Industrial Location Policy: False Premises, False Conclusions

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Conventional location theory - rooted in the neoclassical tradition - does not reveal the true nature of industrial behaviour, nor the effect of government policies and actions. How can the dynamics of industrial development and its spatial consequences be better understood?

The industrial landscape has been undergoing dramatic changes over the last fifteen years in Great Britain and the United States. As so often, theory has not caught up with reality. The interest sparked by events 'on the ground' has, however, led to a reappraisal of the basic tenets of industrial location analysis. This has given birth, in turn, to a new school of thought that sees 'restructuring' of industry as the key to regional shifts in economic activity and formation of a new 'spatial division of labour'. This new group is sceptical of the role of traditional regional policy in industrial relocation, given that it rests squarely on the dubious assumptions of classic location theory about the nature of the economy and of regions. If they are correct, industrial policy analysis must similarly be recast in a new theoretical mould.

The new scepticism comes, ironically, at the zenith of British regional policy's apparent success in decentralizing industry from the great urban conurbations of the South-East and Midlands. That policy, begun in 1947 (but only instituted with vigour since the mid-1960s), combines the negative power of the certificate denial for any planned factory construction or expansion with positive incentives in the form of grants and tax breaks for companies locating plants in designated 'development areas' in outlying regions.

The United States has no direct location policy, though decentralization was strongly urged as a defence measure during and after World War II. The Carter Administration recently considered a National Urban Policy based on targeting of tax incentives and low-cost loans to areas of high unemployment. In both countries, of course, a variety of national policies, such as highway construction, tax depreciation allowances and military spending, have indirect locational impacts. A good devil of ink has been split recently over alleged regional biases in federal spending, but very little has been resolved as to the what and where of the matter, let alone the why. In the United States, the principal form of direct locational inducement is by state and local governments, which offer varying schemes of location, spending programmes, labour laws and business regulations in order to attract industry.

If regional planners do not control over the policy instruments of the state - if indeed, policy that affects regional development is effectively made behind their backs - then a discussion such as this one is rendered rather moot. The problem then would be to study the theory of the state, which is
also in considerable upheaval today, rather than the theory of industrial location. For present purposes we will give regional planning the benefit of the doubt. This means that the discussion will be addressed chiefly to consciously implemented policy of the British sort.

In the past, assessments of British regional policy focused on whether it was doing the right thing. Policy analysts spoke of the wrong kinds of employment being generated in the development zones, such as female jobs in 'light' industry replacing male jobs in heavy industry, or very capital-intensive production in areas of high unemployment; of the minimal growth-generating impacts of many new plants given income leakages outside targeted areas; or of the 'discouragement effect' of government red tape. Their conclusions usually affirm the possibility of governments having a substantial impact on the organization of the space-economy and urge renewed efforts via planning, expenditure, and other policy instruments.

The newer critics, by contrast, wonder whether regional policy is really affecting location decisions at all. Perhaps it has merely been paying companies for what they would have done anyway. A certain statistical correlation unquestionably exists between the policies and regional shifts in jobs, as has been demonstrated by David Keeble and others. Nonetheless, such correlations by no means establish casual relations. One can also point to a number of empirical data that run counter to the optimists' case. First, the United States, with no identifiable regional policy, has nonetheless experienced a shift in job location equally as striking as that of the United Kingdom. Second, the temporal correlation is imperfect. There was rapid decentralization in the immediate post-war years despite relatively lax enforcement of regional policy in Britain. Moreover, the last few years are not unprecedented. In the United States, industrial decentralization from both big cities and from the northeast industrial belt has been taking place since the middle of the nineteenth century. Third, as Keeble himself has pointed out, much of the manufacturing located in British development zones does not originate in the southern conurbations but in nearby urban centres; that is, it represents inter-regional rather than inter-regional decentralization. Fourth, most studies other than those politically associated with British regional policy have concluded that of the factors involved in private location decisions, public policies, especially tax incentives, have a minimal impact.

Finally, recent disaggregate research into specific industries has found that companies are altering their spatial investment patterns in response to more fundamental economic pressures than government incentives and penalties. Massey and Meegan's investigation of the British electronics industry shows locational movements to be motivated in the first instance by international competition and a sagging world economy. These conditions spurred varying reactions depending on the internal situations of different sectors and firms, such as buoyancy of demand, capacity utilization rates, technical innovation, and financial solvency. With the help of the government (but not the branch administering location policy), the firms engaged in various forms of 'restructuring' - meaning changing production processes, opening new plants and closing obsolete ones, and mergers. The financial restructuring was generally a prerequisite to production restructuring, but it was the latter that led directly to changes in the industrial landscape. In particular, introduction of greater mechanization and automation tends to involve a deskilling of the labour force that makes it feasible to replace workers from the big city labour force with outlying female labour - which is notoriously lower paid, less unionized and more trainable.
instructed by conventional theory, cannot
deal with the sorts of causal forces un-
covered by Massey and Meegan. Traditional
regional policy theory is in a similar bind. It
therefore behoves anyone concerned about
regional growth and the impacts of govern-
ment actions to consider afresh the theo-
retical foundations of industrial location
analysis and policy. This requires a brief
plunge into the chilly waters of theory,
which may intimidate at first but should
prove invigorating in the end.

The Evolution of Location Theory:
A Refresher

Traditional location theory traces its origins
to Alfred Weber, with additional inspiration
from Marshall and Von Thunen. Weber's
chief English-speaking apostle was Edgar
Hoover. Weberian analysis is 'partial' in
nature, focusing on the location of the indi-
vidual firm. It pays attention to whether the
firm is resource-, labour- or market-oriented,
and to the structure of transportation costs
for inputs and outputs. It also allows for
'agglomeration effects', where the sum of
individual location decisions is mutually
reinforcing. Most concrete studies of
cities and industries have been Weberian in
inspiration.

Another strain of location theory, de-
veloped by Christaller and Losch, grew up
alongside the Weberian tradition: general
equilibrium analysis, also known as central
place theory. In this the problem of simul-
taneous location decisions is given top
priority, but at the expense of greatly sim-
plicated assumptions about the nature of
each firm. The results are elegant, but
empirically rather arid. Walter Isard
succeeded in wedding the two traditions
into one elegant model. This 'apotheosis of
method', as Holland refers to it, came at the
expense of the element of realism in the
Weberian school.

A third strand of spatial economics is
inter-regional trade theory as developed by
Ohlin. It spawned the so-called 'export
base' models of regional and urban growth,
following North, in which external trade is
the leading force in local development. This
could be married to Weberian location
models to explain regional industrial
specialization.

All three approaches are rooted in neo-
classical economics. This school of thought
stands as the principal adversary of the
new economic geography. Frustration with
neo-classical theory has been a long time
building. Students of location and regional
development have been forced to draw
on other traditions, inside and outside
economics, in search of explanations for
patterns on the ground that do not fit neo-
classical prescriptions.

In the 1950s a group of regional develop-
ment theorists, led by Perroux, Myrdal and
Hirschman, tried to account for regional
imbalance by combining Weberian 'agglom-
eration economies' with Keynesian multi-
plier analysis and the effects of labour and
capital migration from stagnant to growing
regions. Cumulative imbalance would occur
because of the advantages of growth itself,
with success breeding success in pros-
tenous regions and failure breeding failure
in backward regions. This line of thought
has been revived recently by Stuart
Holland.

Several other new lines of thought have
been added since the late 1960s. Behaviour-
alis ts pointed to the imperfect rationality
of location decisions and emphasized the need
to study the 'decision-making process' of
the firm, particularly the investment deci-
sion that precedes choice of plant location.
Another group discovered that large cor-
porations, particularly multinationals, do
not behave quite like the small firm of old.
'Linkage' analysis arose as still others
observed that transportation of goods was
not the only important form of spatial con-
nection among plants. Technology also
began to receive its due. Innovation diffu-
sion models first tried to introduce technical
change into space. Later 'product cycle' theory was recast in spatial terms to account for geographic specialization between 'seedbed' areas that give rise to a large number of new product (and process) innovations and outlying areas in which more mature, standardized products and processes are located. Many investigators took up the long-neglected question of the location of offices and of R & D, which had become spatially segmented parts of the large corporation. Finally, Massey and others addressed the last great hiatus of neo-classical theory — economic crisis — straight on. Given the situation in Great Britain in the 1970s, it could no longer be avoided. The concept of 'restructuring' was meant to capture the pressures for change that periodically build up to crisis proportions, forcing corporations onto new paths that break significantly with the past and dramatically reshape the economic geography of nations.

Back to Basics

This quick summary of lines of thought, like frozen juice concentrate, needs to be thinned out a bit to be palatable. Let us now consider each of the principal objections to neo-classical orthodoxy, suggesting the obvious contradictions between theory and reality and some implications of this disjunction for regional-industrial policy.

1. The Basic Model: Factors of Production and Markets

Neo-classical location theory begins with the presumption that firms choose sites based on access to factors of production (land, materials, labour, capital) and output markets. If there are spatial differentials in costs or revenues, firms respond by locating at the most advantageous position. The distribution of industry is, therefore, a result of the prior distribution of factors and markets. Regional policy acts chiefly by trying to alter cost-revenue differentials through financial incentives. The many objections to this view of the location process will be treated separately below.

2. An Archaic Notion of the Firm

Neo-classical theorists speak of 'the firm' in terms of a small, competitive, single-plant entity. These 'points' of economic activity are distributed across landscape according to the pull and haul of input and output markets. Yet the characteristic firm of today is the large, multi-functional, multi-locational corporation. These companies distort the old model of market determination of location. First, as noted fifty years ago by Chamberlain and others modelling 'monopolistic competition', perfect competition almost never holds in space. More important, corporations internalize many of the functions once performed by market exchanges by linking together plants, offices and labs directly under one organizational system. The effects of this are many. For example a factory requiring special technical services might once have had to locate in a big city; now it can be put in the under-developed hinterlands and the company technician brought in periodically. Or a factory receiving government subsidies to locate in a special zone may be transferring its profits back to London, where they create new office jobs. In both cases, regional policy may appear to be causing locational shifts when it is actually having little effect.

3. The Black Boxes of Production

Neo-classical theory focuses on exchange, not production. As a result, industrial plants are commonly treated as 'black boxes' into which enter factors of production and out of which come final goods. Production is represented by the simplest kinds of 'production functions' that allow for smooth substitution of one input for
another according to marginal cost differences. One firm looks pretty much like another in this scheme. But real factories in fact contain very specific technologies, differing widely among industries in which the room for substitution is rather limited. Weberian locational analysts had some sense of the specific factor requirements of different industries, but this insight was largely lost during the period of mathematical elegance in the 1950s and 1960s. Technical change is similarly treated in terms of smooth substitutions of new techniques and equipment over time. But in reality technical advances frequently come in the form of technological breakthroughs that spawn waves of new investment in plants and equipment.

If industries are quite different, then generalized financial incentives will not have the same effect on each: indeed, they may not have any effect at all. For example, the differences between worker skills or between lead and copper are qualitative: unskilled workers cannot produce a fine piano no matter how much one pays and factory sites near lead mines will never be attractive to wire-makers, regardless of the financial inducement.

Even more important, the course of technical change—or the restructuring of production—can alter factor demands and locational preferences independent of or in spite of regional policy. For example, the discovery of a new technique for copper recovery from low-grade ore may revive a long-stagnant regional economy. More generally, as modern industry increases the level of mechanization, standardization and automation in the production of some products, one can observe a corresponding shift in location from skilled labour areas, usually big cities, to areas of cheaper, unskilled labour, usually economic backwaters. The long-standing transfer of U.S. textiles manufacturing from New York City to North Carolina is a case in point. A widespread revolution in technique in order to raise industrial productivity may, therefore, be the cause of investment in ‘development areas’ in Britain, rather than the inducements of government policy.

4. Investment and Aggregate Dynamics

Neo-classical models of location describe essentially static patterns of the allocation of a given stock of industrial plants around a country. But a nation’s geography is not a chess-board, on which a set number of pieces are to be arranged. It evolves historically through a process of investment of past profits in new plants and equipment. Government policy cannot hope to re-arrange the stock of factories only redirect the flow of investment so that a new pattern emerges over time.

The rate and character of investment depend, however, on many things other than locational advantages and disadvantages (factor differentials). The focus of industrial corporations is commodity production. In making an investment, most attention goes to the kind of product, its production costs, and its marketing future. Location of plant is something of an afterthought, more a result of the pattern of industrial production than an independent decision. The locational incentives of government policy-makers are therefore manipulations of secondary variables in the process of locational change. Furthermore, the rate and nature of investment is strongly shaped by competition and economic cycles, or the eb and flow of general economic opportunity and pressure. The shifting sands of growth and competitive advantage cannot be understood using models which post equilibrium conditions (or even temporary disequilibrium) and which deal with the individual firm only, oblivious of the aggregate or macro-dynamics of the economy. Similarly with policy; many of the apparent achievements of British decentralization efforts have been wiped out by plant closures due
to economic crisis and the macro-policies of the Thatcher government.

Also, traditional location policy avoids these problems almost entirely. It ignores the important production and process choices in order to focus on locational incentives. It limits itself to a few taxes, grants and licenses that can compare with the economic revolution presently taking place because of international competition, a world-wide slump, corporate mergers and technological breakthroughs. Wave of rationalisation and new investment are washing over the United Kingdom and the United States, remaking their industrial landscapes.

5. Transport Determination

Transportation, as means of access to factors and markets, has always been a staple of neo-classical location models. While transport is undoubtedly important in sizing decisions, transport-determination models are seriously misleading. As the 'linkage analysis' school has argued, one also has to look at communications and the flow of information. At the technical interconnections of related production processes at different sites; access to direct labour 'services'; at financial flows; and at the organizational channels of the corporation that serve all these purposes. Great highways may not induce companies to decentralize if specialized services are available only in big cities. Conversely, with the general improvement in all dimensions of 'circulation' in space, decentralization and locational flexibility may well increase, regardless of government policy; this would appear to be the case today.

In addition, one cannot ascribe location changes directly to 'transport/communication revolutions' as is so commonly done. Improvements in the means of 'circulation' only give the possibility of locational change; they are insufficient to specify why it takes place, apart from the other causal forces such as new products, production restructuring, or corporate labour strategies.

6. Factor Supply Endowments

Neo-classical theory takes regional factor endowments as given. This overlooks what may be called 'the shaping power' of industry over regions. Natural resources may be fixed in the ground, but labour, transportation systems, and capital are not. The mere existence of a factory or industrial complex will draw labour. It may also create around it a working-class community that serves as a formative context for future generations of workers; for example, a tradition of following one's father into the mines. It may attract other investment, as in the building of a modern railroad line into the coal-stripping areas of Montana and Wyoming. Some companies, if they have enough leverage, may be able to alter the whole wage and union structure of towns in a fashion suitable to their needs. What, then, is cause and what is effect? Industry works at both ends of the process, factor demand and factor supply.

If one takes the idea of the shaping power of industry seriously, then it must extend to the realm of government action. In the United States, states and localities competing for growth are induced to relax pollution control laws, introduce anti-labour legislation, build roads, grant tax breaks, and the like. Such inducements rarely attract industries that are not otherwise interested; at best they shift industry from one jurisdiction to another. Looking at regional policy in the United Kingdom or federal spending patterns in the United States, then, what we like to be a causal force may in fact be a political effect of tidal changes in the economy that are laying new patterns over old.

7. The Labour Factor

Neo-classical theory treats labour like any
other input, which it manifestly is not. Not only does labour come with different price tags and in varying qualities, workers are, unlike machines and materials, alive, conscious and capable of resistance. Wage rates, work intensity, frequency of stoppages and ease of management all depend on labour militancy. Worker resistance to production restructuring is often a barrier to technical change. Employers therefore pay close attention to labour control, often choosing factory locations in places where workers are less organized, more pliant, and politically inexperienced. They are well aware that worker combative ness and solidarity have a strongly geographic basis, thanks to distinctive community cultures, work experience and traditions of unionism and cooperation.

The geographic factor is no less important where costs of living (wage rates) and pools of labour skills are concerned. As a result, the labour ‘factor’ is significantly differentiated by place. This contrasts with the bulk of industrial inputs, such as lathes and microprocessors, which have become increasingly universalized through product standardization and reduced transportation costs. Despite the success of MacDonald’s hamburgers in feeding the masses, the workers are the least industrially reproduced, least homogenized, factory input. Therefore, competitive advantage within most industries will rest (in so far as location is a significant consideration) on an accurate assessment of labour conditions, even where capital and materials-intensive plants are concerned.

Study after study in the neo-classical tradition has underestimated the locational force of labour by measuring ‘costs’ strictly in terms of wage rates and unionization rates. They conclude instead that ‘markets or natural resources’ are the principal factors in site selection. The former is quite absurd since most factory output is sold either to other businesses or to their employees acting as final consumers. Now that natural resource inputs are diminishing in most sectors, and transport costs have fallen, a widespread conclusion is that industry has become ‘footloose’. Nonetheless, a wider arena of geographic choice does not mean that location does not matter; indeed, it makes site selection according to labour differences between towns, regions and even countries more compelling than ever. The truly staggering internationalization of production going on today among multinational corporations cannot be understood apart from this restless search for appropriate labour.

An industrial policy blind to the importance of labour, and especially labour conflict, will commit many mistakes and play a definite political role. It may help undermine union strength (even Labour Party strength) by drawing industry away from traditional urban strongholds to socially and politically conservative development zones. Or it may confuse the virtues of Newcastle’s coal with those of its unemployed’s low-paid, unorganized wives. Or it may ruin low-wage industries in a rural area by attracting a company that pays more and alters the whole standard of living and community tradition in an area.

8. The Focus on Regions

It follows from the basic axioms concerning production and given factor endowment that neo-classical location theory and traditional regional policy put most of their emphasis on the characteristics of ‘regions’ as the cause of growth or stagnation. Scarcity or abundance of factors of production and markets provide the key to diagnosing regional economic health, rather than demands for factors emanating from particular production processes, organization and corporate strategy, the product mix, investment flows, economic cycles, the state of technical development, or just poor locational decisions. Governments can, by following such false lights, waste a great
deal of money training workers in hopes of making them employable or building infrastructure for industrial parks, when the area is currently of no reasonable use to industry. Conversely, backward areas may suddenly become attractive to industry precisely because of events taking place far from the affected area and far from the purview of regional planning agencies. Perhaps the most disagreeable aspect of the focus on regions is that it spawns local competition and 'boosterism' - the current favourite is 'fast trade zones' - wherein local workers and other citizens are encouraged to sell their birthrights for a mess of pottage in the belief that only an extra cost differential will ever assure jobs.

9. Equalisation of Profit Rates

The ultimate measure of a good location is profits and company growth, weighing a number of variables from marketing success to strike-days lost. Unfortunately, the refinement of company calculations concerning location's impact on profits is not very good, either before or after the decisions, contrary to the assumptions of neo-classical theory. As a result, the allocation of workplaces around the country is never as economically rational as the textbooks would have it. One must never overlook the element of historical accident, the idiosyncrasies of company decisions, or the locational inertia of the system. There is a lot of locational 'fat' in some plants, which could be moved elsewhere without loss of efficiency. Conversely, there are locationally 'lean' plants that are poorly situated but getting by. It usually takes a crisis such as the prolonged economic doldrums of the 1970s to force companies to look critically at their situation and either retreat or shift investment to a better place. Government policy may have more freedom than some imagine to pressure locationally 'fat' firms to shift investments to poor regions. Conversely, it may see its achievements dissolve as relocated plants prove marginal in a pinch and close down. The problem comes in knowing the difference between the two, when industries often do not know it themselves.

10. The Focus on Manufacturing

The final illusion of traditional theory is that the chief subject matter of economic geography and 'industrial' planning is manufacturing plants. Administration, finance research, sales, service and government workers now exceed in numbers those employed in traditional factories in both the United Kingdom and the United States and the location of their workplaces has enormous impact on regional development. Yet both theory and policy pay remarkably little attention to office and other white-collar employment. In Great Britain the claim is made that regional policy is 'working' because a certain number of factories employing blue-collar labour have located in the development areas. Even if this were entirely due to government policy and entirely beneficial, it begs the greater question of how regional inequalities are being maintained thanks to the increased concentration of office and R & D activities in the prosperous London area and a handful of other cities. As Massey puts it, what appears to be an evening up of regional employment is actually a shift from one 'spatial division of labour' based on regional specialization by industry (e.g. coal, textiles or shipbuilding) to another based on regional specialization by function (e.g. administration, R & D, or production).

Conclusion

The issues raised here point out a seriously flawed theoretical basis for industrial location policy and policy analysis in the neo-classical tradition. Most of what has been said does not go beyond criticisms that have been made time and again by geographers
and planners; location research has made
great strides in the last decade away from
the and modelling of the Loch-lard-Mills
school. But the theoretical edifice has
become a patchwork. One integrative mode
of thought that has been suggested is
'systems theory', which has at least brought
together under the same conceptual
umbrella advances in linkage analysis,
invention diffusion, and corporate deci-
sion-making. But systems theory, while
focusing on the structure of the industrial
system as a whole, has either no analysis of
the necessary forces at work, or a heavily
technically-deterministic view. Faced with
the need for a different sort of integrative
approach, many students of industrial
geography are turning to marxist theory as a
comprehensive alternative to the neo-classi-
cal and systems schemes.

If rational governments are to forge crea-
tive and effective regional policies, they
must change their thinking. Unfortunately,
the forces of industrial change that alter
geographic patterns are more complex — and
hence less amenable to public manipulation
than was once thought. Therefore they
need to consider a true industrial policy
instead of a strictly locational one. This
means moving beyond tinkering at the
margin of the problem with taxes, licences
and the ordinary paraphernalia of govern-
ment regulation to a real social planning
system that gives public officials some
measure of power over the critical variables
of investment, production, innovation and
employment in the so-called private sector.

Similarly, if one is to carry out meaning-
ful industrial policy impact analysis before
resources are committed, one needs a better
model of industrial dynamics than is cur-
rently available. As Gliksman has pointed
out, 'spatial policy impacts are complex and
hard to track', and the reason this is so is
that location policies are filtered and trans-
formed by the logic of technical change,
labour relations, corporate organization,
and business cycles. One cannot under-
stand the former without understanding
the latter. Conventional impact models are
helpless before such questions of the logic
of social relations and social change. Either
they are, like input-output, largely empiri-
cist constructs with little theoretical insight
into the nature of the relations described;
or they are, like multiple regressions on
locational actors, based on the principles
of neo-classical economics. Because that
theoretical system mis-specifies the basic
elements of the economy in terms of one-
dimensional lines, black boxes of produc-
tion, autonomous regions, aggregate equilibria,
passive industrialists and workers, and
the like, it cannot reveal the dynamics of
industrial development and its spatial
consequences.