STRATHCLYDE

DISCUSSION PAPERS IN ECONOMICS

Putting the Record Straight: Adam Smith, Allyn Young and the Division of Labour

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I. Putting the Record Straight:

Adam Smith, Allyn Young and the Division of Labour

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Abstract

A comparison has recently, and indeed repeatedly, been made of the thinking of Adam Smith (1776) and Allyn Young (1928) on the subject of the division of labour. It is alleged that Smith's understanding of the concept was only at the most elementary level, and that it was Young rather than Smith who extended the basic notion of craft specialisation to comprehend industrial specialisation, who recognised that the degree of industrial specialisation increased with economic development and that it was he who perceived that an increased degree of specialisation in one sector of the economy, by inducing further developments elsewhere, could promote a cumulative process of expansion. The purpose of this note is to demonstrate that that interpretation, in greatly exaggerating Young's contribution relative to that of Smith, seriously misrepresents the latter's depth of insight into the nature and implications of the division of labour.

Introduction

In a series of recent papers Ramesh Chandra – Chandra (2002), (2004a), (2004b) – has offered an assessment of the respective contributions of Adam Smith (1776) and Allyn Young (1928) to our understanding the nature and implications of the concept of "division of labour". Chandra takes a surprisingly dim view of Smith's contribution, allowing him, it would seem, no better than the equivalent of a β minus, and, for insight, awarding the lion's share of the credit to Young. While it is of course to be expected that Young should advance the analysis beyond the point reached by Smith a century and a half before, Chandra appears to have exaggerated the extent of that advance by unduly downplaying Smith's understanding of the issues in question. So eccentric indeed is Chandra's account that it cannot be allowed to pass without challenge.

Chandra alleges that Smith's understanding of the meaning and implications of the concept of division of labour was actually pretty limited, and that Young saw a great deal further than did Smith on these matters. It is suggested (1), that while Smith conceived of division of labour essentially in terms of job specialisation at the level of the individual worker, it was Young who was responsible for extending the idea to comprehend specialisation by firms and industries. Again, (2), Young rather than Smith is credited with recognising a process of increasing specialisation or "fragmentation" of industries as a feature of economic progress. Finally, (3), it is asserted by Chandra that Smith had little appreciation of how an increased degree of division of labour in one sector of the economy could impact on other sectors, thus setting in motion a cumulative process of ongoing change. Let us take these allegations in turn.

Charge 1: Smith effectively recognised specialisation only as occurring at the level of the individual craftsman or worker.

We are informed by Chandra that Smith thought of division of labour as applying simply or primarily with reference to the activities of individual workers – literally as represented in the famous example of the pin-making factory, with particular workers concentrating on particular tasks. On the basis of this reading it is Young, rather than Smith, who is said to have applied the concept of division of labour beyond the factory floor to comprehend as well (and importantly) specialisation at the level of the firm or industry.

Thus Chandra (2004a, p.795):

> In Smith's view the division of labour largely took the form of job specialization at the firm level or the development of specialized arts and crafts. Within a firm the division of labour takes the form of splitting up the total work into subtasks, each of which, if performed by a different worker, renders possible a dramatic increase in productivity. . . . Young extended the concept of the division of labour to include the specialization that occurs among firms and industries as the market expands.

Further down the same page the point is reiterated:

> Young extended the concept of the division of labour to include the specialization that occurs among firms and industries as the market expands. Indeed this is the type of specialization that is the main source of increasing returns. . . .

Yet again (Chandra, 2004a, p.801):

> (Young) extended Smith's conception of the division of labour to include industry-level specialisation; it was the process of industrial fragmentation rather than integration which lay at the heart of increasing returns.

But does Chandra's repeated assertion square with the facts? Consider how in the *Wealth of Nations* Smith actually introduces and demonstrates the meaning and implications of the phenomenon of the "division of labour".

Smith begins (1776/1866, Book I, Chapter I) by explaining that, to illustrate the effectiveness of division of labour in enhancing productivity, he has selected a "very trifling manufacture" - pin-making - as a particularly illuminating example for the reason that, with pin-making being such a small-scale operation, the whole workforce, "those employed in every different branch of the work [are] collected into the same workhouse, and placed at once under the view of the spectator". Since everything takes place under the one roof, and all the elements of the production process, along with the results, are seen together, we are enabled to appreciate just how remarkable can be the effect of organising production on the principle of the division of labour. By contrast, in more significant manufactures, the fact and consequences of specialisation are less immediately apparent: "every different branch of the work employs so great a number of workmen, that it is impossible to collect them all into the same workhouse", and, as a result, "though in such manufactures . . . the work may really be divided into a much greater number of parts, than in those of a more trifling nature, the division is not near so obvious, and accordingly has been much less observed". Smith's vivid account of how the (admittedly special and trivial) instance of pin-making benefits from the application of labour to specialised tasks then follows.

Having made the basic point that, in principle, specialisation can greatly enhance productivity, Smith then draws the reader's attention to the situation in the wider economy beyond the individual workshop. He fully recognised that the various operations involved in a typical manufacturing process are conduced in separate, specialised factories by different groups of workers. His famous enumeration of the variety of trades and activities which cooperate to produce the "woollen coat of the day workman" spells out the extent of the *industrial* specialisation he observed as existing across the economy, where the particular contributions of many workshops and industries, under many different owners and in many different locations, combine together in producing the finished product. As Smith says, as we do not see all these many specialised operations before us at one and the same time, we may not so readily appreciate, as when we observe the pin-making workshop, that these multifarious activities all constitute sub-divisions of a larger production process. Smith makes sure the reader understands just how extensive is the degree of division of labour in manufacturing industry.

Having listed "the shepherd, the sorter of wool, the wool-comber or carder, the dyer, the scribbler, the spinner, the weaver, the fuller, the dresser" as most immediately engaged in the manufacture of the coat, Smith goes on at length to remind the reader of the contributions of those less directly involved – those who supply and ship materials "from the remotest corners of the world", and of the many others whose contribution goes into the making of tools and machines, including for instance, the ship-builder, the loom-maker, the miner, the iron-maker, the brick-maker, the mill-wright, the smith and the foundry-man.

Given this comprehensive identification of the separate but interlinked activities involved in supplying the workman with his coat, it is hard to make sense of Chandra's assertion (2004a, p.793) that Smith, "writing in the latter half of the eighteenth century when industrial capitalism was in its infancy, could not fully visualise that industrial stratification implies a division of labour among firms and industries". What is Smith describing in the above passage if not "specialisation among firms and industries"?[1]

[1] Apropos the questions of Smith's own understanding of the concept of division of labour and of the novelty of Young's later contribution, it is relevant to note Marx's observations on what Smith has to say. Marx, we should mention, distinguishes between the division of labour 'in general' (as between agriculture, industry, etc), division of labour 'in particular' ('the splitting up of these broad divisions into species and sub-species') and division of labour 'in detail' (by which he means division of labour 'within the workshop', as in the pin-making example - that is, what we have been referring to as division of labour at the level of the individual craftsman or worker). He alternatively distinguishes 'social' division of labour (meaning both division of labour 'in general' and 'in particular') which is contrasted with 'the division in manufacture' (i.e. division of labour 'in detail'). In the course of making the point that, when specialisation of labour 'in detail' occurs, the different activities involved are coordinated by 'the undisputed authority of the capitalist over men' while, in the situation of social division of labour activities are in coordinated through the market, Marx comments as follows on Smith's treatment of division of labour, touching on his reason for choosing the pin-making illustration. Thus Marx:

> . . . the cattle-breeder produces hides, the tanner makes the hides into leather and the shoemaker makes the leather into boots. Here the product of each man is merely a step towards the final form, which is the combined product of their specialized labours. There are, besides, all the various trades which supply the cattle-breeder, the tanner and the shoemaker with their means of production. *Now it is quite possible to imagine, with Adam Smith, that the difference between the above social division of labour, and the division in manufacture, is merely subjective, exists merely for the observer, who in the case of manufacture can see at a glance all the numerous operations being performed on one spot, while in the instance given above*, *the spreading-out of the work over great areas and the great number of people employed in each branch of labour obscure the connection.* (Marx here inserts a footnote, citing Smith's explanation for adopting the pin-making example: 'In manufacture proper [e.g. pin-making], Smith says, the division of labour appears to be greater . . . [than in more spread-out operations where] the great number of people employed in each branch of labour obscure the connection'.)
>
> [Marx (1867/1976), Part 4, Chapter 14, Section 4 (emphasis added)]

It will be noticed that Marx's reading of Smith corresponds exactly with our interpretation above – that Smith fully understood the concept of what Marx calls 'social' division of labour, but resorted for clarity of illustration to his famous example in terms of 'the division of labour in manufacture'. (Marx subsequently goes on to discuss the different ways in which activities corresponding to the two different forms of division of labour are coordinated - a distinction which is, of course, irrelevant to the point at issue here.)

It looks as if Chandra has interpreted the pin factory example in too literal and narrow a sense and so missed the generality of the point that Smith was making. It does seem that Chandra, for some reason, presumes that Smith is thinking only of small-scale production of an “arts and crafts” character - see references to such activities (2004a pp.794 and 795). If, however, we remember that Smith refers specifically to the existence of much larger scale operations than pin-making, and note also the variety of the activities he mentions (e.g. in listing the operations directly or indirectly contributing to the production of the famous woollen coat) it seems evident that all sorts of different types of productive operation should be allowed a place in Smith’s conception. But, in any case, as regards the question of what Smith understood by “division of labour”, whether he envisaged production as typically being carried on by, say, individual craftsmen in their own workshops, or by a number of semi-skilled people working with identical machines in the one factory, or by an even larger number doing the same thing simultaneously in several competing factories which comprise an “industry”, the scale or modernity of these operations as they happen to be conducted at the time *is beside the point*. What interested Smith was the degree to which the operations in which workers and management were engaged in were *specialised* – whether, i.e., their efforts were concentrated on one or a small number of tasks, rather than being spread over a range of disparate activities.

Charge 2: Smith barely recognised how economic growth is accompanied by increasing industrial fragmentation (differentiation) or specialisation of industrial sectors.

Chandra (2004a, p.793):

> The idea that increasing returns mainly take the form of industrial fragmentation was developed more fully by Young, but is present in Smith in embryonic form. . . . the idea of industrial fragmentation in Young is linked to a representative firm or industry losing its identity in response to changes in the external field. In Smith neither the concept of a firm/industry losing its identity nor that of external economies is present.

Chandra (2004a, p795) (emphasis added):

> *According to Young*, increasing returns at the industry level manifest themselves through the process of industrial differentiation. No doubt some of the increasing returns may take the form of industrial integration, but the opposite process of differentiation was much more important.

Chandra's view seems to be that it was Young rather than Smith who really appreciated how increased industrial differentiation was a feature of growth and increasing productivity. But again, if we turn directly to the *Wealth of Nations*, it is evident that Smith himself had fully grasped the picture that Chandra attributes to Young. Smith certainly saw the increasing productivity of labour over time as reflecting the progressive differentiation and separation of industrial activities. The following passage (Smith, 1776/1866, Book I, Chapter I) demonstrates a rather more than "embryonic" understanding of the phenomenon.

> The division of labour . . . occasions in every art, a proportionate increase in the powers of labour. The separation of different trades and employments from one another seems to have taken place in consequence of this advantage. This separation, too, is generally carried furthest

> in those countries which enjoy the highest degree of industry and improvement: what is the work of one man in a rude state of society being generally that of several in an improved one. . . . The labour . . . which is necessary to produce any one complete manufacture is almost always divided among a great number of hands. How many different trades are employed in each branch of the linen and woollen manufactures, from the growers of flax and the wool, to the bleachers and smoothers of the linen, to the dyers and dressers of the cloth! . . . The impossibility of making so complete and entire a separation of all the different branches of labour employed in agriculture is perhaps the reason why the improvement of the productive powers of labour in this art does not always keep pace with their improvement in manufactures.

Or again (same chapter), explicitly recognising industrial differentiation as a feature of economic progress, Smith observes:

> In the progress of society philosophy or speculation becomes, like every other employment, the principal or sole trade and occupation of a particular class of citizens. Like every other employment too, it is subdivided into a great number of different branches . . . and this subdivision of employment in philosophy, as well as in every other business, improves dexterity and saves time. . . . It is the great multiplication of the productions of all the different arts, in consequence of the division of labour, which occasions, in a well governed society, that universal opulence which extends itself to the lowest ranks of the people.

Likewise (same chapter):

> As by means of water-carriage a more extensive market is opened to every sort of industry than what land-carriage can alone afford it, so it is upon the sea-coast, and along the banks of navigable rivers, that industry of every kind naturally begins to subdivide and improve itself . . .

Finally, Smith's example (1776/1866, Book I, Chapter III) of the wide range of activities undertaken by a village carpenter in the Scottish highlands as compared with the narrowly specialised work justified by a city market suggests how separate trades and industries may be expected to emerge as the market grows:

> A country carpenter deals with every sort of work that is made of wood: a country smith in every sort of work that is made of iron. The former is not only a carpenter, but a joiner, a cabinet-maker, and even a carver of wood, as well as a wheel-wright, a plough-wright, a cart and wagon maker. The employments of the latter are even more various.

Charge 3: Smith hardly recognised the external effects that increased division of labour in one sector may have on others, nor that such interaction may sustain a cumulative process of growth.

Chandra (2004a, p.796):

> Smith did not identify the concept of external economies as a vehicle for increasing returns. In fact his pin factory example gives the misleading impression that with job specialisation increasing returns could be reaped by the firm in the form of internal economies of scale. In Young, however, increasing returns take the form of external economies.

Chandra (2004a, p.801):

> Although Smith stated that the division of labour is constrained by the size of the market, his analysis was essentially partial. In particular, Smith did not look deeply into the reverse relationship of how the extent of the market depends on the division of labour. Smith wrote at a time when industrial capitalism was only beginning to make its presence felt, so he did not fully analyse the forces which would make growth cumulative and self-reinforcing.

Chandra (2004a, p.801):

> Finally, while Smith explored how the division of labour is determined by the size of the market, he did not touch much on the reverse relationship . . . he did not probe fully the cumulative nature of the division of labour.

So Chandra says; yet again, he seems too ready to deny insight to Smith. While it is undoubtedly true that Smith did not develop as fully as Young was later to do the notion of a cumulative process of growth generated through progressive extension of the division of labour in inter-related sectors of the economy, Smith certainly did understand how rising productivity and incomes in one sector impact on others by creating demand for their products. That understanding brings him very close indeed to the idea of cumulative causation. Consider this pregnant paragraph (Smith, 1776/1866, Book I, Chapter I):

> It is the great multiplication of the productions of all the different arts, in consequence of the division of labour, which occasions, in a well-governed society, that universal opulence which extends itself to the lowest ranks of the people. Every workman has a great quantity of his own work to dispose of beyond what he himself has occasion for: and every other workman being in exactly the same situation, he is enabled to exchange a great quantity of his own goods for a great quantity, or, what comes to the same thing, for the price of a great quantity of theirs. He supplies them abundantly with what they have occasion for, and they accommodate him as amply with what he has occasion for, and a general plenty diffuses itself through all the different ranks of the society.

Evidently we have here an anticipation of Say's Law (or perhaps it should be "Smith's Law"?) in the valid sense that, when the value of aggregate demand corresponds to the value of aggregate supply, production which is offered for sale on the market constitutes at the same time the demand for current output – i.e. that aggregate supply *is* aggregate demand. This is more than, to use Chandra's term, a "partial" analysis. The proposition enunciated by Smith is in fact precisely what Young had in mind (1928, p.533) when he observed that "capacity to buy depends on capacity to produce" and that "in general, the size of the market is determined and defined by the volume of production". Furthermore, Smith's understanding of this supply and demand interrelationship need not be set merely in a static context: as we have already seen (e.g. "as . . . a more extensive market is offered to every sort of industry . . . every sort of industry naturally begins to subdivide and improve itself”), Smith certainly did think in dynamic terms of specialisation increasing throughout the economy as economic growth takes place. And indeed the passage just quoted has in itself a strong dynamic undertone – the implication is that, over time, with “the great multiplication of the productions of all the different arts” (i.e. economic growth), attributed to (greatly extended) division of labour, the increasing supply of goods and services becoming available over time has meant a simultaneously expanding demand for goods and services.

Perhaps we can say that, given Smith’s (undisputed) understanding that the degree to which division of labour is worthwhile depends on the extent of the market, he is in effect, in the passage quoted above, implicitly even if not quite explicitly, indicating that the growth of output of each improving industry widens the market for other industries and that, in turn, justifies their reorganising production through higher degrees of specialisation. Smith, even if he doesn’t use Young’s form of words that “the division of labour depends on the division of labour”, would in all probability have been happy to accept Young’s formulation as consistent with his own understanding of the situation. The conception of a cumulative dynamic process of inter-industry interaction is virtually present in what Smith says: only a fully explicit enunciation of the proposition is lacking.

Our verdict

To sum up: we conclude, contrary to what Chandra would have us believe, that when Young treats the specialised operations of firms and whole industries as a particularly important form of division of labour, or when he suggests that economic growth and rising productivity are typically associated with the increasing "fragmentation" or subdivision of industrial activities, he is not actually advancing beyond Smith's own understanding as expounded in the *Wealth of Nations*. On the basis of the textual evidence there can be no doubt - either that Smith interpreted industrial specialisation as an expression of the division of labour or that he perceived the process of growth as characterised by a progressively increasing degree of industrial specialisation.

The situation with respect to the idea of cumulative causation is, as regards authorial priority, admittedly less clear cut. While all the elements of a full account of how increased division of labour in one sector may create increased demand for the products of other sectors, in turn inducing higher degree of specialisation in these sectors and thus promoting an ongoing process of growth, are there to be found in Smith's discussion of division of labour, he never quite put these elements together as a fully explicit description of a process of cumulative causation. Young's own account (quoted by Chandra) of how he saw his contribution in relation to that of Smith may, we suggest, be taken to "hit the nail on the head". Young wrote (1928, p.529): "In fact, as I am bound to confess, I am taking [Smith's theorem that the division of labour depends on the extent of the market] as the text of this paper, in much the way some minor composer borrows a theme from one of the masters and adds certain developments or variations of his own". That seems a fair assessment. Building on Smith's proposition that the division of labour depends on the size of the market, together with Smith's further proposition that division of labour in one sector extends the market for the goods produced by other sectors, Young's celebrated aphorism (1928, p.533) that "Adam Smith's dictum [the division of labour depends on the size of the market] amounts to the theorem that the division of labour depends in large part upon the division of labour" draws out and strikingly makes explicit what is, in effect, implicit in Smith. Young puts before the reader a compelling portrayal of the possibility of a self-sustaining, cumulative process of economic growth. [Thus, Young (1928, p.533): " . . . counter forces which are continually defeating the forces which make for economic equilibrium are more pervasive and more deeply rooted in the constitution of the modern economic system than we commonly realise."] While we emphasise that Young, as he himself did not hesitate to admit, was building on Smithian foundations, we can accept that, in elaborating and elucidating the analysis of specialisation and productivity pioneered by Smith, Young's insight was of real value: the point is, however, that in appreciating Young's contribution, there is no need to belittle and misrepresent, as does Chandra, Smith's own contribution.

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II. Comments on Roy Grieve "Adam Smith, Allyn Young and the Division of Labour: A Misrepresentation"

Ramesh Chandra

Roy Grieve's note misses the basic point of my paper "Adam Smith, Allyn Young and the Division of labour" (Chandra, 2004a). The basic message I wanted to convey was that while Smith emphasised the need to establish the institutions, conditions and systems of a market economy, Young (given this framework) described the *mechanics* of growth more fully. Smith was living at a time when mercantilist institutions and restrictions were widespread, and the system of natural liberty could not be taken for granted. For Smith the system of natural liberty was the big picture into which most other analyses of his *Wealth of Nations* can be fitted. Such a system ensures two things: security and liberty. Once the institutional arrangements are successful in providing these then the natural effort of each individual to better his condition is such a powerful principle that it is capable of taking not only him but the whole society to wealth and riches. So Smith spent much time and energy in analysing various systems of political economy such as slavery, agricultural systems, mercantilism, the system of natural liberty to arrive at the best arrangement for growth. Smith stated that laws and institutions of a country are paramount in determining whether a country would be able to acquire the full complement of riches. For example, in China the laws and institutions were so oppressive that it had long become stationary without reaching its full potential. On the other hand, Holland, because of its superior laws and institutions, was close to reaching its full potential. He also linked the progress of society to the emergence of private property, and the emergence of a civil government to protect it. Thus Smith's main emphasis was to explore the institutions, systems and preconditions for a competitive exchange economy without which the potential of the division of labour to yield productivity gains becomes limited.

This is not to suggest that Smith did not analyse the mechanics of growth. In fact his discussion of growth was much broader as compared to Young in that he discussed both the role of institutions in promoting growth as well as the mechanics of the process. So far from regarding Smith as a "minor contributor" or "taking a dim view of his contribution" or belittling and downplaying him, I regard him as a great pioneer whose analysis of growth included the role of the division of labour, the motive power of self interest, the theory of capital accumulation and the theory of economic evolution. But all these factors are linked to the broader picture he had in mind, namely, the system of natural liberty. It would be a mistake to interpret Smith apart from his institutional context. Therein lies Smith's greatness, and unfortunately, it is precisely this context which Grieve appears not to appreciate.

Young's objective was much more limited. Writing in 1928, he took the institutional arrangements of natural liberty for granted and confined himself to exploring the mechanics of the growth process, albeit more fully and explicitly than Smith. For example, Smith did not address the following issues fully or explicitly (see Chandra, 2004a, p.794):

> Do increasing returns arise mainly due to economies of scale? What role do pecuniary external economies play? What is the role of industrial fragmentation vis-à-vis industrial integration? Are increasing returns microeconomic, or are they macroeconomic? Is the division of labour confined to splitting of jobs and specialised crafts or does it extend to

> specialisation among industries? Does the process of growth result from circular cumulative causation? While the division of labour depends on the size of the market, how does the size of the market depend on the division of labour? Young, writing about one and a half centuries after Smith, addressed these issues directly and more fully.

Again, it is not suggested that Smith did not address these issues at all. Many of the things he said relating to the above are implicit rather than explicit. For example, the idea of circular cumulative causation or disequilibrium[1] is implicit in Smith's theory of economic evolution. Similarly, he did analyse the two-way relationship between capital accumulation and the division of labour. But he did not take the next logical step in stating that the division of labour, in large part, depends on the division of labour itself (Young 1928), or the main cause of growth is growth itself (Currie 1997). To take another example, Smith did recognise the social division of labour in the form of subdivision of occupations and crafts arising out of the growing market. But he did not properly link these ideas to a firm or industry losing its identity, the concept of pecuniary external economies, the idea of circular cumulative causation, or the forces of disequilibrium which are continuously defeating those of equilibrium. So I stated that the idea of industrial differentiation is present in Smith, but in an undeveloped form. Even Young (1928, p.529) stated: "To-day…we mean by the division of labour something much broader in scope than that splitting up of occupations and development of specialised crafts which Adam Smith mostly had in mind." To take yet another example, Smith did not state whether increasing returns

[1] However, Smith himself never used the terms equilibrium or disequilibrium. Many of his assertions, such as the tendency of the market price of a commodity to gravitate towards its natural price or the tendency of rates of profits to equalise in all employments, led many economists (e.g., Joseph Schumpeter, Lionel Robbins, George Stigler, Kenneth Arrow and Frank Hahn, to name a few) to either regard Smith as the forerunner of equilibrium price theory or to treat his equilibrium theory as his main contribution to economics. Others, such as Young, Nicholas Kaldor, Lauchlin Currie, G.B. Richardson, Denis O'Brien, and Donald Winch, interpreted Smith's contribution mainly in terms of disequilibrium economics. See Chandra (2004b).

arise out of internal economies of scale or external economies. In fact his pin factory example gives the misleading notion that increasing returns arise out of economies of scale,[2] and may have led several authors (such as Romer 1987; Krugman 1993) to link increasing returns with scale of a firm or industry. Young, on the other hand, clarified that economies of scale are incidental to the broader phenomenon of increasing returns, and if we concentrate too much on the scale of a firm or industry, we are likely to miss them.[3] Moreover, the scale at which a firm or an industry is able to operate is itself adjusted to the size of the market, and thus scale economies do not have independent existence of their own. It is therefore to Young that the credit for a fuller and explicit analysis of these issues, and putting them together in a coherent form, should go.

Indeed the vocabulary, which today we take for granted (such as microeconomic, macroeconomic, equilibrium, disequilibrium, economies of scale, external economies, cumulative causation, etc.), did not exist in Smith's time. Smith could not have been expected to couch his explanation of growth in these terms as these concepts came much later. For example, Young derived his distinction between internal and external economies from Marshall. According to Young, this distinction, although fruitful, is essentially a partial view for two reasons: first, a representative firm[4] constantly loses its identity; second, because internal economies of a firm may

[2] The concept of economies of scale is slippery for a number of reasons. The firm may not be able to maintain its identity for long, and even if it does, the appropriate conception is that of dynamic economies of scale than of a movement along an existing cost schedule. See Chandra and Sandilands (2006).

[3] "[T]hese economies lie under our eyes, but we may miss them if we try to make of *large-scale* production (in the sense of large firms or large industries), as contrasted with *large* production, any more than an incident in the general process by which increasing returns are secured" (Young 1928, p.531).

[4] To the extent a representative firm is made the vehicle through which increasing returns are transmitted in the system, the focus remains microeconomic. Young, on the other hand, was talking about macroeconomic increasing returns.

figure as external economies of other firms, all such external economies cannot be accounted for by adding up the internal economies of all firms. To take another example, the expression “cumulative causation” perhaps was first introduced by his friend Thorstein Veblen (1898) who used it to show why economics was not an evolutionary science. Young, on the other hand, used this concept to illustrate the “cumulative” process of growth in which “the counter forces which are continually defeating the forces which make for economic equilibrium are more pervasive and more deeply rooted in the constitution of the modern economic system than we commonly realise”. Thus even while benefiting from the analyses of later authors, Young went beyond them, and added significantly to our understanding of growth.

Young did state that he was a “minor composer” in comparison to Smith whom he described as “one of the masters”.[5] But this attitude arose out of his modest character, as noted by several authors,[6] than to any inherent shortcoming of his 1928 paper. J.M. Keynes, in a letter of condolence upon his untimely death in 1929, wrote of his habit of sharing his best ideas with others and of giving his own work the last priority. “[I]t was his own work – unfortunately perhaps – which always came last” (see Blitch 1995, p.185, and Sandilands 1999, p.453). In this context, mention may be made of his famous students such as Frank Knight, Edward Chamberlain, Nicholas Kaldor, Lauchlin Currie and Bertil Ohlin, who, in no small measure, may

[5] Young’s reverence to Smith did not prevent him from criticising Smith. For example: “It is generally agreed that Adam Smith, when he suggested that the division of labour leads to inventions because workmen engaged in specialised routine operations come to see better ways of accomplishing the same results, missed the main point. The important thing, of course, is that with the division of labour a group of complex processes is transformed into a succession of simpler processes, some of which, at least, lend themselves to the use of machinery” (Young 1928, p.530).

[6] See the tributes in Sandilands 1999. Earl J. Hamilton, for example, referred to him as “the epitome of modesty” (p.469) and Sir William Beveridge wrote (p.457): “He had no envy, jealousy, or harshness: of sarcasm, cynicism or flippancy he was incapable. Sensitive he was, but with the sensitivity not of vanity but of most genuine diffidence. He was ever the last person, not the first, to be persuaded of his own successes.”

have benefited from his generosity (in terms of his time and ideas). In light of this evidence, it appears that Grieve has taken Young's self-description as "minor composer" too literally.

Grieve's specific criticisms against me have briefly been answered in the fourth and fifth paragraphs of this note. His first two points are closely related, so I shall consider them together. His first point pertains to whether job or craft specialisation in Smith extends to industrial specialisation. The second point relates to the process of industrial differentiation as the main source of increasing returns. His grouse against me is that I do not give due credit to Smith for these ideas. As seen above, even Young, despite his modesty, thought that the division of labour today meant much more than *job or craft specialisation* which Smith mostly had in mind. In his 1928 paper, Young clearly stated that he did not wish to comment upon all aspects of the division of labour. He singled out two aspects as his main contribution, which had not been analysed in any great depth earlier, namely, the growth of indirect or roundabout methods of production and the *division of labour among industries*. Smith clearly recognised that even for the manufacture of an ordinary good such as a coarse woollen coat various arts and crafts have to join hands. He also recognised the process of subdivision of various arts and crafts as the size of the market expands. With the advancement of the division of labour not only different trades come into being, but within a trade there is further subdivision. Thus the idea of the social division of labour is very much present in Smith but is mostly confined to the splitting of occupations and trades, and not much to the process of industrial specialisation. Moreover, it is also not properly linked to the concept of external economies, cumulative causation or the representative firm or industry losing its identity. Some of these ideas, although implicit in Smith, were developed later. As noted, Young not only made use of these later ideas but also went beyond them, and put them in the form of a coherent theory of growth.

The relevant concept of external economies in Young is that of pecuniary external economies which are transmitted in the system in the form of reduced costs and prices. Greater the competition, the more effective is their transmission. The reduced costs and prices in turn may enlarge the size of the market, setting off a cumulative self-sustaining process of growth. Moreover, the external field is continuously changing, where new products, new processes, new packagings, new substitutes, new combination of factors, are continuously emerging. As a result a representative firm is likely to lose its identity sooner or later. Thus a firm which produced a final product X earlier, may end up producing some component of X. Or instead of manufacturing all components of X itself, it may just assemble the final product, buying components from a large number of intermediate producers. To go a step further, a large number of new intermediate producers may emerge to take advantage of new opportunities of industrial specialisation as the size of the market expands. In this context, Young gives the example of printing trades in which the printing industry of today has little resemblance with what existed earlier when most or all processes of printing were done in-house.[7] Similarly in automobiles, with the

[7] "The successors of the early printers, it has often been observed, are not only the printers of today, with their own specialised establishments, but also the producers of wood pulp, of various kinds of papers, of inks and their different ingredients, of type-metal and of type, the group of industries concerned with the technical parts of producing of illustrations, and the manufacturers of specialised tools and machines for use in printing and in these various auxiliary industries. The list could be extended, both by enumerating other industries which are directly ancillary to the present printing trades and by going back to industries which, while supplying the industries which supply the printing trades, also supply other industries, concerned with preliminary stages in the making of final products other than printed books and newspapers" (Young, 1928, pp. 537-8).

advancement of the division of labour, production becomes fragmented into a large number of specialised component-producing undertakings or industries.[8]

Grieve's third criticism is that I do not recognise the idea of Say's Law or reciprocal demand in Smith. It is true that the surplus of a workman constitutes a demand for the products of other workmen. While Young was able to enmesh the idea of reciprocal demand with the idea of circular cumulative causation, Smith did not fully develop the idea. Nor is the Youngian concept of externalities confined to the external effects of exchanging the surplus product of one sector with that of others.[9] As we have seen, it extends to the concept of pecuniary external economies which contribute to the cumulative self-sustaining process. Young also suggested that the rate at which one sector grows depends on the rate at which other sectors grow; different sectors will grow at different rates depending on the elasticities of demand and supply. Grieve himself admits that Smith was never quite able to put various elements together as a fully *explicit* description of a process of cumulative causation.

To conclude, Smith's analysis is much broader than that of Young. Smith's real contribution lies in his institutional analysis. However, as far as the narrow question of mechanics of the division of labour and growth is concerned, Young, building on Smith, analysed the issues more fully and explicitly, and had something important to say beyond Smith, and even beyond the later authors. That Smith's overall

[8] The idea of industrial differentiation in Young goes much beyond intermediate production to encompass differentiated, trade-marked and specialised products. Thus Young was not against the idea of imperfect competition or selling costs that resulted from the competitive process itself. Also, Young was reluctant to categorise selling expenses as sheer economic wastes, and tended to regard them as competitive investments instead (see Blitch, 1995). It should also be noted that while Young was not against market power or privileges that resulted from the competitive process itself, he did not favour policy-induced market power in the form of patents or other privileges (see Chandra and Sandilands, 2005).

contribution was great cannot be denied, but at the same time Young's contribution, despite his modesty, was also not "minor". In the contemporary context, developing countries, which are greatly handicapped by mercantilist-type apparatus and restrictions, can greatly benefit from Smith's approach. To reap Youngian-style increasing returns, they first need to create appropriate institutions, conditions and systems.

[9] Even with regard to 'surplus product' Young (1928) writes: "The search for markets is not a matter of disposing of a 'surplus product' in the Marxian sense, but of finding an outlet for a potential product."

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III. REJOINDER TO DR CHANDRA

Roy Grieve

It is a pity that Ramesh Chandra in his “Comments” cannot stick to the particular matter at issue: had he done so we could have been spared a great deal of confusing huffing and puffing. While my specific point was (and nothing else) that Chandra has frequently misrepresented Adam Smith’s analysis of the meaning and implications of the phenomenon of division of labour, attributing to Smith an unduly crude and limited understanding, Chandra has inconveniently chosen in these “Comments” to wrap up anything he has to say on that subject in a mass of irrelevant argument and assertion.

In seeking to disentangle Chandra’s answers to the charges I advanced, I arrive at the following conclusions.

(1) He still holds to the idea (apparently on the authority of Allyn Young) that it was “job or craft specialisation (rather than *industrial* specialisation) which Smith mostly had in mind”. He does not, in other words, acknowledge Smith’s own explanation that the pin factory illustration of individual specialised workers under one roof was chosen to make especially vivid the effects of the less obvious specialisation of people in all the different branches of industry in different workplaces across the economy. (As Marx, referring to Smith, put it, “in the case of the pin manufacture (we) can see all the numerous operations being performed on one spot, while (more generally) the spreading-out of the work over great areas and the great number of

people employed in each branch of labour obscure the connection”.) There can be no doubt that Smith fully recognised the phenomenon of what Marx called the “social division of labour” as distinct from “the division in manufacture” – i.e., the division of labour “in detail” as on the shop-floor of the pin-making factory.

(2) Despite interpreting Smith as emphasising craft division of labour at the workshop level, Chandra (although quaintly phrasing it that “various arts and crafts have to join hands”) does accept (he has to) that Smith recognises the cooperation of different trades and activities as in the manufacture of the famous “woollen coat”, and does (now) allow that “Smith did recognise the social division of labour in the form of subdivisions of occupations and crafts arising out of the growing market”. But he seems curiously reluctant to admit that such specialisation amounts to “industrial specialisation”. Thus discussing “the process of subdivision of various arts and crafts as the size of the market expands” he writes that “with the advancement of the division of labour not only different trades come into being, but within a trade there is further subdivision. Thus the idea of social division of labour is very much present in Smith but is mostly confined to the splitting of occupations and trades, and not much to the process of industrial specialisation”. That takes some swallowing. A question to Chandra: how does he define what he calls “industrial specialisation” *as distinct from* the specialisation of different workers according to “occupations” or “trades”, “employments” or “branches of labour”, as recognised by Smith?

(3) As regards inter-industry interaction, I had objected to Chandra’s assertion that Smith’s analysis “was essentially partial”, making the criticism, as he puts it, that he (Chandra) “(did) not recognise the idea of Say’s Law or reciprocal demand in Smith”.

Chandra now seems to have shifted his position somewhat on this matter, not only now allowing that, in the *Wealth of Nations* “the surplus of a workman constitutes a demand for the products of other workmen”, but also acknowledging that “the idea of circular cumulative causation or disequilibrium is implicit in Smith’s theory of economic evolution” - although commenting that Smith “did not fully develop the idea (of cumulative causation)”. While we take Chandra’s point that Smith did not develop as fully as Young was later to do the idea of cumulative process of growth, it nevertheless rather seems that Chandra, in now recognising that Smith did appreciate how rising productivity and incomes in one sector could impact on others by creating demand for their products, has come closer than before to agreeing that Allyn Young’s famous proposition that the “division of labour depends on the division of labour” can be read as an explicit statement of an idea that is in fact implicit in Smith’s own discussion of division of labour.

All I am asking of Chandra is that he acknowledge (without taking anything away from Allyn Young’s particular contribution) that, fundamental to Adam Smith’s theory of economic growth as expounded in the *Wealth of Nations* was the understanding that enhanced specialisation or division of labour at different levels, not only at the level of the individual workman, but also, less obviously but more importantly, at the level of particular “branches of employment” was the key to higher productivity of labour, with increasing specialisation being associated with the growth of income, and that, in the process of growth, a higher degree of specialisation and productivity in one industrial sector could be expected to impact positively on others, so that “as . . . a more extensive market is offered to every sort of industry . . . every sort of industry naturally begins to subdivide and improve itself”.

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