social narrative”, and cannot meaningfully be analysed without bringing to bear a range of methodologies.[21]

As for Krugman’s claim to have incorporated the historical orientation of the pioneers of development economics, this was perceived as founded on an irremediably reductionist conception of what history is. For geographers, the neo-classical concept of ‘path dependence’ upon which Krugman’s depiction of history is based amounts to the construction of abstract events in ‘time’ on the basis of precisely the same theoretical and methodological principles as the construction of abstract geometrical ‘space’ and was consequently repudiated on the same grounds.

The geographical critique is, in short, founded upon a rejection of the ‘maximisation-and equilibrium’ approach as such. It cuts no ice for critics of this approach that, in models of Krugman’s type, equilibrium may not be unique and may be unstable; for them, “trying to

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[20] Dymski 1996: 448; Martin and Sunley 1996: 262; Martin 1999: 67, 83; Barnes and Sheppard 2000: 3; Martin 1999: 83.

[21] Martin 1999; see also Dymski 1996; Martin and Sunley 1996; Clark 1998; Boddy 1999; Sheppard 2000a; Thrift 2000; Olsen 2002: 154; Barnes *et al*., *eds* 2004: 172.

force increasing returns ideas into equilibrium models"[22] by means of a system of multiple equilibria represents no fundamental advance on the unique equilibrium of traditional microeconomics, so that, for all the claims to represent something 'new', "the ghosts of… equilibrium solutions still haunt much of his [Krugman's] analysis",[23] "equilibrium conditions are smuggled in",[24] and the models remain as technically dependent upon notional equilibrium as the traditional models they purport to supersede.

The ferocity of the geographical critique can be explained by some historical background, from which it may be seen that the very identity of the sub-discipline of economic geography as it is now perceived by the majority of its practitioners was forged and developed precisely in the course of an explicit and sustained critique of the theoretical and methodological principles prevailing in the discipline of economics. The origin of this critique dates back to the late 1960s. Prior to that time economic geography had seemed on course to adopt the same positivistic, mathematically-oriented approach that was contemporaneously advancing towards dominance within mainstream economics. For during the post-war years economic geographers had been devoting much effort to assessing and incorporating formalistic models of spatial-economic behaviour, notably those inherited from German 'location theory'.[25]

However, towards the end of the 1960s, this positivistic development within economic geography was quite abruptly repudiated within the sub-discipline, which turned, instead, towards radical approaches with roots in Marxian, Myrdalian and other such historically-oriented and discursive bodies of theory. Ever since that time, economic geography has been characterised by the presence of these and other such anti-positivist traditions, which have included regulation theory, a post-modernist 'cultural turn', an 'institutional turn', along with associated inter-disciplinary concepts such as 'flexible specialization', none of which have found a place in mainstream economics.[26] The discipline thus became a bastion of pluralism in theory and method, and Krugman's initiative, far from being taken by geographers as an opportunity for cooperation with economists, soon became, on the contrary, an opportunity to revitalise and elaborate, often in outspoken terms, their

[22] Sunley 2000: 191.

[23] Martin and Sunley 1996: 287.

[24] Sheppard 2000a: 113.

[25] An approach developed by Alfred Weber, Christaller, and Lösch, and deriving, ultimately, from the founding father of spatial economics, Von Thünen.

[26] See the three handbooks or 'companions', Lee and Wills, *eds* 1997, Sheppard and Barnes, *eds* 2000, and Clark *et al*., *eds* 2000 (a rather special case, as discussed below), and the two readers, Bryson *et al*., *eds* 1999 and Barnes *et al*., *eds* 2004; see also Peck and Yeung *eds* 2003.

longstanding critique of the economics mainstream, and to press their case that their "theoretical and empirical pluralism offers more explanatory scope than the theoretical monism of the 'new economic geography'".[27]

Seen from this historical perspective, therefore Krugman was not putting forward anything 'new' or, as he claimed, re-launching traditions which geographers had 'lost'. On the contrary, from geographers' point of view the formalistic models of location theory which he was attempting to resurrect had long ago been carefully assessed within geography and deliberately discarded on clearly-stated theoretical and methodological grounds. In ignoring this phase in the history of economic geography, Krugman was thus showing his approach to be "dated, historically and intellectually", "simply building formal models of old and familiar ideas", a "bad case of intellectual isolation", characterised by "outrageous claims of priority" and "selective myopia", a case of "mistaken identity", an attempt to return to the methodology of "theory-enslaved idealised facts", with results that are "not particularly novel and their empirical applications trivial", based on the "flimsiest of empirical support", "highly simplistic", "patronising", "not recommended", and so on.[28]

Economic geographers have accordingly declared themselves "aghast" at the suggestion that they should even contemplate abandoning the "hard won work of the past twenty years aimed at integrating spatial heterogeneity into the theoretical core of economic geography", in favour of an approach whose rejection was a precondition for everything they have since achieved.[29] Conversely, Krugman proved the most outspoken of any of the advocates of the 'news', dismissing the geographical critique as no more than an "anti-model, anti-quantitative backlash", and from his point of view that is tantamount to condemning it as an attack on scientific method itself.[30]

With each side in this interdisciplinary polemic ready to give as good as they get, the result is that both now hold positions which are highly developed and impregnable in their own terms, with economic geography firmly established as a determined exponent of empirical orientation and theoretical and methodological pluralism in the social sciences, and Krugman conversely being an 'exemplar of progress in social science', insofar as this is seen as the systematic modelling of the economy in logically consistent (preferably

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[27] Martin 1999: 80; see also Martin and Sunley 2001: 158.

[28] Hoare 1992: 679; Sunley 2000: 190 and 197, citing Clark 1998: 83 and passim; Peet 2002: 389; Berry 2002: 359; Johnston 1992. See Goodacre 2005a for a further catalogue of similar invective.

[29] Clark 1998: 74f.

[30] Krugman 1995: 85.

mathematical) terms.[31] It has accordingly aptly been commented that the two literatures may be read as "immanent critiques of one another".[32] Clearly, then, if the interdisciplinary polemic continues to be waged on theoretical and methodological grounds, there is no prospect of a breakout from the present situation of standoff.

4. Political economy from the classics to today's critical social science literature.

The critical economic geography literature nails its banner firmly to the banner of political economy. Indeed, the editors of one compilation go so far as to state that, "as an approach, political economy is pervasive: it is how economic geography is now done". There is, however, an almost universal absence of the urgency which was attached to that term by its classical pioneers such as Smith and Ricardo, who were concerned about the prospects of the existing economic system for continued development or even survival, and who foresaw the real possibility that the 'commercial society' they espoused could enter a long wave of decline – a 'declining', or even 'stationary state';[33] it was not for nothing that, when classical political economy was dubbed by Thomas Carlyle 'the dismal science', the epithet stuck.[34] What was cause for pessimism for them was, of course, cause for optimism for Marx, a writer whose thought, despite receiving pervasive reference in the geographical literature, is subject to equivalent depletion, being represented as merely a current of thought in which social stratification is cast in a negative light and conditions of production change.[35]

In addressing the issue of the pattern of distribution of wealth and economic activity in the modern world, it is surely self-evident that the principal formative historical influence has

[31] Meardon 2002: 217.

[32] Clark 1998: 76, one of a serious of critical responses to Krugman's initiative, which also includes Martin and Sunley 1996, Dymski 1996, Martin 1999, and Boddy 1999.

[33] Smith 1776 [1996]: 99; Ricardo 1817 [1971]: 129.

[34] Though the connotations acquired by this expression were not those intended by Carlyle himself. See Levy 2001.

[35] Marx's concept of a 'mode of production' has become, in the economic geography literature, no more than a general term to describe the prevailing characteristics of productive activity at a given time or place; for example, Webber 2000: 513 uses the plural term "capitalist modes [sic] of production". This usage is in some cases even linked to explicit repudiation of the 'teleology' of Marx, along the line of Althusser's critique. The concept is thus routinely de-linked from the Marxist concept of the inevitability of the superseding of capitalism by socialism which it was specifically forged to corroborate. There is not a single index reference to socialism in any of the major compilations on economic geography that have here been reviewed.

been the global dominance of the colonialist powers during much of the past three centuries and more, and that, conversely, what underlies progress towards the restructuring of this pattern in recent decades has been, precisely, a process through which that dominance has been progressively eroded, or at any rate increasingly challenged, by the growing influence of emerging, or rather re-emerging, economies from among the formerly subordinated, or peripheralised, countries and regions. Consequently, of all the shortcomings of the critical geographical literature in its perspective on political economy, the most serious is its depletion of the concept of colonialism – taken in its broadest sense to include not only its original meaning of colonial settlement, but of national subordination in general.

Indeed, the very term 'colonialism' is commonly relegated in the critical social science literatures to metaphorical functions only. The term has been used, for example, to denote the 'masculinist' and Eurocentric character of discussions of competition, while the term 'post-colonial' is likewise used for "a body of work… which questions dominant notions of gender and work in order to include social categories such as race and ethnicity".[36] Deconstructionist and other post-positive intellectual currents focusing on discourse and meanings are accordingly advanced as the appropriate response to 'colonialism' thus defined. Such a perspective clearly provides an inadequate basis on which to connect with the material aspects of the global economic inequality bequeathed by the colonial period; nor, for that matter, does it offer a clear focus on 'race and ethnicity' issues, rooted as these are in colonial history.[37] This is not to deprecate the contribution of feminist scholarship to, for example, an understanding of the role of women in development,[38] let alone to belittle the efforts of those who have sought, in various ways, to comprehend race and ethnicity issues. Rather, it is merely to point out that in developing countries the state, which may indeed, in some cases, be as 'masculinist' or as ethnically exclusive as in economically developed countries, has a role in resisting 'post-colonial' economic peripheralisation which the theoretical structure of the 'cultural turn' is self-evidently incapable of conceptualising.

In consequence of this conceptual depletion, colonialism is inevitably forced out to the margins of the geographical discipline's analytical framework. This makes it all the easier for it to be dismissed by the economics mainstream as, like women's issues, racism, and the environment, an object of worthy endeavour by well-meaning practitioners on the

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36 Sheppard 2000b: 182; Oberhauser 2000: 61; see also Sadler 2000: 331, and Schoenberger 1998 [2004]: 389, who uses the alternative term 'post-imperialist'. For a critical response, see Peet with Hartwick 1999, and Peet *et al*. 2003: 223.

37 A fact which is totally ignored by Kain 2000.

38 See Oberhauser 2000: 67-71 and Carney 1993.

theoretical fringe rather than a necessary core element of any attempt to conceptualise the economic geography of the world today, where even the most elementary common sense suggests that the question of the political economy and historical legacy of colonialism should surely be regarded as central.

Conclusions: Economics imperialism and real colonialism.

Paradoxically, there is a sense in which the two sides in the polemic between Krugman and the geographers have something in common, which is their shared prioritization of theoretical and methodological questions.[39] They are, in that sense, ideal sparring partners for an academic debate, though Krugman's expression of contempt for his critics goes beyond what is customarily regarded as the norm in academic discussion, questioning, as he does, the capacity of economic geographers to develop a "unified, sensible tradition". He dismisses those who continue to express economic ideas in discursive form without accepting economists' reformulation of them in formalistic, usually quantitative, terms as no more than an "anti-model, anti-quantitative backlash". He displays willful ignorance of the actual history of other disciplines, and what this can reveal about their analytical capacity in various historical conditions, and frankly admits that his intention is nothing less than utterly to supplant the traditions native to the incumbent discipline of economic geography.[40] Even his apparently respectful comments on Myrdal, etc, are couched in terms which cannot fail to come over as patronising, his declared aim being to gain them the attention they deserve by reformulating their ideas in the mathematical, 'maximization-and-equilibrium' terms which are, from a mainstream point of view, an essential prerequisite for theoretical 'respectability'. In short, he takes no care to divest his 'economics imperialism' of resonances with the literal meaning comprised within that term, his vocabulary indicating an arrogantly conceived civilizing mission in respect of the discipline he aims to colonize.[41] But though such colonialist resonances cry out for a critical response from within the social

[39] This point may conveniently be underlined by comparing Krugman's initiative to another strand in the 'geographical turn' in economics, that of Jeffrey Sachs, who has shown a more relaxed attitude to interdisciplinary cooperation. For discussion of this point, see Goodacre 2005a.

[40] They are not even mentioned in Fujita and Thisse 2008.

[41] Krugman 1995: chapter 1.

sciences, the impact of the geographical critique is drastically weakened by the depletion within them of the very concept of colonialism itself.

An associated shortcoming is the lack of attention to perspectives developed from within the peripheral countries themselves, as reflected in a customary restriction to English-language research, and an admitted absence of what are referred to as "subaltern voices". This cannot fail to distance the literature from current global developments; after all, the most widely-discussed keynote speaker at the 2009 Davos meeting of the World Economic Forum was China's Premier Wen Jia Bao, not that of any adherent of a Washington Consensus, whether neoliberal or 'Post'. Yet blinded by ambivalence or even antagonism towards the majority of the most independent-minded governments of the states of the periphery, they are left with nothing to turn to for the implementation of an 'anti-globalisation' strategy but such amorphous categories as a "democratic alliance of social movements",[42] the "global communities world-wide",[43] and so on. However, not only do these categories lack any status at all in terms of fundamental principles of political economy as they exist in their original, urgent form in the works of the classical pioneers, but they also reflect, despite the apparently progressive terminology, a 'privileged Western' standpoint which is no more disposed to recognise the legitimacy of the assertion by peripheral states of their territorial integrity than is the neo-conservatism of today to tolerate it.

Spatial-economic analysis has roots deep in history and, in particular, the history of colonialism – deeper by far than those hitherto explored in the critical geographical literature, let alone in Krugman's writings. For example, I came to this topic by a circuitous route, through coming to realise that Krugman's "three-way interaction" between increasing returns to scale, transport costs, and the mobility of factors of production was in fact precisely the central organizing logic underlying a scheme advanced by the English colonialist writer William Petty in the seventeenth century to 'transplant' the population of Ireland into England to benefit from the resulting advantages of 'compactness'.[44] This scheme was argued with all the now-familiar paraphernalia of statistics and costings of which Petty is widely recognised as a foremost pioneer and thus, in many respects, a founding father of economics. His scheme represents more, therefore, than just a folly of that individual's famously 'fertile' mind, being a clear demonstration that spatial economics was pioneered as an intellectual response to the large-scale transfers of population which

[42] Peet *et al*. 2003: 223.

[43] Glasmeier and Conroy 2003.

[44] Goodacre 2009.

constituted the least attractive aspects of the colonial era which was dawning in Petty's time, which included not only emigration from Ireland but also the rise of the African slave trade.

Krugman's restraint over his inventiveness is no greater than that of his seventeenth-century predecessor, deriving from this same 'three-way interaction', as we have seen, a history of the world, an explanation for globalisation, an economic geography of Mexico, and much else besides. All this led me to assume that my subject was situated at the uttermost extremes of anything that could possibly be regarded as within the bounds of intellectual rationality or respectability – an antiquated and thoroughly unrespectable response to the realities of national catastrophe, war, slavery and other forms of enforced displacement and mass migration, an attempt to suggest that the pain of history can be sublimated in mathematical equations, and equations whose content, moreover, disturbingly echoes the most bizarre and repugnant fantasies of a nascent colonialism in its most predatory aspect. However, I had clearly underestimated the enduring hold which this mode of thought still retains on the economics profession, and thanks to the National Bank of Sweden, I now find that a considerable proportion of that professions' resources of international publicity have been directed towards sustaining its claim to respectability.

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Explain and illustrate the concepts of marginal benefit and marginal cost and apply them to understanding the marginal decision rule. To say that individuals maximize is to say that they pick some objective and then seek to maximize its value.Â The table in Panel (a) shows the total benefit and marginal benefit of the time Laurie Phan spends studying for her economics exam. Panel (b) shows the total benefit curve. Panel (c) shows the marginal benefit curve, which is given by the slope of the total benefit curve in Panel (b). I like to think that I am more open-minded about alternative approaches to economics than most, but I am basically a maximization-and-equilibrium kind of guy. Indeed, I am quite fanatical about defending the relevance of standard economic models in many situations. Why, then, am I here? Well, partly because my research work has taken me to some of the edges of the neoclassical paradigm. When you are concerned, as I have been, with situations in which increasing returns are crucial, you must drop the assumption of perfect competition; you are also forced to abandon the belief that market outcom Profit maximization depends on producing a given quantity of output at the lowest possible cost, and the long-run equilibrium in perfect competition requires zero economic profit. Therefore, firms ultimately produce the output level associated with minimum long-run average total cost. Marginal cost must pass through the minimum point of average total cost.Â The illustration shows the long-run equilibrium in perfect competition. The left diagram illustrates the equilibrium price, PE, being determined by the intersection of demand and supply in the market. The perfectly competitive firm is a price taker, so this price is the firmâ€™s marginal revenue curve, P = MR = d, in the right diagram.