

Graduate Journal of Social Science

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**Special Issue Graduate Journal of Social Science:
‘How Well Do ‘Facts’ Travel?’**

It is often assumed that a fact is a fact is a fact, yet those who work across disciplinary boundaries are well aware that the life of a fact is not so simple. Even everyday experience suggests that, like gossip, facts that travel rarely remain stable. This special issue comprises four papers analysing how well “facts” travel between and within social contexts, and why evidence considered acceptable in one context retains or loses its status in another. Each paper focuses on a different type of vehicle for the travel of facts: Albane Forestier discusses *infrastructure*, such as institutions helping commercial information to spread across the world; Julia Mensink studies the role of *common measures* in disseminating facts about poverty; Aashish Velkar considers the *standards* used to communicate facts about grain quality; and finally, Ashley Millar analyses the recycling of *ideas* that characterised European accounts of Chinese political economy in the eighteenth century.

The study of how factual knowledge travels through space, time and cultures yields rich insights on what makes specific facts more or less likely to be adopted by contexts other than the ones in which they were first produced. However, adopting this perspective also involves resolving difficult methodological questions. For instance, are ‘facts’ an actor category? And if not, how



can social scientists individuate and follow factual knowledge as it shifts from context to context and transforms itself as a result? What kind of interdisciplinary approach is needed? And what specific tools are available and recommendable for this purpose? Each of the papers in this issue embodies a different approach to these questions, which could potentially inspire and inform future work on the travel of 'facts'.



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Introduction: How Well Do ‘Facts’ Travel?

Facts are foundational objects of academia and science, more broadly we live in an information age where facts are everywhere. Given this, it might be assumed that facts travel easily over time and from one domain to another (from physics to biology, from economics to history, from academia to policymakers or to the public), that their travel is without complication. However, some simple reflection reveals that this is not the case – an obvious recent example would be the debate in the USA over climate change, where scientific facts about climate change found great difficulty in travelling successfully into the political domain. Thus, whilst it is often assumed that a fact is a fact is a fact, those who work across disciplinary boundaries are well aware that the life of a fact is not so simple. Our research project, ‘How Well Do Facts Travel’¹, was designed as a ‘blue skies’ programme to think in broad terms about this issue. Its aim was to analyse how well facts travelled between and within disciplines and to examine why a fact considered acceptable in one context retains or loses its status as evidence in another. Our approach was via a body of case work. As well as the climate change one above, other examples investigated by the project include: technology transfer in rural India, cases as ‘fact carriers’ in contemporary medicine, the travel of facts about Ancient Greek architecture to nineteenth century architecture in the USA, the travel of small facts in bioinformatics, the travel over time of the ‘Alpha Male’ fact in romance novels, and how facts about rat pathology related to crowding travelled into many other domains.

We have found that in asking “How well do facts travel?”, in looking for answers in the

¹ The project is hosted by the Department of Economic History at the London School of Economics and is funded by the Leverhulme Trust and ESRC (F/07004/Z, held at the Department of Economic History).



travels of facts (rather than knowledge flows more generally), and in focusing attention on the facts themselves (rather than on the people and communities through which they pass), that some facts do indeed travel far and wide. And their trajectories are so extraordinarily varied and sometimes so surprisingly unexpected that we feel justified in saying that, just like some experiments and models in science, facts acquire an independent life of their own. The extent of such travel has in turn raised its own puzzles. In travelling to other spheres and in being used to address other questions, we find that facts may grow in scope, sharpen or become more rounded, they may acquire new labels and fulfil new functions, even while they maintain a strong hold of their integrity. It is through these processes that facts produced in one locality come to speak with authority to other questions, even to other fields, times and places. Thus, by following these independent lives of facts, we find answers not just to the question “How well do ‘facts’ travel?” but to understand how it is that facts come to play foundational roles in situations others than those of their production.

The papers in this volume are all based in social science history, by PhD students who chose to become members of this research project. That is, they were not commissioned as part of the “Facts” project (though one, Julia Mensink, was funded by the project), but gravitated towards the project because of their research interests. Three were undertaken in our Department of Economic History, while Ashley Millar began in our department, but subsequently transferred to International History. In each case the association of the graduate student with the ‘Facts’ project has come to influence some of the questions they have asked and the way they have set about answering those questions - as their papers in this volume illustrate. Albane Forestier is studying the commercial and social networks that linked French and British merchants in the eighteenth century to opportunities in the West Indies. Given the issue of geographical distance, the need for commercial facts (which included everything from price information to facts about potential partners and clients) to travel well was central to these networks. As her study shows, travelling facts in this context had to overcome potential problems such as information asymmetry and moral hazard; she also shows the importance of acknowledging the social embeddedness of the facts. Ashley Millar’s work is



also concerned with the eighteenth century but she tackles a very different problem: how did facts about China's political economy travel to France and Britain, and in particular how were those facts presented and recycled over time in the two European powers by different groups. Her main focus is on the relationship between what she terms 'primary facts' and the claims attached to them, which she then uses to provide a more nuanced account of the debate between Sinophobic and Sinophilic Europeans than has hitherto been presented. Aashish Velkar, who was recently awarded his PhD, moves forward in time to nineteenth century Britain to investigate how facts about the quality of wheat travelled through time and across groups. He addresses how markets captured facts about wheat quality *ex-ante* and how they ensured that these facts travelled effectively between different market groups (from initial farmer to final consumer). The story is in part an institutional one concerned with how facts were standardized and to what extent this helped or hindered their travel. Finally, Julia Mensink brings us into the twentieth century by examining the emergence of the Human Development Index in the 1990s and the ability of the facts it embedded, especially those related to poverty, to travel well and widely. The existing HDI literature has focused on technical issues related to the HDI measure itself but her study asks how well the measure has travelled, in particular from the production domain to the usage domain. The study also uses an innovative 'product approach' analysis that allows for a complex appreciation of the issues involved, for example to explain why the success of the travel of the HDI has varied according to user.

This "Facts" project was social science research conducted on a natural science model, for these four researchers were members of a larger team of post-docs and faculty. They gained much from their association with a bigger research project: a set of questions, many ways of answering them, comparative cases, and an international network of scholars who came for workshops. But the project as a whole gained immensely from the PhD student participation in developing its agenda and its conceptual resources. If you want to know more about the 'How Well Do Facts Travel' research programme, which was recently 'Highly Commended' as Research Project of the Year at the *Times Higher Education Awards* 2008, please visit our



website at: <http://www.lse.ac.uk/collections/economicHistory/Research/facts/Default.htm>.

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Authority and Parenthood: how facts on China's political economy travelled to and within Europe during the Enlightenment

'The fantasies of one age are often the facts of another; contrariwise, the facts of one age sometimes become the myths of another. Nowhere is the truth of these aphorisms more clearly illustrated than in the revelation of Asia to Europe'

--- Donald Lach¹

This paper will examine the importance of authority and parenthood in the travelling of facts on the China's political economy during the European Enlightenment. The paper does not deal with the methodological questions involved with establishing a definition of a fact, but rather focuses on an examination of the nature and implications of the travelling of information and views on China from their original authors (namely, missionaries, merchants and emissaries) to recipients (in the form of scholars and popular authors). Adopting the approach developed by the 'How Well Do 'Facts' Travel?' research project, the paper takes as its working definition of a fact that which was perceived as a fact by the groups being studied: as the Enlightenment authors frequently refer to 'facts' in their own writing, this paper accepts their language in investigating how such facts travelled.²

In examining the case of the circulation information about China's political economy in eighteenth century Britain, this paper explores the relationship between primary facts and the conclusions carried with and drawn from them. Primary facts – on topics ranging from manufacturing to agriculture, trade policy, general wealth, and economic culture – are pieces of

¹ Donald F. Lach, *Asia in the making of Europe* (Chicago: University of Chicago Press, 1965), Volume 1, Book 2, 822.

² For a philosophical examination of images of China and the relationship between knowledge, belief and myth, see Jamie Morgan, "Distinguishing Truth, Knowledge and Belief: A Philosophical Contribution to the Problem of Images of China" *Modern China* 30, 3 (2004): 398-427.

information that were transmitted by primary sources. They then travelled largely through the form of publications to scholarly and popular authors in Europe and were continuously recycled.³

These groups of actors each had their own purpose, agenda and use for the facts. The respective primary sources of information, namely the missionaries, merchants and emissaries, all had varying motivations and loyalties in mind when constructing and transmitting facts about China's political economy. The most influential missionary group active in China were the Jesuits. Although they were often viewed as being Sinophilic (excessive admirers of China) by their contemporaries, and indeed by modern authors, they undoubtedly provided European scholars and popular authors with a wide variety of primary facts on the political economy of China. The missionaries and emissaries, on the other hand, were often labelled as Sinophobes (those who disdained China), and are perceived to have provided an alternative set of facts about China. However, this paper argues that these two sources merely offered different conclusions, presentations and interpretations of what was essentially the same set of primary facts. On the receiving end in Europe, scholars who included China in their writings tended to manipulate the available primary facts to fit their arguments and frameworks of analysis. Further, the expanding role of popular writers (geographers and historians) during the Enlightenment underlines the increasing complexity in respect of how various sources of information were assessed. This growing complexity results from a widening and deepening knowledge of the world, as well as a shift to a market-oriented knowledge economy.

Views of China in this period tended to gravitate towards either Sinophilia or Sinophobia. While these two perspectives were antithetical, authors on both sides often drew on the same primary facts. This is not just a dichotomy set up by modern historians, but was also recognised at the time:

the learned seem to differ widely in their ideas respecting [the Chinese]. By some they have been extolled as the wisest and most enlightened of mankind; while others, perhaps equally, if not more remote from the truth, have exhibited them in the most contemptible point of view, and represented them as a despicable people,

³ This paper will primarily focus on Britain, where the popular authors played the largest role. It also includes discussion of important primary and scholarly sources from Holland, France, and Spain.

deceitful, ignorant, and superstitious, and destitute of every principle of human justice.⁴

As primary sources of information, the Jesuit missionaries and the merchants were respective representatives of these two categories. In assessing the facts, the popularisers and scholars took a stance on which group was the most trustworthy and were often explicitly critical of the other group. Interestingly, even in cases where the validity of the facts met with scepticism, the information still tended to be diffused. This reflects the unique nature of how facts travel in an environment where the receivers (and recyclers) have limited access to alternative sources of primary information.

This paper concentrates on facts on China's political economy. These facts were deemed to be more 'hard' than those on religion or Chinese culture, particularly as the missionaries were perceived as having little incentive to be deceptive about aspects of China's political economy. As a contemporary editor of a popular compendium commented: 'We have no reason to distrust the fidelity of the [Jesuit missionaries] in their various relations, except where the religion or particular interest of the Jesuit order is concerned.'⁵ Further, China is a particularly **elucidating** case, given its isolation from Europe. Unlike India, where East India Company merchants spoke Persian and intermarried, non-Jesuits had limited access to China's inner-workings, and as such the primary pool of facts can be more clearly isolated.

From China to Europe

In the early modern world, facts travelled from China to Europe through the accounts of missionaries, emissaries and merchants. In this first phase of travelling, the varying motivations of the authors, in addition to their contrasting exposures to different elements of China and its people, meant that these groups had varying agendas and accessibility to information thus limiting the production and transmission of primary facts. The initial assessment of facts on

⁴ Translators Unknown, Translator's Preface in Jean-Baptiste Grosier. *A general description of China: containing the topography of the fifteen provinces which compose this vast empire;*... Translator unknown. (London: Printed by G.G. and J. Robinson), iv.

⁵ Unknown. *The Chinese traveller, Containing a geographical, commercial, and political history of China. ... To which is prefixed the life of Confucius, ...* Vol. 1 of 2. (London: Printed by E. and C. Dilly, 1772), iv.

China during the Enlightenment was shaped by the type and quantity of information that trickled to Europe during the preceding era. The most important travellers' account during this period, which provided Europe with primary facts on China prior to the missionaries, was Book II of Marco Polo's *The Description of the World* (written with Rustichello of Pisa as *Livre des diversité* in 1298-99).⁶ This work was one of the first widely read and original accounts of China by a European traveller. Polo was clearly impressed by China's wealth, providing an 'account of Cathay as the largest, wealthiest, and most populous land of the thirteenth century'.⁷ Interestingly, Polo was still influential by the eighteenth century, despite many of his facts having being discredited.⁸ Samuel Derrick defends the inclusion of Marco Polo in his eighteenth century travel collection:

the most weighty objection that has been made against this writer, is the improbability that appears to be scattered thro' his work; but that this argument does not in the least invalidate the performance, will be evident from considering that many parts of it, which wore once the air of invention, have been proved real from unquestionable authorities of later date.⁹

This defence was necessary as most readers had become weary of the accounts of early travellers to China, as evinced in another compendium, *The Chinese Traveller*. It pointed to John Albert de Mandelslo's account of China from his 1640 trip, which included descriptions of unicorns and twenty-four stone oysters.¹⁰ Indeed tales such as these made observers weary of reports, and new facts on foreign lands. George Psalmanazar (1679-1763), who falsely claimed to be an inhabitant of the East Asian island of Formosa visiting Europe, published an account of 'his birth land', entitled *An Historical and Geographical Description of Formosa, an Island subject to the Emperor of Japan* (1704). He managed to convince many British (despite the protests of the

⁶ Moule and Pelliot discuss the various names under which this work was known. AC Moule and P Pelliot. *Marco Polo: The Description of the World* (London: George Routledge and Sons Ltd, 1938), 32.

⁷ Lach, Volume 1, Book 1, 36.

⁸ For instance, Polo was criticized for 'exaggerating' the practice of Tartars slaughtering innocents after the death of their Khan in John Green (most likely the editor). *A new general collection of voyages and travels* 4 Volumes (London: Printed for T. Astley, 1745-47), 405.

⁹ Samuel Derrick. *A collection of travels, thro' various parts of the world; but more particularly, thro' Tartary, China, Turkey, Persia, and the East-Indies* 2 Volumes (London: Printed for John Wilkie, 1762), Volume 1 of 2, 56-7; John Harris, (updated by John Campbell), *Navigantium atque itinerantium bibliotheca. Or, a complete collection of voyages and travels...* (London: Publisher Unknown, 1744-48) Volume 1 of 2, 545 makes a similar point about the relevance of Marco Polo's work.

¹⁰ *Chinese traveller*, v.

Jesuit missionaries who worked in Asia) of the truth of his account. Upon his confession in 1706 that, in fact, he had never been to Asia, the British public was made acutely aware of the ease with which they could be deceived.¹¹ Thomas Salmon, an editor of a popular compendium of the eighteenth century, aptly articulated the sentiment of the age:

Since the world is no longer to be amused with the fabulous relations of travellers and historians, any more than with the dreams of superstition and enthusiasm; an attempt to distinguish truth from fiction, and to discover the certainty of those accounts we have received of distant nations, it is presumed, will not be unacceptable in this discerning age.¹²

It was in the beginning of this ‘discerning age’ in the sixteenth century and rising throughout the seventeenth and eighteenth centuries that the main providers of the primary facts on China, namely the missionaries, merchants and emissaries began to report first-hand accounts of the Chinese Empire.

The most important group was the Jesuit missionaries. As pivotal filters of information, the Jesuits’ motivations and actions are integral to understanding the history of knowledge on China in early modern Europe. The Society of Jesus was founded in 1534 and officially confirmed by Pope Paul III six years later. The Jesuit Matteo Ricci (1552-1610) established their first mission in China in 1583 and reached Peking in 1601. The Jesuits recognised upon their arrival in China that it ‘...was more than a state. She was a world unto herself, and a closed world’.¹³ They were, however, able to pry their way in through use of their wide-ranging diplomatic and linguistic skills, religious understanding and scientific knowledge. The work of the Jesuits to reduce the language and cultural barriers enabled relationships to be formed with the Chinese imperial court and literati, so that by the seventeenth century they could attempt to understand China’s ‘inner

¹¹ However, Psalmanazar managed to maintain a good reputation, and became one of the main contributing editors to *An Universal History from the Earliest Account of Time to the Present* (1736-1768), one of the most popular books of its time. Tamara Griggs. “Universal History from Counter-Reformation to Enlightenment.” *Modern Intellectual History*, 4, 2 (2007): 229. As his confession did not receive much attention, his reputation as a Formosan was still being defended decades later: Patrick Barclay. *The universal traveller: or, a complete account of the most remarkable voyages and travels of eminent men ...* (London: Publisher Unknown 1735), 604.

¹² Thomas Salmon. *Modern History: Or, the present state... Illustrated... by Herman Moll...* 3 Volumes (London: Printed for M. Bettesworth, 1739) introduction to the octavo edition (1724), Volume 1 of 3, p. ix

¹³ George H. Dunne. *Generation of Giants: The Story of the Jesuits in China in the Last Decades of the Ming Dynasty* (Notre Dame, Ind.: University of Notre Dame, 1962), 10.

spirit', analysing its moral and political dimensions.¹⁴ The nature of the Jesuit sources changed over time with varying narrative biases stemming from events in both Europe and China. Ricci's diaries were expanded and published (1615) by Nicolas Trigault, S.J. (1577-1629), making it the first major source of primary facts on China since Marco Polo that was authored by somebody who had travelled to or lived in China.¹⁵ Although running fewer editions than other sources, this book was extremely influential as 'It was almost universally cited by scholars who mentioned China, and it was regularly pilfered by later authors and publishers'.¹⁶ Trigault argued this work had a unique perspective and a special claim to authority because, for the first time, the author had lived in China for an extended period (over thirty years), had travelled around it, spoke the Chinese language, read their literature and discoursed with their citizens.¹⁷ This claim to authority would become prominent in the debate over the accuracy of primary facts provided by the Jesuits relative to those from merchants and emissaries.

It was not the principal aim of the mission to provide the European public with information on China; but this role evolved out of the need to receive moral and financial provisions from Europe and ultimately to cultivate support for their position in the Rites Controversy.¹⁸ The Chinese Rites Controversy was a debate about whether specific Confucian traditions, such as worshipping ancestors, were civic rather than religious ceremonies. If they were considered the former, as the Jesuits maintained, they would be compatible with Catholicism, but if they were deemed religious then the Church would ban them and ultimately any converted Christian would not be able to practice such cultural rites. During the height of this controversy the Jesuits had to defend themselves on several fronts from outside and within the Catholic Church, from the Jansenists, the Société des Missions Étrangères, other missionary orders such as the Franciscans and the Libertines who argued against the political position of the Church in Europe. Some of

¹⁴ Raymond Dawson. *The Chinese Chameleon: an analysis of European conceptions of Chinese civilization* (London: Oxford University Press, 1967), 35; Lach, Volume 1, Book 1, 794.

¹⁵ 4 Latin editions, 3 French editions, German, Spanish, Italian and having English excerpts reproduced in Samuel Purchas. *Hakluytys Posthumus or Purchas His Pilgrimes Contayning a History of the World in Sea Voyages and Lande Travells by Englishmen and others* (London: 1625).

¹⁶ Lach, Volume 3, Book 1, p. 513; Matteo Ricci and Nicolas Trigault. *China in the Sixteenth Century: the journals of Matthew Ricci: 1583-1610 [The compilation by N. Trigault]* Translated by Louis J. Gallagher (New York: Random House, 1953), xvii.

¹⁷ Ricci and Trigault, 5.

¹⁸ D.E. Mungello. *Curious Land: Jesuit Accommodation and the Origins of Sinology* (Honolulu, Hawaii: University of

Hawaii Press, 1989), 207; Dawson discusses the changes in the Society even though the organisation and central tenants remained the same, Dawson, 38-9; Wolfgang Franke. *China and the West*, Translated by R.A. Wilson (Oxford: Basil Blackwell, 1967), 64.

these missionary orders had produced their own primary information on China. For instance, in 1676 the Dominican friar Domingo Fernández Navarrete (c.1610-1689) published an account based on the time he had spent in China. Popular authors into the late eighteenth century referenced this account. Navarrete also attacked the Jesuit position in the Rites Controversy.¹⁹ The presentation of information on China, therefore, became increasingly sensitive to the European context. Their publications, particularly their popular *Lettres Édifiantes et Curieuses* (1702-1776, translated into English) were edited for clarity, security and reasons of censorship. Ultimately the Rites were condemned by Rome in 1704 (confirmed in a papal bull in 1715), and eventually contributed to the temporary demise of the Society of Jesus.

As a result of the Rites Controversy, Jesuit sources were increasingly questioned and attacked in Europe. For instance, Louis Le Comte's, S. J. (1655-1728) widely read *Nouveaux mémoires sur l'état présent de la Chine* (1696, published in English in 1737) was burned at the Sorbonne in Paris. Nonetheless, many were still consistently cited in the secondary literature of the time, particularly Jean-Baptiste Du Halde's, S.J. (1674-1743) *Description de la Chine* (1735, published in English 1736). Du Halde's work despite being a compendium of primary information, as he had never travelled to China, is considered a source of primary facts because as a Jesuit he had access to unpublished Jesuit reports, and it was considered to be the source of new, credible information about China for much of the eighteenth century. Most historians recognise that writers on China from the middle to late eighteenth century from popular authors to Adam Smith necessarily consulted Du Halde.²⁰ Samuel Johnson (1709-1784), an English literary figure, in an essay entitled *Letter on Du Halde's History of China* (1738) published in *Gentleman's Magazine*, notes '[t]here are few nations in the world more talked of, or less known, than the Chinese,' and he thanks Du Halde for completing the most accurate account of China available.²¹ It is clear that in spite of the controversy surrounding the positions held by the Jesuits in various debates on China, for many they were still considered to be reliable sources of information on China.

¹⁹ See J. S. Cummins. *A Question of Rites: Friar Domingo Navarrete and the Jesuits in China* (Cambridge: Scolar Press, 1993)

²⁰ Otto Berkelbach and Van der Sprenkel. "Western Sources" in *Essays on the Sources for Chinese History*, edited by Donald D. Leslie, Colin Mackerras and Wang Gungwu Editors (Canberra: Australian National University, Press, 1973), 158; Paul A. Rule. *K'ung-tzu or Confucius? The Jesuit interpretation of Confucianism* (Sydney: Allen and Unwin, 1986), 185; Walter W. Davis, "China, The Confucian Ideal, and the European Age of Enlightenment." *Journal of the History of Ideas*, 44, 4 (1983): 538.

²¹ Samuel Johnson. "Letter on Du Halde's History of China" (1738) in *The Works of Samuel Johnson, Vol. 6*, by Samuel Johnson: *Reviews, Political Tracts, and Lives of Eminent Persons* (1825 Oxford edition) Project Gutenberg, 2003.

Surprisingly, as they were deemed Sinophiles and their main arguments were nearly always in praise of China, the Jesuit sources did offer a variety of primary facts on China's political economy, both positive and negative. For instance, the aforementioned Trigault offers two sides to the picture of the activity on China's rivers and canals. First he argues that 'In [his] opinion it might be said with greater truth and without fear of exaggeration, that there are as many boats in this kingdom as can be counted up in all the rest of the world'.²² However, after this bold claim, he notes the Chinese cannot match Europeans in terms of sea faring ships. Underlining such strengths and weakness shows the Jesuit source to be rather nuanced in its assessment of China. *De Christiana expeditione* is the first important text to critically assess Chinese goods. For Trigault, 'the Chinese are a most industrious people' and due to their raw materials and natural 'talent for trading' they have 'a high development of the mechanical arts'.²³ However, he notes the imperfection of their goods stemming from the low expectations of Chinese buyers: '[The producer's] labour is guided rather by the demand of the purchaser who is usually satisfied with a less finished object'.²⁴ Further evidence of China's ample raw materials and industriousness is offered by Trigault's report that enough cotton – a crop he believes was only introduced to China forty years earlier – 'could be grown in China to supply the whole world'.²⁵ Once again Trigault qualifies his approbations. In comparing the Chinese and European silk manufacture, he determines the 'latter may be of higher quality'.²⁶ In distinguishing between quality and quantity of production, Trigault introduces a criticism of Chinese goods that becomes predominant in future works discussing China's political economy. This observation is of particular interest because it contradicts the many scholarly and popular sources in Europe that argued the Jesuit writings too highly extolled the Chinese and believed non-missionary reports were more balanced in their assessments.

The second group that had the capacity to provide primary facts on China were the merchants and emissaries. The attempts to open China up to trade provided ambassadors from states such as Russia, the Netherlands, France, and England as well as representatives from their respective East India Companies, and other explorers and merchants on the ground, with the opportunity to

²² Ricci and Trigault, 12-13.

²³ Ibid, 19.

²⁴ Ibid, 19.

²⁵ Ibid, 13.

²⁶ Ibid, 13.

claim their own authority in providing primary facts on China. The merchants dramatically outnumbered the Jesuits. Between 1552 and 1800 there were only 926 Jesuits in China. As early as 1563 there were already 700 Portuguese on Macao.²⁷ However, in spite of their larger numbers, the merchants and emissaries, unlike the Jesuits, had not mastered the Chinese language, and had no contact with the Chinese literati that educated the Jesuits on Chinese literature and science. Merchant traveller accounts increased in the seventeenth century, and although they offered less insightful commentary, many were continuously referred to, or seemingly had a transformative effect on European thought.

The reports from European merchants and seamen who encountered Chinese in the East Indies or along the China coast from the late sixteenth century onwards often reflected their authors' lack of knowledge of the Chinese language, Confucian ethic and Buddhist theology. Though they could offer important and interesting facts about their own voyages and encounters, their insight and knowledge of China itself was very limited. They typically expressed little admiration towards China and they described the merchants and officials they encountered as avaricious and untrustworthy. Unlike the Jesuits, whose policy of cultural accommodation allowed a greater (though in no way complete) view of Chinese society, the European merchants judged China by their own frame of reference and were typically exposed only to the class of merchants, sailors or low officials, who themselves did not necessarily understand the subtleties of Chinese culture, or the diversity and history of the empire. However, even on the topic of Chinese morality and economic culture, where they are thought to have differed the most, they in fact provided a similar pool of information about the variety of behaviour in the empire. For instance, the account of Captain George Anson's *Voyage around the World* (1748), written by his chaplain Richard Walter, describes the surprise at Chinese fisherman's 'inattention and want of curiosity' in their 'uncommon and extraordinary' European vessel. He also describes how 'interest indeed is known to exert a boundless influence over the inhabitants of that Empire'.²⁸ From this he concludes that whether an 'effect of nature or education...it is an incontestable symptom of a mean and contemptible disposition, and is alone a sufficient confutation of the extravagant panegyrics, which many hypothetical writers have bestowed on the ingenuity and capacity of this

²⁷ Arnold Rowbotham. 'The Impact of Confucianism on Seventeenth Century Europe'. *The Far Eastern Quarterly*. 4, 3 (1945), 50.

²⁸ George Anson and Richard Walter *Voyage round the world...* 3rd edition. (Dublin: 1748) 364 and 373.

Nation.’²⁹ However, he also refers to a meeting with a Chinese carpenter that he was ‘a person of very considerable parts, endowed with more frankness and honesty, than is to be found in the generality of the Chinese’.³⁰ Even given their differences in exposure and the Jesuits provided a more contextualised point of view, they nonetheless also reported a nuanced view of the Chinese character. For instance, Du Halde gave an example of a Chinese man trying to sell bad silks to a European merchant and commented on this ‘ingenuity in Fraud’. However, he does note that this is ‘principally observ’d among the vulgar’. He also describes the well-known extreme self-interest of the Chinese but notes they are not as ‘deceitful and knavish’ as the Jesuit Le Comte paints them, thus referring to disagreement amongst the Jesuits.³¹ Both sets of sources reflected the variation in China. While the merchant sources are claimed to have ‘added the shadows to the frequently over-idealised picture painted by the Jesuits’³² they merely constructed a limited package of similar primary facts, which were also found in Jesuit sources.

In the seventeenth century, merchant accounts from China were primarily Dutch, as the Netherlands began to dominate the China trade.³³ One of the most widely cited and translated works was Johan Nieuhof’s *An Embassy from the East India Company* (1665, published in English 1669). Nieuhof’s work was based on a Dutch East India Company delegation to China, which he took part in from 1655-57. Apart from the numerous anecdotes of his trip, a large amount of his description of China came from the published works of the Jesuits Trigault, Martino Martini (1614-1661) and Alavaro Semedo (1586-1658).³⁴ This is a clear example of how the parenthood of particular facts could be confused or lost.

²⁹ Ibid, 365.

³⁰ Ibid, 377.

³¹ Jean Baptiste Du Halde. *The general history of China. Containing a geographical, historical, chronological, political and physical description of the empire of China* 4 volumes. (London: Printed by John Watts, 1736), Volume 2, 133, 136, 132.

³² Donald F. Lach, and Edwin J. van Kley, *Asia in the making of Europe Volume 3* (Chicago: University of Chicago Press, 1993), 1568.

³³ The Dutch fort in southern Taiwan was established in 1624, and though they were anxious to trade with China, the embassies they sent to Peking in 1656, 1667 and 1685 all failed.

³⁴ Dutch authors wrote compendiums based on these types of reports. Olfert Dapper, a Dutch physician, compiled reports in his 1670 encyclopaedic compendium on China entitled *Atlas Chinensis* (also translated into Dutch, German and English in the seventeenth century). The work covered Dutch relations with China in the seventeenth century and drew largely from Jesuit sources for its general description of China. It was a popular work and was used in many eighteenth century collections of voyages. For more information see John E. Wills, Jr. *Embassies and Illusions: Dutch and Portuguese Envoys to K’ang-hsi, 1666-1687* (Cambridge: Harvard University Press, 1984)

By the eighteenth century, British travellers and merchants made the largest contribution to expanding non-missionary accounts of China. Anson's *Voyage* contributed to the thinking of Charles de Secondat, Baron de Montesquieu's (1689-1755), Denis Diderot (1713-84) and Jean-Jacques Rousseau's (1712-1778).³⁵ The popularity of this work is striking as the first edition had over 1800 advanced subscribers, by 1776 there had been fifteen editions in Britain alone and it had been translated into French, Dutch, German and Italian with extracts also printed in *Gentleman's Magazine*.³⁶ Expressing the frustration of trying to deal with Chinese merchants, it is argued to be the 'first full-scale attack on the rosy images of China which the French Jesuits were pushing'.³⁷ This claim is based, in part, on Anson's criticism of Chinese manufacturing, claiming their goods were inferior to those of Japan or Europe.³⁸ However, Trigault and Ricci made this point much earlier. There is also evidence of Anson being impressed with China's political economy in his description of the vastness of the empire, and his interest in the amount of ships (for domestic fishing) around Macao, which he believed 'seemed to cover the surface of the sea as far as the eye could see'.³⁹ On the primary facts of China's political economy, this account, held to be one of the strongest critiques of China during its time, does not offer any radical new evidence. Further, the explorer's limited contact with the Chinese is apparent, as stated in the account of his voyage: 'we could have no communication with [the Chinese] but by signs.'⁴⁰

The primary sources of information then offered a similar pool of nuanced facts on China's political economy. The emissaries and merchants, whose aim was to increase trade with China, were argued to have provided new facts, but in reality they had very little access to China. Most of the merchants' dealings were limited to coastal encounters with Chinese merchants, and the majority of emissaries knew and spent so little time in China that they had to rely on the Jesuits as translators. The missionaries, whose purpose was to convert the Chinese to Christianity, used their monopoly on information to engender support for their mission in China. The travelling of primary facts from China to Europe created a space for dissent about their nature, quality and interpretation. Though the Jesuits, emissaries and merchants offered a similar package of primary

³⁵ Michael Adas. *Machines as the Measure of Men: Science, Technology and Ideologies of Western Dominance* (Ithaca: Cornell University, 1989), 90.

³⁶ Colin Mackerras. *Western Images of China* (Oxford: Oxford University Press, 1989), 47.

³⁷ *Ibid*, 43.

³⁸ Adas, 92.

³⁹ Anson, 364

⁴⁰ *Ibid*, 364.

facts on China's political economy, they often disagreed on the implication of said facts, or how they fit into a wider view of China. The receivers in Europe picked up on these differences.

Recycling the Facts

In the second phase of travel, facts were used and presented by scholars and popularisers, who also had their own agendas, and different approaches to their use of primary facts. The relationship between the arguments of scholars and their use facts varied, but generally the scholars tried to fit the facts into their predetermined frameworks, models or theories, which in turn influenced the selection of primary sources they drew on. For instance, Roy Campbell and Andrew Skinner, describe Adam Smith's (1723-1790) 'use of history':

As always, Smith's desire to devise a major intellectual system determined the use he made of historical and factual material. No one of his intellectual eminence would distort the facts, even if only because refutation would thus have been infinitely easier, but, even when facts were not distorted, they may still have been used in such a subordinate and supporting role to the dominating systematic model that their use for any other purpose needs qualification.⁴¹

In short, 'he worked from the system to the facts not from the facts to the system.'⁴²

However, this prioritisation did not mean the scholars were not concerned with an explicit assessment of the parenthood and authority surrounding the facts. Although they tended to rely on the sources whose claims were most in line with their own, some were acutely aware of the use, and misuse of facts. Guillaume Thomas François Raynal (1711-1796) explicitly attempts a reconciliation of the views of the Jesuit and merchant sources by noting that they were describing different parts of China:

⁴¹ Roy Harold Campbell and Andrew S. Skinner. "Preface to Adam Smith's *An Inquiry Into the Nature and Causes of the Wealth of Nations*" in *The Glasgow Edition of the Works and Correspondence of Adam Smith* Edited by R. H. Campbell and A. S. Skinner (Indianapolis: Liberty Fund, 1981)

⁴² Ibid.

China may be considered in two distinct points of view. If we study the inhabitants as they appear in the sea-ports, and great towns, we shall be disgusted at their cowardice, knavery and avarice: but in the other parts of the empire, particularly in the country, we shall find their manners domestic, social and patriotic.⁴³

This is a remarkably accurate and forgiving insight, especially because the primary authors did not admit their respective biases.

Often Sinophobic scholars were vehement critics of the Jesuits; yet, out of necessity, they still relied on them for primary facts. This is seen clearly in Montesquieu's approach to facts on China. In a published letter to Abbé Count de Guasco, written in 1755, Montesquieu describes the dispute he had with Jean-Jacques d'Ortous de Mairan over the different presentations of China. The editor of the English edition published in 1777 notes:

These two learned gentlemen did not agree in some points relating to the Chinese, in the favour of whom Mr. de Mairan declared, on the authority of Father Pararin, a Jesuit's letter, of whose veracity M. de Montesquieu doubted not a little. As soon as the voyage of Admiral Anson appeared, Montesquieu triumphantly exclaimed 'I had always said that the Chinese were not such very honest men, as the missionary Jesuits would fain make us to believe them through the channel of their edifying letters'.⁴⁴

Montesquieu appears to have been waiting for a source to confirm his suspicions, thus not working *from* the facts. He has chosen to rely on Anson, whose only original facts arose from relatively trivial and circumstantial encounters, over the Jesuit sources who had a much longer and more intense interaction with the Chinese. Despite Montesquieu's argument about the bias of the Jesuit sources, in the following paragraph he refers to a Jesuit source to support his argument on the despotic nature of the Chinese government: 'It is the cudgel that governs China, says

⁴³ Guillaume-Thomas-François Raynal. *A philosophical and political history of the settlements and trade of the Europeans in the East and West Indies*. Translated by J. Justamond. (London: Printed for T. Cadell, 1776) 103

⁴⁴ Charles Louis de Secondat, Baron de Montesquieu, *The Complete Works of M. De Montesquieu* 4 Volumes Translated by T. Evans (Printed for T. Evans and W. Davis : London, 1777) Volume 4 *Familiar Letters...*, Letter Lvii (written Paris, 1755), Editor's Footnote.

father Du Halde'.⁴⁵ In fact he cites Du Halde several times on topics ranging from the Chinese gain in trade from sugar, the origins of the Chinese work ethic, their views on luxury, and the corruption of former dynasties. Montesquieu suggests that the missionaries may have been too obtuse to clearly understand the nature of China: 'Might our missionaries have been deceived by an appearance of order?'⁴⁶ He also posits a maxim, which could be a defense of his use of the Jesuit sources that he adamantly criticised: 'In fine, there is frequently some kind of truth even in errors themselves'.⁴⁷

On the other side, the Sinophile François-Marie Arouet Voltaire (1694-1778) expresses his frustration with how the debate on authority of the Jesuits connected to the way in which their facts were used. He mocks the logic of a popular source that discredited a primary fact on China's history simply because it originated in Jesuit sources:

The compilers of a universal history, printed in England, have also shown a disposition to divest the Chinese of their antiquity, because the Jesuits were the first who made the world acquainted with China. This is unquestionably a very satisfactory reason for saying to a whole nation – 'You are liars'.⁴⁸

His point, that the primary facts should be considered regardless of one's view of their authors, was advice only taken when it was convenient.

The editors of universal histories and geographies had another relationship with the material and did try harder to sort through the primary facts, hoping to find some consistency in the varying sources, if not some abstract notion of truth. As the preface to a travel collection points out:

when the difference is between only two authors, or there are as many vouchers on one side of the question as the other, it is often very difficult to determine where

⁴⁵ Ibid, Volume 1, Chapter XXI: *Of the Empire of China*, paragraph 966.

⁴⁶ Ibid.

⁴⁷ Ibid.

⁴⁸ François-Marie Arouet Voltaire. "'Cannibals to Falsity of Human Virtue' *Philosophical Dictionary* 4 vols" in *The Works of Voltaire: A Contemporary Version*. 22 Vols. (New York: E.R. DuMont, 1901) 81.

the truth lies, unless we have some unexceptionable authority to guide us, such as the writers of the country, to which the fact relates.⁴⁹

This led many to attempt to gather as much evidence as possible from a variety of sources. John Campbell's updated version of John Harris' *Navigantium atque itinerantium bibliotheca*, published in the 1740s, claimed on its title page to have been the result of research from more than 'six hundred of the most authentic writers,' who have written in English, Italian, French, Latin, Spanish and Dutch.⁵⁰ Some editors of popular compendiums hoped their efforts could help 'discover the fictitious relations from the genuine, the copy from the original, and trace the theft through a series of authors to the fountainhead.'⁵¹ This was not typically achieved because primary facts often lost their parenthood entirely as they travelled without citation. This means facts that originated from the Jesuits could be found in merchant accounts, as is evident from the above-mentioned work by Nieuhof.

While many of these authors or editors had personal agendas (for instance, promoting free trade ideology), the explicit primary functions of this genre of work were to assess the information and to organise it. In assessing the information, the same disagreements the scholars had over who provided the most trustworthy facts were present. For instance, in a compendium entitled *The Chinese Traveller* (1772), the editor argued the Jesuits were the most qualified to provide information because of their

education and great erudition, their knowledge of various arts and sciences, and of the Chinese tongue; their winning address, their admittance into the court of the Emperor's palace, their familiar intercourse with the inhabitants.⁵²

They are particularly reliable when compared to the alternative merchants or emissaries who, the editor argues, 'just touch upon the coast of a country, or who dwell in it for some time merely to trade there'.⁵³ William Guthrie in *A new geographical, historical, and commercial grammar* (1770) took a less favourable stance, pointing out to his readers the many conflicts of interest that

⁴⁹ John Green, editor. Preface, viii – ix.

⁵⁰ John Harris. *Navigantium atque itinerantium bibliotheca. Or, a complete collection of voyages and travels...* 2 volume (London: Publisher Unknown, 1744-48), title page.

⁵¹ Ibid, viii.

⁵² *Chinese Traveller*, preface, iv.

⁵³ Ibid.

limit the missionary sources. He describes that the information from Du Halde was taken from Jesuits who were sent to China by the pope, and whose missions had been ended for 50 years. Guthrie concludes:

Some of those fathers were men of penetration and judgment, and had great opportunities of being informed about a century ago; but even their accounts of this empire are justly to be suspected. They had powerful enemies at the court of Rome, where they maintained their footing, only by magnifying their own labours and success, as well as the importance of the Chinese empire.⁵⁴

However, with such drastic and varying views on the sources of information, their use of evidence seems not to differ greatly. In the 9 pages that Guthrie devotes to describing China (discussing topics ranging from geography to funerals to religion and government) he mentions only one source. He refers to the Jesuit Du Halde when discussing the Chinese education system. In a section on morals, he does justify his claim that the Chinese are dishonest and thieving as being drawn from ‘the latest and best accounts’, though offers no suggestion as to what these might be. For the rest, it is the information gathered from the Jesuits and dispersed in various sources that is used.

Similar to Montesquieu’s ambivalent relation with the Jesuits, popular authors who criticised the missionaries, often resorted to relying on them. The English translator of a JB Grosier’s *A General Description of China* attacked the work of Cornelius de Pauw’s *Recherches Philosophiques sur les Egyptiens et les Chinois* (French 1744; English 1795). He describes how Pauw openly treats the missionaries in China as ‘cheats, imposters, and exaggerating enthusiasts, who wrote only with a design to deceive the Europeans’; however, ‘when the relations of these missionaries coincide with the opinion embraced by Mr. Paw [sic], this writer produces them as his proofs’.⁵⁵

⁵⁴ William Guthrie. *A new geographical, historical, and commercial grammar; and present state of the several kingdoms of the world...* (London: Printed for J. Knox, 1770), 464.

⁵⁵ Grosier, vii-viii pointing to Pauw’s criticism of the Chinese annals as fantasy, but then borrowing some of their facts. Cornelius de Pauw. *Philosophical dissertations on the Egyptians and Chinese*. Translated by Capt. J. Thomson. 2 Volumes (London: Printed for T. Chapman, 1795)

It is clear that there was a difference between the primary facts and the conclusions drawn from them. For instance, Voltaire mocks the fallacy of an argument extrapolated from two primary facts: ‘The Egyptians sometimes lighted torches at night. The Chinese light lanterns: the Chinese are, therefore, evidently a colony from Egypt’.⁵⁶ Indeed, popular sources also made it their explicit goal to not only relate the primary facts, but to deduce the meaning behind them. For instance, the preface to *A Compleat Universal History* noted the work was not ‘content with merely relating things as they appear, but learns from the philosopher to reason on their latent principles.’⁵⁷ Similar to Voltaire’s criticism of the inferences of authors from primary facts, many popular authors also disagreed with each other’s extrapolations. For instance the translator’s preface to Grosier’s aforementioned work was dedicated to attacking the headline claims of Cornelius de Pauw, though not disputing the primary facts which they were based on. The preface described how Pauw took the description of the barren environment in which the Kangxi Emperor was hunting as evidence for the sparseness of China’s population. The translator concluded, ‘one can scarcely refrain from laughter at the inference which Mr. Pauw draws from this passage.’⁵⁸ Another example the translator pointed to is the interpretation of the Kangxi Emperor’s edict in 1662 that prohibited maritime trade. While Pauw argued this was a result of the emperor trying to populate sparse areas of China, the translator concluded it was a result of a short, unsafe period where a rebel leader made commerce unsafe. Thus he argued that while ‘[t]he fact which Mr. Paw here quotes is undoubtedly true,’ the context was entirely wrong.⁵⁹ He concluded, ‘[t]he present instance alone is sufficient to shew with what deliberate coolness this writer mutilates and misrepresents those facts which he relates’.⁶⁰ On the other hand, in the English preface to Pauw, the translator argued that the reason why the Chinese are represented in a negative light in this work is because ‘[t]he Chinese are not described here from ideas generally received, but according to facts; and it must be allowed that they lose greatly by being judged in this manner’.⁶¹

Although scholars and popularisers offered competing claims to their position as the best sources of information, they nonetheless all relied on recycled or direct facts from an identifiable set of

⁵⁶ Voltaire, “China”, *Philosophical Dictionary*, *op.cit.*, 80.

⁵⁷ B. le Stourgeon, *A compleat universal history, of the several empires, kingdoms, states &c. throughout the known world...* (London: Printed by Benjamin Baddam, 1732-38), preface.

⁵⁸ Grosier, x.

⁵⁹ *Ibid*, xi

⁶⁰ *Ibid*, xii.

⁶¹ Pauw, xii.

sources. The scholars generally used the facts to support their varying frameworks. Adam Smith and Montesquieu, who were making different arguments, relied on the same pool of primary facts about China (though they would not always admit it). A few scholars, notably Gottfried Leibniz, had private correspondence with Jesuits in China, but for the most part, these authors relied on published works (often translated into several European languages), that were edited for various purposes.⁶² The popularisers, on the other hand, made it their duty to assess and organise all the available facts to find the ‘truth’. A point of pride for them was their comparison of numerous, diverse sources, which was thought to make distinguishing between fantasy and fact easier. Broadly, the scholars tried to make the facts fit their frameworks, while the popular authors tried to put the facts first. Still, they often fell into the same traps and patterns of the scholars. In particular, they often relied on the same primary facts despite criticising either the Jesuits or merchants and emissaries; both groups recycled the primary facts and the larger claims about them in different ways; and both groups strongly questioned the assumptions and veracity of their fellow authors’ and editors’ use of the facts.

How did facts travel?

The complex relationship between primary facts and claims in the travel of information on China becomes evident through the example of a quantifiable fact, namely the population of China. As such, inconsistencies in reports are more apparent, and the origin of the fact can be traced more easily. The author of *An Irregular Dissertation* (a text devoted to attacking Du Halde’s work) describes how China’s population represents a unique fact:

Nothing is more deceitful then number at first sight...It is good to examine every thing our selves, especially in China, where they never reckon but by millions; and

⁶² Howard Rienstra distinguishes between the type of editing done in this context: eliminating administrative details, deletion of material that may not be understood by the public such as aspects on the structure of Chinese society, deleting material the editor cannot understand and finally censorship. All of these types were used by Jesuit editors and are equally as important in understanding the formation of the concept of China in European minds. M. Howard Rienstra, ed. and translator. *Jesuit Letters from China 1583-84* (Minneapolis: University of Minnesota Press, 1986), 7.

tho' in these cases one cannot be so very exact, it is not impossible to come something near the truth, that we may not deceive the inquisitive reader.⁶³

The majority of the primary facts on China's population originated from the Jesuits because they were the ones with the access and ability to comprehend the Chinese documents upon which these estimates were based. In this case, both the accuracy of the primary fact and the claims around it were debated and questioned.

Specific facts on the size of China's population began to travel from China in the seventeenth century through Jesuit publications. Both *Confucius Sinarum Philosophus* (a Jesuit translation project led by Philippe Couplet, S.J. (1623-1693) and published in 1687) and Gabriel de Magalhães', S.J. (1609-1677) *Nouvelle relation de la Chine* (published in 1688 but given to Couplet in 1682) report, without an assessment or description of how this fact was created or learned, China's population. In China, they report, there are 11 502 872 families (exclusive of soldiers, women and children, and those who do not pay tax) and 59 748 364 males.⁶⁴ The Jesuits Trigault, Semedo and Martini all reported figures within the range of 58.5 to 58.9 million taxpaying men.⁶⁵ These primary facts travelled into the eighteenth century, and surprisingly were not replaced by newer, more contemporary facts.

Du Halde, in a section entitled 'Of the Authority of the Emperor...' addresses population in relation to the formidable revenue of the emperor, and presents the aforementioned two facts, noting their time as during the reign of the Kangxi Emperor.⁶⁶ It is notable that Du Halde does not choose to make the jump to the more contentious final figure of China's population. This is also highlighted by the absence of a section devoted solely to population. Instead, Du Halde provides the primary facts to his readers, who then can make the assumptions they choose. The

⁶³ Louis Le Comte. *Memoirs and observations typographical, physical, mathematical, mechanical, natural, civil, and ecclesiastical...* (London: Printed for Benj. Tooke and Sam. Buckley, 1697), 58.

⁶⁴ Gabriel de Magalhães. *A new history of China containing a description of the most considerable particulars of that vast empire* (London: Printed for Thomas Newborough, 1688), 40.

⁶⁵ Lach, 1573.

⁶⁶ Du Halde, Volume 2, 20.

standard at the time was to use Edmund Halley's multiplier⁶⁷ (against the number of men able to bear arms), which would mean China's total population was about 223 million.

On the receiving end, the popular editors and authors questioned the facts themselves. The author of *An Irregular Dissertation* does not use Du Halde's fact of 59 788 364 males, but finds a different number: 'If it is true, that there are sixty four millions of fighting men in China, then, by Dr. Halley's computation, the total number of souls should be about 256 millions'.⁶⁸ However, even based on his assumption of 64 million fighting men, Halley's multiplier indicates the total population would be about 241 million. The author then utilises Du Halde's fact on the number of families (rounding the number to 11 million), but questions the assumption that the number of families in China has the same implications as it would in Europe. He asks, 'what sort of families must they have in China? Not so numerous as ours (one would think) because the poor expose such children as they cannot educate.'⁶⁹ The author is adding other primary facts, such as infanticide, to achieve different claims. However, the author also questions the validity of the primary fact itself. Using the *Lettres Edifiantes*, and other assumptions such as the rice given to women over seventy years of age, the author concludes there are 67.5 million people in China. Thus, the author is questioning the primary fact as well as the claims surrounding it.

The Chinese Traveller (1772), which had a favourable position towards using the Jesuit sources, does not report where its facts on population originated, but states in its preface that 'It is computed that in China there are seventy millions of people.'⁷⁰ The editor notes that this is a fact (the total population) that must be computed, rather than reported. The number of families in China amount to 11 502 872, and the total number of males is 59 788 364.⁷¹ Clearly this fact was taken from the aforementioned seventeenth century Jesuit publications. Unlike Du Halde, the editor does not note that this figure was first reported nearly a full century earlier. In another section covering the 'general description' of the empire, the editor cites Johan Nieuhof (1618-1672) whose work, originally in Dutch was published in 1665 (with English translations in 1669

⁶⁷ See Edmund Halley. "An Estimate of the Degrees of the Mortality of Mankind, drawn from curious Tables of the Births and Funerals at the City of Breslaw; with an Attempt to ascertain the Price of Annuities upon Lives." *Philosophical Transactions*, 196 (1693): 596-610.

⁶⁸ Author Unknown. *An irregular dissertation, occasioned by the reading of Father Du Halde's description of China. Which may be read at any time* (London: Printed for J. Roberts, 1740), 50.

⁶⁹ *Ibid*, 46.

⁷⁰ *Chinese Traveller*, preface, vi.

⁷¹ *Ibid*, 20-21.

and 1670). He then describes that during Nieuhof's time, the Chinese register showed 10 900 790 families and 55 416 476 fighting men.⁷² This is an odd choice of fact to report, as Nieuhof's fact is nearly contemporary to the one first reported by Couplet thus not providing a long-range view nor one that is very different. The editor does not point this out and as such offers an incomplete contextualisation of the primary facts.

Another popular compendium compiled by William Guthrie demonstrates a more sceptical view of China's population. In a short paragraph on 'the population and inhabitants' of China, he argues that by the best accounts, the population of China is not less than fifty million. He also comments on the other, higher, numbers available: 'Most of those accounts are exaggerated, and persons, who visit China without any view of becoming authors, are greatly disappointed in their mighty expectations.'⁷³ Paradoxically, in a description questioning the veracity of sources, the author does not cite his own sources for the fact of China's population being less than fifty million.

The debate and desire for exactness seems to intensify with time. One of the most explicit debates over the facts of China's population was between JB Grosier and Cornelius de Pauw (as well as through those who translated their works into English). The translator's preface to Grosier's description of China, argues how Pauw's description of China's 'enormous population is a mere chimera', and then proceeds to attack on Pauw for not sourcing his information entirely or properly.⁷⁴ Grosier's chapter on the population of China recognises the contentiousness of China's population: 'one of those things which have been thought most incredible and contradictory by Europeans, is the prodigious population of China'.⁷⁵ Referring to the Jesuit, Jean Joseph Marie Amiot's (1718-1793) *Mémoires concernant l'histoire, les sciences et les arts des Chinois* (15 volumes, Paris, 1776-1791), Grosier recognises that a total population of 200 million seems astonishing 'but, when we have weighed the proofs and followed the reasoning which this learned missionary makes use of, we shall find that his account is by no means exaggerated.'⁷⁶

⁷² Ibid, 21.

⁷³ Guthrie, 465.

⁷⁴ Grosier, vi and vii.

⁷⁵ Ibid, 364.

⁷⁶ Ibid, 365.

Pauw, on the other hand, disagrees: ‘Thus the population of China, which as shall now appear, has been prodigiously exaggerated.’⁷⁷ He notes the inconsistency in the reports on China’s population where authors

even vary in their calculations as far as one hundred millions...All the details we possess on this subject have been written at random. Father du Halde gives Peking three millions of inhabitants: Father le Comte admits only two millions; and Father Gaubil expresses himself in so vague a manner, that nothing can be concluded from his accounts.⁷⁸

Proudly doing the job of the geographers to compare sources to discover the accurate primary facts, he then turns to attack the claims by using other or new primary facts. Pauw chooses to focus on facts about the sparseness of population as evidence for the claim that China is not as populous as many assume. He notes that the Jesuits had to make the map of China, and uses the fact (his word) that strangers who visit the interior of China say it is difficult to travel at night because of the wild beasts, indicating that it is uninhabited.⁷⁹ As infanticide and stories of sacrifice were used as evidence that China’s population was extremely large, he makes the efforts to demonstrate that infanticide is a result of crowding by rivers (for livelihood) and that human sacrifice is not true.⁸⁰ He accepts that there may be 82 million people in China (though notes it is ‘most probably is exaggerated’) nevertheless he argues, ‘China has still much less people, in proportion to its size, than Germany’.⁸¹

On the other hand, scholars do not concern themselves with the exact number of China’s population, but instead address the implications of relative size to other countries. This is likely due to their interest in what it means for their theoretical arguments. For instance, Adam Smith notes

China has been long one of the richest, that is, one of the most fertile, best cultivated, most industrious, and most populous countries in the world. Marco

⁷⁷ Pauw, 72.

⁷⁸ Ibid, 75 and 76.

⁷⁹ Ibid, 78.

⁸⁰ Ibid, 79-80.

⁸¹ Ibid, 84.

Polo, who visited it more than five hundred years ago, describes its cultivation, industry, and populousness, almost in the same terms in which they are described by travellers in the present times.⁸²

For Smith, this is an indication of China's stagnation. The scholarly interest and aims differed from the popularisers in this case. Both the primary fact of China's population and the claims around it were questioned and debated, and their parenthood often lost.

Conclusions

This paper has described two different stages involved in the travelling of facts about China. The first involves the travel of the primary facts from China. In this stage facts were attached to the viewpoint or agenda of the missionary, merchant or emissary who carried them. In the second phase, these facts were recycled in European popular and scholarly sources, where they may, or may not have lost their parenthood, but the veracity of the sources and the character of the varying authors was hotly debated. An examination of the most important primary sources on China's political economy reveals a much more diverse presentation of facts by merchants, missionaries and emissaries than was assumed by scholars and popularisers in the eighteenth century and indeed by modern historians. Moreover, a simplistic distinction between the facts put forward by the missionaries and merchants is not merited – both parties presented varied and nuanced fact on China's political economy. The scholars tended to prioritise their theories and models over the facts, whereas the popular authors generally worked from the facts to the theories. Still they often fell into the same traps and patterns. In particular, they often relied on the same primary facts despite criticizing either the Jesuits or merchants. This demonstrates the importance of the themes of authority and parenthood in shaping views of the Other as well as the role of bias' and frameworks of analysis in shaping and carrying of facts. In particular, it points to the utility of tracing one subject over time and across genres to determine how well facts travelled.

⁸² Adam Smith, *The Wealth of Nations* Edited by Edwin Cannan, (New York: Bantam, 2003), Chapter VIII: of the wages of labour, paragraph 326.

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Networks, long distance trade and the circulation of commercial facts in the eighteenth century Atlantic

Merchants involved in the transatlantic trade with the West Indies were confronted with high risks and problems of information asymmetry. In the absence of major technological advances in transatlantic transportation and communication in the course of the eighteenth century, merchants had little scope for improving and speeding information flows and were at the mercy of third parties for access to commercial information.¹ This article therefore explores the social interface that allowed information to travel between the different commercial groups involved in these transactions.² The New Institutions Economics understands networks as an intermediate level between markets and firms, which provide the infrastructure for exchange to develop and help reduce transactions costs, when these are high given the absence of information, or where its reliability is uncertain.³ Kinship linkages, long-term and personal relationships, and close association through belonging to the same ethnic group or religious minority were seen as more likely to generate mutual confidence as membership of these networks entailed obeying strong moral obligations.⁴ They provided their members with credit and capital, increased access to reliable information

¹ Douglass C. North, "Sources of Productivity Change in Ocean Shipping, 1600-1850," *The Journal of Political Economy* 76 (1968): 967.

² These commercial facts included details about prices, markets, and the quality of goods, but also information about potential clients and partners, which comprised knowledge of their credit history and their financial situation.

³ Mark Casson & Mary B. Rose, "Institutions and the evolution of modern business: Introduction," *Business History* 39 (Oct. 1997): 1-8; Douglass North, "Transaction costs in history," *Journal of European Economic History* 3 (Winter 1985): 557-60.

⁴ For the use of network theory in historical studies, see Peter Mathias, "Risk, credit and kinship in early modern enterprise," in *The Early Modern Atlantic Economy*, eds. John McCusker and Kenneth Morgan (Cambridge, 2002), 15-35; Nuala Zahedieh, "Credit, risk, and reputation in late seventeenth century colonial trade," in *Merchant Organization and Maritime Trade in the North Atlantic, 1660-1815, Research in Maritime History*, 15, ed. Olaf Uwe Janzen (St John's, Newfoundland 1998): 53-74; Jon Stobart, "Personal and commercial networks in an English Port: Chester in the early eighteenth century," *Journal of Historical Geography* 30 (Apr. 2004): 277-93; Natasha Glaisyer, "Networking: Trade and Exchange in the Eighteenth-Century British Empire," *Historical Journal* 47 (Jun. 2004): 451-76; John Smail, "Credit, Risk, and Honor in Eighteenth-Century Commerce," *Journal of British Studies* 44 (Oct. 2005): 439-56.

and discouraged dishonest behaviour. My aim here is to question whether these assumptions can be applied to the case of Tobin & Pinney, a Bristol commission house trading with the West Indies, and more generally to the late eighteenth century Atlantic commercial world.⁵ Did the Bristol firm have recourse to family members in the West Indies? What was the role of long-term, personal relationships in the organization of trade? How was the network sustained over time? This paper considers three periods, which allows for an examination of the evolution of mercantile networks over time: the formative years from 1784 to 1790, the middle years from 1795 to 1796 and 1800 to 1802, almost twenty years after the formation of the firm.⁶

The late eighteenth-century West Indian trade differed significantly from other models of early modern long-distance trade. The Navigation Acts and the mercantilist system ensured that British traders had a monopoly in the carrying trade with British colonies overseas.⁷ Merchants operated within one national unit, and therefore ethnicity, and, to a certain extent, religion did not play an important role in this trade.⁸ This had the main consequence that, unlike the Maghribi trade studied by Greif and other early modern trade organizations, West Indian merchants operated within a common institutional structure, and benefited from legal protection,⁹ albeit one often undermined by long

⁵ The evidence presented here stems from the commercial correspondence left by the firm of Tobin & Pinney. John Pinney's personal letterbooks also survive and mostly concern John Pinney's interests as a planter. These sources enable us to reconstitute the firm's network and John Pinney's private network over a period of twenty years. The partners were in the habit of sending out yearly balances to their clients, usually in May. The availability of financial information means that we can also examine the firm's credit network.

⁶ Although a twenty-year period may seem relatively short, it is worth pointing out that most early modern firms had a short life span. On this, see Richard Grassby, *Kinship and Capitalism: Marriage, Family, and Business in the English-Speaking World, 1580-1740* (Cambridge & New York, 2000): 361. The survival of the Tobin & Pinney firm over several generations is however not out of line with the Bristol West Indian commercial elite of the time, in Kenneth Morgan, ed., *The Bright-Meyler Papers: a Bristol-West India Connection 1732-1837* (Oxford, 2007), 14.

⁷ Kenneth Morgan, "Mercantilism and the British Empire, 1688-1815," in *The Political Economy of British Historical Experience 1688-1914*, eds. Donald Winch and Patrick O'Brien (Oxford, 2002), 165-191.

⁸ I have found little reference to ethnic and religious minorities involved in this trade in the late eighteenth century, although the presence of Jews, Dissenters and Quakers in the West Indies and Bristol is more documented for the earlier part of the century; see Madge Dresser & Peter Fleming, *Bristol: Ethnic Minorities and the City 1000-2001* (London, 2007); Pedro L.V. Welch, *Slave Society in the City: Bridgetown, Barbados, 1680-1834* (Kingston, 2003), 122; Henry J. Cadbury, "Barbados Quakers-1683 to 1761," *The Journal of the Barbados Museum and Historical Society* 9 (1941): 29-31.

⁹ Avner Greif, "Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders' Coalition," *The American Economic Review* 83 (Jun. 1993): 525-548; Philip D. Curtin, *Cross-Cultural Trade in World History* (Cambridge, 1984). For an anthropological study of the preference given to kin or ethnic ties in a multiethnic context, see Janet T. Landa, "A Theory of the Ethnically Homogeneous

distances and slow communications.¹⁰ Because of the availability of formal and legal mechanisms, merchants did not have to rely solely on the personal and informal ties provided by networks, the role of which needs to be reassessed in this context.

The firm of Tobin & Pinney was established in May 1784 in Bristol by two former Nevis planters. Competition from other ports, in particular Liverpool, had eroded Bristol's importance in the sugar trade. Yet, Bristol was still the second largest centre for the imports of sugar at the end of the eighteenth century, with 248,801 cwt. imported in 1790.¹¹ Like most firms involved in the West Indian trade after 1750, Tobin & Pinney acted as a commission house: planters sent their sugars and other colonial crops directly to British traders, who were charged with selling them for a commission fee, usually 2 ½ per cent, and also provided planters with a range of services, sending provisions, accepting bills of exchange and granting them credit.¹² With an average of almost 540 hogsheads imported per year, Tobin & Pinney was a middle-rank firm, when compared with other Bristol firms of the time.¹³ The commercial network developed by the two partners was wide, ranging from England, continental Europe, the West Indies and the American colonies. This study focuses on the organization of the trade with the West Indies and more particularly on the relationship between the firm and its West Indian agents and clients.

The risk environment faced by the partners was diverse and ranged from natural hazards such as hurricanes and tropical storms to competition from other European powers that had also adopted a mercantilist system. External risk factors such as wars, trade restrictions and policies also provided merchants with higher risks and opportunities. War was by no means an exceptional occurrence in the eighteenth-century and

Middleman Group: An Institutional Alternative to Contract Law," *Journal of Legal Studies* 10 (Jun. 1981): 349-62.

¹⁰ Richard B. Sheridan, *Sugar and Slavery: an Economic History of the British West Indies, 1623-1775* (London, 1974), 274-5; Jacob M. Price, "Credit in the slave trade and plantations economies," in *Slavery and the Rise of the Atlantic System*, ed. Barbara L. Solow (Cambridge, 1991), 324-330.

¹¹ Kenneth Morgan, *Bristol and the Atlantic trade in the eighteenth century* (Cambridge, 1993), p. 190.

¹² On the commission system, see K.G. Davies, "The Origins of the Commission System in the West India Trade," *Transactions of the Royal Historical Society* 5th series 2 (1952): 89-107; R.C. Nash, "The Organization of Trade and Finance in the British-Atlantic Economy, 1600-1830," in *The Atlantic Economy during the Seventeenth and Eighteenth Centuries: New Perspectives on Organisation, Operation, Practices and Personnel*, ed. P.A. Coclanis (2005), 95-151.

¹³ Kenneth Morgan, *Bristol and the Atlantic trade in the eighteenth-century* (Cambridge, 1993), 194.

commercial life in the British Caribbean was successively disturbed by the main European conflicts, from the War of the Spanish Succession to the Seven Years' War and the French Revolutionary Wars.¹⁴ The opportunities for merchants to reap high profits however gave them strong incentives to resume their activities. Even though the volume of British exports fell at the beginning of the Revolutionary wars, it significantly rose between 1798 and 1802, so that the growth rate for the period 1792-1802 was only slightly lower than during the previous decade, 1781-1792.¹⁵ Particular risks were also associated with the choice of business partners and their ability to predict and anticipate price fluctuations and their reliability in informing metropolitan merchants about markets. Lastly, West Indian commerce was riddled by mounting indebtedness of planters, who had received large financial advances from metropolitan merchants to pay for, among other things, land and slaves, and resisted payment, which led to merchants' cautious attitude towards the extension of credit to new potential clients. This prevalence of risk reinforces the argument that long-term, personal relationships were the preferred means by which merchants carried out business. However, problems arise when personal relationships no longer offer enough connections to diversify one's activities, provide an insurance against risk, or sustain the expansion of overseas trade. The firm's attempts at expanding the network and the mechanisms by which this process is achieved will therefore be further examined. This study also examines the strategies developed by Tobin & Pinney during the French Revolutionary Wars, when they were faced with new risks.

The structure of the network

What did Tobin & Pinney's networks look like? During the years 1784-90, the firm sent 1,771 letters to 227 different correspondents, 807 letters to 158 individuals in 1795-96 and 978 letters to 191 correspondents in 1800-02, as can be seen in figure 1. First, the early years, 1784-90, were characterized by the rapid expansion of the network, which almost reached its mature size in 1788, only four years after the creation of the firm.

¹⁴ See N. A. M. Rodger, *The Command of the Ocean: A Naval History of Britain, 1649-1815* (London, 2004).

¹⁵ François Crouzet, "Les conséquences des guerres de la Révolution et de l'Empire pour l'économie britannique (1793-1815)," *Revue économique* 40 (1989): 4.

Second, the peak, both in terms of letter exchanges and numbers of correspondents, was reached in 1795, during the French Revolutionary Wars, when trade with the West Indies had become riskier. Moreover, this contrasts strongly with the trend set in the years 1789-90, which was one of stabilisation and contraction of the network. The later period, also in wartime, also shows the firm still engaged in a dynamic trade. John Pinney's personal network, as shown in figure 2, does follow the same trend as the firm's. The ongoing vitality of the private networks indicates that this correspondence was not used solely to launch the firm's commercial network.

"Insert figures 1 & 2 here"

The composition of the network, both in terms of volume and number of correspondents, presents a remarkable stability as seen in figure 3.¹⁶ Unsurprisingly for a firm primarily involved in the West Indian commission system, the planters or the "planter class" dominated the network. They represented almost a third of all correspondents in all three periods: between 1784 and 1790, the planters constituted 28.2% of all correspondents, 31.6% in 1795-6 and 28.3% in 1800-02. Similarly, they were involved in almost half of all letter exchanges: 44.7 % in 1784-90, 42.7% in 1795-6 and 43.1% in 1800-02. If we add planters' relatives and attorneys, the planter class represented three-fifth of the correspondence and almost half of the firm's correspondents in all three periods.¹⁷

¹⁶ The occupations of the members of Tobin & Pinney's network were derived from the correspondence itself, and determined using the destination of the letters, and their contents, which usually indicated what the correspondent's business relationship with the firm was. In order to separate the planters who acted as attorneys for the firm from the rest of the planters, I also used evidence from Richard Pares' monograph, *A West India Fortune* (London, 1950), 142-6. The main players in the networks were the *planters*, who owned land in the West Indies. When these planters were "absentee owners" and resided in Britain, they employed *attorneys*, who acted as their legal and managerial representatives in the West Indies. To the *financial* sector belonged the firm's bankers and insurers. I have classified the commission firms based in the West Indies, involved in the export and import trades as *West Indian firms*. The British and Irish *factoring firms* were firms, which, like Tobin and Tobin, were involved in the commission business with the West Indies. The British and Irish *suppliers* were the firms, which provided Tobin & Pinney with the goods required for the export trade. The *planters' relatives* were the planters' relatives who lived off the West Indian estates' revenues. Under the category *other*, we find the captains, recipients of planters' bills of exchange, lawyers and so forth who also formed part of the network.

¹⁷ For a more detailed discussion of absentee ownership, see B. W. Higman, *Plantation Jamaica 1750-1850: Capital and Control in a Colonial Economy* (Kingston, 2005); Frank W. Pitman, "The West Indian Absentee Planter as a British Colonial Type", *American Historical Association, Pacific Coast Branch Proceedings* (1927): 113-127; L. J. Ragatz, "Absentee Landlordism in the British Caribbean, 1750-1833", *Agricultural History* 5 (1931): 7-24; Douglas Hall, "Absentee-Proprietorship in the British West Indies to about 1850", *Jamaican Historical Review* 4 (1964): 15-35; W.A. Green, "The Planter Class and British

"Insert figures 3 & 4 here"

What seems more striking, besides the weight of the planter class, is the extremely minor role played by West Indian commission houses in the 1784-90 network and their total absence from the later networks.¹⁸ In 1784-90, they represented only 1% of all letters and 4% of all correspondents. Clearly, Tobin & Pinney did not have recourse to West Indian intermediaries. As this indicates, the commission system had come to replace other forms of organization of the West Indian trade in this case. This finding corroborates Nash's descriptions of a shift in the organization of Atlantic commerce to a commission system.¹⁹ The role of indigenous mercantile firms in the plantation colonies was becoming increasingly confined to dealings in slaves and manufactured goods from Europe, without much involvement in the export of colonial staples which rested in the hands of metropolitan firms like Tobin and Pinney.

The analysis of the size of the firm's and John Pinney's networks indicates that the partners were successful in rapidly establishing a commercial network. Tobin & Pinney's network expanded very fast, but within ten years, it had reached its maturity. Moreover, the partners were able to sustain their activities in wartime. The absence of West Indian firms acting as intermediaries for the firm suggests that the partners were able to carry out their business in the West Indies, and monitor the handling of their interests directly from Bristol.

The formative years

How did Tobin & Pinney manage to set up their trade network so quickly? How did they compensate for West Indian agents? Perhaps the most striking aspect of Tobin &

West Indies Sugar Production before and after Emancipation," *Economic History Review* 26 (1973): 448-63.

¹⁸ The other categories were dominated by a few relationships, including the firm's London bankers, successively Nathaniel Martin, Ladbroke, Rawlinson & Co and Williams, Son & Co, insurer Warren and factor B. & T. Boddingtons & Co.

¹⁹ R.C. Nash, "The Organization of Trade and Finance in the British Atlantic Economy, 1600-1830", in *The Atlantic Economy during the Seventeenth and Eighteenth Centuries: New Perspectives on Organisation, Operation, Practices and Personnel*, ed. P.A. Coclanis, (2005), 102.

Pinney's network is that kinship did not play an important role. This contrasts with much of the literature.²⁰ The only exception to this concerns the management of the personal estates in Nevis that both partners had kept upon moving to Bristol. Successive attorneys for John Pinney included his cousin, a distant relative and his brother-in-law. When it came to the firm's businesses, Tobin and Pinney were less dependent on their relatives. In Nevis itself, the partners also used fellow planters, Edward Brazier and John Taylor, to settle their affairs. Tobin & Pinney offered to give Berkeley of St Kitts, with whom they had no kinship ties, a power of attorney.²¹ Following the disappointments with family members, the practice of employing kinsmen as managers declined as John Pinney instead relied increasingly on "friends" and old business partners.

Besides these kinsmen, both Pinney and Tobin had sons who could have been destined to act as plantation attorneys or West Indian agents for the firm. These sons were still too young to be given responsibilities in the West Indies in the 1780s, but their training and education indicate that they were not to be used as attorneys in later life.²² They received a commercial education that prepared them for the work in a counting house. Azariah Pinney, the first son to be associated aged 14 with the firm in 1789, was sent to Frankfort to complete his studies.²³ Sons of both partners were destined to become members of the family firms: Azariah became a partner in 1789, followed by Harry Tobin in 1796 and following both Azariah's and Harry's deaths, John Frederick Pinney and Pretor Pinney in 1803. Although this type of education was characteristic of mercantile families of the time, other fathers privileged training overseas, and it was customary to have sons trained in the West Indies. Many of the prominent Bristol merchants of the period, such as Michael Atkins, John Curtis, William Gordon, Mark

²⁰ See Jari Ojala, "Approaching Europe: the merchant networks between Finland and Europe during the eighteenth and nineteenth centuries", *European Review of Economic History* 1 (Dec. 1997): 323-352; Douglas Hamilton, *Scotland, the Caribbean, and the Atlantic World, 1750-1820* (Manchester, 2005).

²¹ Tobin & Pinney to Berkeley, 30 July 1796, Tobin & Pinney Letterbook 40, BUL. The role of these representatives deserves further attention, as these men often provided third-party mediation in disputes between planters and factors. This informal resolution of conflict provided an alternative to familial modes of arbitration and more formal enforcement mechanisms such as legal procedures.

²² John Pinney's oldest son, John Frederick was born in 1773. Less is known about the Tobin offspring.

²³ John Pinney to Frey, 03 Oct. 1789, John Pinney Letterbook 10, BUL.

Davis, Henry Bright, William Miles and Robert Claxton had lived in the West Indies before taking on the commission trade in England.²⁴

The relative absence of kin at the core of the network represents a departure from other early modern networks. The absence of West Indian agents, which would usually have been family members, partly explains why kinship did not predominate in the Tobin & Pinney network.²⁵ By contrast, the Bright-Meyler family chose to send a younger partner out to the West Indies, while the principal merchant remained in Bristol.²⁶ Similarly, the Scottish firm of Houstons & Co developed a trading empire based on West Indian partner firms, usually run by family members. Alexander Houston Jr. was dispatched to Grenada where he was a correspondent of the Glasgow firm until 1779.²⁷

Family members could represent as much a liability as an asset. In 1789, John Pinney replaced his attorney in Nevis, John Cocker with his brother-in-law, Dr Pym Weekes, who, in the eyes of John Pinney, soon revealed himself to be as unsatisfactory as his predecessor had been. Family obligation also meant it was impossible to collect debts from kin or close relationships and enforce contracts. For instance, Galpine of Nevis, who had a large debt with the Bristol firm, informed Tobin & Pinney that he was unable to collect the sums from his own debtors who were all his own or his partner's kin, and that the partners should do it themselves, as they could do it without offence.²⁸

Rather than kin, Tobin & Pinney relied on a network of long-term acquaintances for the management of their interests and their access to information, which were defined as "friendships." This term could be applied not only to kin, companions and intimate relations, but also to a wide range of non-related supporters, such as patrons, guardians,

²⁴ Kenneth Morgan, "Bristol West India Merchants in the Eighteenth Century," *Transactions of the Royal Historical Society* 6th series (1993): 191.

²⁵ A further analysis of this shift can be found in Nash, "The Organization of Trade and Finance in the British Atlantic Economy, 1600-1830," in *The Atlantic Economy during the Seventeenth and Eighteenth Centuries: New Perspectives on Organisation, Operation, Practices and Personnel*, ed. P.A. Coclanis, (2005), 95-151. Former apprentices or clerks could also sometimes act as junior partners in West Indian firms.

²⁶ Kenneth Morgan, ed., *The Bright-Meyler Papers: A Bristol-West India Connection, 1732-1837* (Oxford, 2007), 25.

²⁷ Douglas Hamilton, *Scotland, the Caribbean and the Atlantic world, 1750-1820* (Manchester, 2005), 88.

²⁸ Tobin & Pinney to Galpine, 29 Jan. 1796, Tobin & Pinney Letterbook 39, BUL. For more on this, see Margaret Hunt, "English Urban Families in Trade, 1660-1800: the social revelations of early modern capitalism," unpublished PhD thesis (New York, 1986), chapter 2.

employers and other allies.²⁹ In other words, social and instrumental ties were closely intertwined in the late eighteenth century commercial society.³⁰ Through the notion of friendship, and its reliance on principles of reciprocity, gratitude and mutual interest, trust and moral values could be disseminated and applied to larger sections of society than just the family unit.

"Insert figure 5 here"

If we focus on the 60 planters that composed the backbone of the trade network in 1784-90, we can better understand how these business connections were formed and whether long-term and personal relationships were central to this process. As is indicated in figure 5, out of the 60 planters present in Tobin & Pinney's trade network at large in 1784-90, only 25 were regular commission clients: these were planters for which the firm did factoring business for. As expected, these 25 planters also belonged to the credit network in May 1789. This credit network was composed of the planters that had an account with the firm at that date and were clients. We find that the firm's clients usually entertained a long-term and personal relationship with the firm. First, over a third of the commission clients also belonged to John Pinney's private network of personal friends and connections. Among these, the large and medium commission clients were overrepresented, compared to the smaller clients. By contrast, only a fifth of planters who were not regular clients of the firm also formed part of John Pinney's private network. The analysis of John Pinney's earlier network, when he was a planter in Nevis, confirms these results: he was already in contact with 11 of the 25 regular clients.³¹ This is certainly an underestimate as the contacts John Pinney had with his immediate neighbours in Nevis are not recorded in the letterbooks. In other words, the importance of friendships in the organization of the Tobin & Pinney's trade highlights the socially embedded nature of business networks, in which economic and non-economic relations are juxtaposed.

²⁹ Naomi Tadmor, *Family and Friends in Eighteenth-Century England: Household, Kinship and Patronage* (Cambridge, 2001), 167-171.

³⁰ For more on this, see Craig Muldrew, *The Economy of Obligation: the Culture of Credit and Social Relations in Early Modern England* (New York, 1998); Robin Pearson & David Richardson, "Business networking in the industrial revolution," *Economic History Review* 54 (Nov. 2001): 657-79.

³¹ John Pinney Letterbooks 4,5 & 6, BUL.

Landownership in Nevis offers another proxy for long-term, personal relationships with the firm's founders. Nevis is one of the smallest Leeward island, with an area of about 40 square miles.³² We can assume, given Nevis' small size, that the planters all knew each other. Consequently, John Pinney and James Tobin, as planters themselves, were well-acquainted with the other landowners there. We know the location of 57 of the estates concerned here: two-third (40) of the 60 planters in the trade network had land in Nevis against only nine in St Kitts. If we compare the regular clients with the other planters, we see that the large majority of the former (four-fifth) were landowners in Nevis, against only half of the latter.

Tobin & Pinney were not unusual in focusing their business on a single island. Most merchants tended to favour commercial links with one given island. The Bristol trader William Miles traded mainly with Jamaica in the 1770s and 1780s, the London-based Thomas Mills focused on St Kitts upon his return from that island, the Oliver family of London had close links with Antigua, the Lascelles with Barbados and the Bright-Meyler with Jamaica.³³ Widely spread business interests, such as the Liverpool merchant John Gladstone, who owned several estates in Demerara and in Jamaica tended to be the exception rather than the rule.³⁴ Tobin & Pinney conformed to what merchants of the time practiced when they based their commercial empire on personal relationships nurtured during their stay in Nevis. These arrangements also had practical benefits: it enabled traders to dispatch their own ships to carry goods between their customers in the West Indies and English ports.

The emphasis on personal and long-term relationships has often led scholars to focus on the role of personal recommendations in establishing connections. These were understood as prerequisites for forming ties in the early modern business world, and

³² Comparatively, St Kitts has an area of 65 square miles, Barbados 166 and Jamaica 4,244.

³³ Kenneth Morgan, "Correspondence of William Miles and John Tharp, a West Indian Merchant in Bristol, to John Tharp, a Planter in Jamaica, 1770-1789", in *A Bristol Miscellany*, ed. Patrick McGrath (Bristol, 1985), 79-121; D. W. Thoms, "The Mills Family: London Sugar Merchants of the Eighteenth Century", *Business History* 11 (Jan. 1969): 3-10; Richard B. Sheridan, "Planters and Merchants: The Oliver Family of Antigua and London, 1716-1784", *Business History* 13 (Jul. 1971): 104; Simon D. Smith, *Slavery, Family and Gentry Capitalism: the World of the Lascelles, 1648-1834* (Cambridge, 2006); Kenneth Morgan, ed., *The Bright-Meyler Papers; a Bristol-West India Connection, 1732-1837* (Oxford, 2007).

³⁴ S.G. Chekland, "John Gladstone as Trader and Planter", *The Economic History Review* 7 (1954): 222-223.

essential tools for the affirmation of “reputation” or “character.” The St Kitts planter Woodley was introduced to the firm by their common acquaintance, George Webbe Junior,³⁵ and we find countless examples of this process in the correspondence.

Tobin & Pinney’s approaches to new clients drew on another criteria for the successful establishment of a “new connection,” understood as new client. This is what the partners called “situation,” or, in other words, the financial situation of the prospective connection. Hence, despite already entertaining a correspondence with James Tyson, they refused to enter into a commercial relationship with his brother John, arguing they could not grant him a £1,200 draft while they were “totally unacquainted with the situation of [his] resources.”³⁶ Above all the partners wanted guarantees. They refused the offer of Timothy Cassin in Nevis, on the grounds that not only his engagement with another factor, Messrs Daniels, prevented them from entering into a connection with him, but the situation of his estate, which did not give him a good security, also induced them to decline his offer, concluding that “the latter and most material objection you must be convinced still remain in full force.”³⁷

Tobin & Pinney’s balance of power and punishment capacity were however affected by the competition they faced from other firms interested in Nevis. Most of Nevis’ sugar production went to London and Bristol, these ports receiving respectively 4,465 and 750 hogsheads of sugar each in 1773.³⁸ In the last quarter of the eighteenth century, the Nevis trade was concentrated in the hands of a few firms in Bristol and London. The London firms included Tobin & Pinney’s own factors, B. & T. Boddingtons & Co, and some of their correspondents such as Latham & Pulsford, Manning, Lane Son & Fraser, James Akers Jr, Mills & Swanston and Lucas. The Bristol firms comprised Reeve, Reeve & Hill, Davis & Protheroe (later Protheroe & Claxton) and Bright Baillie & Bright.³⁹ Tobin & Pinney, who had established a correspondence with most of the island’s planters, sought to establish relations of cooperation with other Bristol factors. They outfitted ships to Nevis in partnership with Protheroe and Claxton, and John

³⁵ Pinney & Tobin to Woodley, 15 Nov. 1787, Pinney & Tobin Letterbook 37, BUL.

³⁶ Pinney & Tobin to John Tyson, 04 Sept. 1786, Pinney & Tobin Letterbook 37, BUL.

³⁷ Pinney & Tobin to T. Cassin, 01 May 1789, Pinney & Tobin Letterbook 37, BUL.

³⁸ Kenneth Morgan, *Bristol and the Atlantic trade in the eighteenth century* (Cambridge, 1993), p. 190.

³⁹ Based on the King’s Bench court records, kept at the Nevis courthouse, for the period 1778-1803.

Pinney's daughter Elizabeth married Peter Baillie, a partner in the house of Bright Baillie & Bright.⁴⁰ They were less successful in preventing planters from remitting to London houses. Path dependency meant that it was difficult for planters to change agents, since the new factor had to accept to take over the debt accumulated with the former agent. Yet, commission firms often had to tolerate high levels of debts in order to keep clients and grant them more extensive terms of credit than hoped.⁴¹

To secure their investments, Tobin & Pinney therefore had recourse to contractual relationships. Contracts between firms and planters provided merchants with a guarantee against loss by asking for a collateral security for repayment. The security usually consisted of the planter's estate. In parallel, consignments of sugars and financial advances were irremediably linked to each other, as is shown by some formal agreements between planters and the firm. Agreements included mortgaging the client's estate to the partners, regarded as the only way remittances could be guaranteed. The existence of a legal system, despite its shortcomings, provided merchants with a safety net: it meant that merchants did not have to count only on personal relationships and moral obligations in order to enforce commercial agreements.

For Tobin & Pinney, relying solely on personal relationships for the formation of trade connections also set some limits to their business. First, as remarked above, the network was rooted in Nevis and by extension the personal relationships they had acquired there. This left the firm vulnerable to external circumstances such as bad crops, hurricanes or even insurrections.⁴² This is precisely what happened in 1800, when the firm refused to comply with Mrs McEvoy's requests, arguing that, "the low price of sugar, during the whole of last year, together with the miserable failure of the crops this season in the island we are highly connected with has put it out of our power to please even our oldest, and best established friends to the utmost of our wishes."⁴³ This situation placed Tobin & Pinney, who had all their assets concentrated in Nevis, at risk.

⁴⁰ Richard Pares, *A West-India Fortune* (London, 1950), p. 168.

⁴¹ The level of indebtedness of Tobin & Pinney's clients was wide-ranging: four planters owed more than £1,000. Yet, the recourse to legal action was not determined by the level of debt, as substantial debts tended to be secured by mortgages and other formal instruments.

⁴² On the risks posed by hurricanes, see Matthew Mulcahy, "Weathering the Storms: Hurricanes and Risk in the British Greater Caribbean," *Business History Review* 78 (Winter 2004): 635-663.

⁴³ Tobin, Pinney & Tobin to Mrs McEvoy, 18 Oct. 1800, Tobin, Pinney & Tobin Letterbook 40, BUL.

The advantages of having personal relationships as the backbone of the network were real, but also limited. Merchants were aware of the ambiguous nature of these “friendships,” as shown in a letter by the partners to Daniel George Webbe, in 1789: “We must take the liberty to say we have had reason to find our situation particularly delicate from a long personal intimacy with most of the inhabitants of Nevis and with many gentlemen at St Kitts and other islands, we have been subjected to applications, which never would or could have been made to strangers and you know enough of the world to be sensible that to refuse a favour is often to lose a friend and sometimes to gain an enemy. Thus circumstances we fear we have are more liable to give offence than other Gentlemen in the same line by declining to enter into engagements, which seem to have been proposed to us more as friends than as merchants.”⁴⁴ When asked by a planter for a large financial advance, a merchant had to choose between tying more of his money to improbable remittances or losing a business partner and the potential connections associated with him. The same dilemma had arisen when John Pinney, still a planter, was asked to give collateral security for repayment of friends’ debts. To refuse to enter into such arrangements, as he did then as a planter, was easier as he did not rely on these contacts and their remittances to run his trading business.⁴⁵

As a result, other mechanisms were in place in order to offset the disadvantages of having to rely too much on personal relationships for information. The partners were aware that their business dealings were constrained by values of moral reciprocity, and tried to protect themselves from these obligations. They were not blind to the financial measure of the risks they faced, although they were bounded in their room for manoeuvre.

⁴⁴ Pinney & Tobin to Daniel George Webbe, 10 Feb. 1789, Pinney & Tobin Letterbook 37, BUL; the partners’ emphasis.

⁴⁵ Richard Pares notes that John Pinney did not provide any collateral security after 1774, in *A West India Fortune* (London, 1950), 243.

Expansion and risk

Despite a very risky environment, the firm managed to survive until the middle of the nineteenth century. How did the partners combine the need to expand as an insurance against risk and the possibility of grasping new opportunities with a justified caution against dishonest agents and insolvable clients?

"Insert figure 8 here"

If we compare the membership of the Tobin & Pinney's network in the three sample periods, we can observe the rate of change in the connections. At first, our findings seem at odd with what was previously ascertained. For a network supposedly based on long-term personal relationships, persistent connections appear relatively uncommon. As indicated by figure 8, only 71 out of the 191 correspondents present in the 1800-02 network already belonged to the firm's connections in 1795-6. If we look at what happens over two decades, we find that less than a third (29.8 per cent) of the 1800-02 correspondents were already in the firm's network between 1784 and 1790.

A closer look enables us however to nuance this picture. First, we need to differentiate between regular correspondents and more occasional ones. Figure 8 enables us to compare over time the persistence of the trade network at large with that of two of its components: the planter class as a whole and those planters who were commission clients. If we focus on the planters as a whole, we find that out of the 50 planters in the 1795-6 network, 32 or 64 per cent were already correspondents of the firm in 1784-90. A quarter of these 50 planters also belonged to John Pinney's network before 1784, when he was still a planter. We find more or less the same figures for the later period. In addition, 27 planters, that is, half of the planters present in 1800-02 were already connected to the House in 1784-90. The firm also had long-standing relationships with other factoring firms, suggesting that financial and commercial activities between firms were also embedded in long-term interaction and reputation. Thus, 41 per cent of the factoring firms in 1795-6 were already part of the firm's network in the earlier period. By contrast, the other categories display less consistency and over 80 per cent of these correspondents were new to the network: for instance, only two out of the 34 "other" in

1795-6 previously belonged to the firm's network. This stability at the core of the network confirms the role long-term personal relationships played in cementing business relations.

"Insert figures 6 & 7"

If we compare the planters as a whole over the three different periods, we also find that despite the number of planters in the network remaining more or less the same, there is evidence of a deepening and extension of the credit network: the number of commission clients went from 28 in 1784-90 to 29 in 1795-6 and 35 in 1800-02, as highlighted in figures 5, 6 and 7. There is also a slow shift in the geographical dispersion of the planters, with a slight decrease in the prevalence of Nevis over the years. This change is reflected in the landownership patterns of the regular commission clients: compared with 80 per cent in 1784-90, only 62.8 per cent of the regular clients in 1800-02 had estates in Nevis. The commission clients were then drawn from a wider range of islands: seven had estates in St Kitts, three in St Croix, one in St Vincent and one in Antigua.⁴⁶

Tobin & Pinney adopted expansionary strategies and fished for new clients using circular letters. These were templates sent to many planters at once, informing them that a ship ready to receive consignments would be chartered by the House and asking for remittances and connections.⁴⁷ These "circular letters" were also used by the partners as a promotion device in order to contact current and potential connections in Nevis. The first letter, dated 25th October 1784, was addressed to 26 different planters, of which ten did not belong to the firm's trade network during the period concerned.⁴⁸ When the partners sent a ship to Nevis for the first time, they again drafted another list of 41 planters who may be connected with them, which they submitted to the attention of the ship's captain Maies.⁴⁹

⁴⁶ The location of the one of the regular clients' estate is unknown.

⁴⁷ Circular letters, 25 Oct. 1784, 15 Oct. 1785, Pinney & Tobin Letterbook 37, BUL.

⁴⁸ These are: Magnus Morton, William Pemberton, John Patterson, John Jefferies, Walter Nisbet, Thomas Cottle, Edward Parris, John W. Sanders, John Stanley & Archbald Thomson.

⁴⁹ Instructions to captain Maies, 20 Jan. 1787, Pinney & Tobin Letterbook 37, BUL.

The credit network was also enlarged over the years: there were ten new planters in the credit network in 1795-6 and 14 new ones in 1800-02. Second, the geographical origin of these new clients confirms that the partners attempted connections with other islands than Nevis. In 1800-02, six out of the thirteen planters concerned were not based in Nevis:⁵⁰ two were from St Croix, three were from St Kitts and one was from St Vincent. Lastly, if we compare the number of planters who also belonged to John Pinney's private network in 1784-90 and in 1800-02, we see that planters who belonged to both networks represented 26.7 per cent of all planters in the first few years compared with only 14.8 per cent in the later period.⁵¹

This consideration of the network over two decades shows relationships were established through repeated interaction over a long period of time. This is the reason why we find many Nevis planters and correspondents of John Pinney in the early network. The firm's involvement with the export trade and one-off relationships was also used for the same purpose.

Thus, despite the partners' claims that they shall avoid the export trade by all means and their occasional refusals to engage in a connection on this basis (Richard Whitehall in 1784, Keyliger in St Croix in 1795),⁵² some of their regular relationships were actually started this way. It is true that the partners chronically voiced their reluctance at getting involved in the export trade, but they nonetheless did engage in it. This behaviour was viewed as an anomaly by Pares, who wrote that "the Pinneys almost consistently refused to have anything to do with the 'cargo business,' and their few deviations from this rule only proved its general wisdom." Quite a few of their business relationships started off as an export trade. This was the case with C. A. Chabert and M. & W. Krause in St Croix, Ellery, Lynch, Parson and Taylor in Nevis. This practice seems confirmed by the fact that in 1800-02, the three planters with whom the firm dealt in export goods, were all previously absent from the network.⁵³ The involvement of the partners in the export trade was more than just an exceptional decision based on personal liking and

⁵⁰ The location of the one of the regular clients' estate is unknown.

⁵¹ The overlap concerns only 10 per cent of all planters in 1795-6 but the records are probably incomplete for these years.

⁵² Pinney & Tobin to Whitehall, 02 Oct. 1784, Pinney & Tobin Letterbook 37, BUL; Tobin & Pinney to Keyliger, 24 Oct. 1795, Tobin & Pinney Letterbook 39, BUL.

⁵³ These are John Hall from Antigua, Mrs Jeffery and John Matthew in Nevis.

obligations, but a way to put new connections to the test, with less financial involvement. This enabled Tobin & Pinney to get a sense of the credit history and behaviour of a potential client, which may in turn predict the future of the firm's interaction with the given individual.

Were the partners as likely to expand their business in times of crisis, and particularly in wartime? Did Tobin & Pinney's network change and adapt to higher risk? As pointed out by Marzagalli, "war did not modify demand, but it compelled merchants to find new ways to respond to it and to keep maritime trade alive despite all difficulties." Her study of the trade between Bordeaux and the United States during the French Wars shows that merchants relied primarily on kinsmen and fellow countrymen, in other words kinship, ethnicity and personal relationships to establish these new trading routes and run their businesses. She argues that "although the general trend in risk management was toward reinforcement of institutional arrangements and the establishment of more impersonal relations among businessmen, merchants reverted to older practices whenever they face an unusually risky situation, such as warfare."⁵⁴ Can the same be said of the Tobin & Pinney network?

The French Revolutionary Wars marked the last two periods considered here. By 1795-6, Britain was at war with France, Spain and the Netherlands. The military operations taking place in the Atlantic and in the Caribbean Seas disrupted trade routes and forced merchants to send their ships as part of convoys protected by the Navy. The situation in the West Indies was volatile in 1795-6, with revolts in Grenada, St Vincent and St Lucia, and the threat of French attacks led from Guadeloupe. This instability was reflected in the British government's decision in 1793 to occupy Saint Domingue, torn by a slave revolt, in order to protect the British islands.⁵⁵ In 1800-02, British troops, having captured Trinidad, Surinam and Curacao, stood more on the defensive as the strategic attention was more on the Mediterranean than on the Atlantic.⁵⁶ War through increases in the price of sugar, provided merchants with increased opportunities as well

⁵⁴ Silvia Marzagalli, "Establishing Transatlantic Trade Networks in Time of War: Bordeaux and the United States, 1793-1815," *Business History Review* 79 (Winter 2005): 842.

⁵⁵ David Geggus, *Slavery, War and Revolution: The British Occupation of Saint Domingue, 1793-1798* (Oxford, 1982).

⁵⁶ N. A. M. Roger, *The Command of the Ocean: A Naval History of Britain, 1649-1815* (London, 2004), 434-36, 457.

as risks. Sugar prices in Bristol, comprised between 44.5 and 56.8 shillings per cwt during the first Tobin & Pinney partnership (1784-89), reached 98.0 shillings per cwt in February 1796, averaging 83.1 shillings per cwt that same year.⁵⁷

The development of the firm's network disproves the notion of a virulent disruption of the trade during this decade. First, the partners still intended to invest in the West Indies. They for instance encouraged Colhoun, who already owed them £1,652 in May 1796 to bid for the Morton Bay Estate adjacent to his own land.⁵⁸ Between 1798 and 1801, the firm lent around £30,000.⁵⁹ Second, new connections were formed and established with planters outside Nevis. Admittedly, some of these new connections were clearly disrupted by the war, especially in the mid-1790s and it is only in the long-term that we can clearly see these relationships develop. Their connections with the islands of Tortola, St Vincent and St Croix were under particular strain. The difficulties with St Vincent did not stop the partners entering into a new connection with Keyworth, and charging Lowman with arranging a mortgage on this new estate, writing to the latter: "as we hope this will find the situation of your unfortunate island once more settled in a manner favourable to private property, we take the liberty of sending you a mortgage from Henry Keyworth Esq to us, which we earnestly beg the favour of you to get properly recorded."⁶⁰ By 1800-02, we can see that regular relationships had been secured with planters of St Croix, St Vincent and Antigua, besides the more familiar connections in St Kitts.

In contrast to Marzagalli's observation for the trade between the United States and Bordeaux, Tobin & Pinney did not revert back to more informal ways of carrying out their trade during wartime. Kinship ties did not become more prevalent after the start of the French Revolutionary Wars. Admittedly they still relied heavily on Nevis as the hub of their network, but they attempted to expand beyond Nevis' shores and were mildly successful at it. This difference might derive from the fact that she is considering a cross-national trade. This fundamental contextual difference may explain why merchants in the French-American trade heavily relied on kinship, ethnicity and long-

⁵⁷ Kenneth Morgan, *Bristol and the Atlantic trade in the eighteenth century* (Cambridge, 1993), 210.

⁵⁸ Tobin, Pinney & Tobin to Colhoun, 09 June 1796, Tobin, Pinney & Tobin Letterbook 40, BUL.

⁵⁹ Richard Pares, *A West India Fortune* (London, 1950), 263.

⁶⁰ Tobin, Pinney & Tobin to Lowman, 30 Nov. 1796, Tobin, Pinney & Tobin Letterbook 40, BUL.

term personal relationships. Within British colonial networks, Tobin & Pinney's fortunes suggest this was not a necessary retrenchment.

The firm persistently struggled to expand to St Kitts, only separated from Nevis by a two-mile channel. It is worth noting that despite the close proximity of the islands, it took the partners over a decade to establish their credentials there. Out of the nine planters in Tobin & Pinney's correspondence who owned land on St Kitts in 1784-90, only one, Woodley was present in the network in the later periods. Similarly, neither one of the two St Kitts planters who belonged to the credit network in 1789 reappeared later. The trade environment in St Kitts proved more challenging to Tobin & Pinney, who, in the absence of personal connections dating back to their days as planters, struggled to displace pre-existing commercial arrangements with metropolitan firms. Without a ship in the direct trade with St Kitts that could have compensated for the partners' lack of experience there, the firm's investments in St Kitts, both financially and in terms of time spent keeping up new relations, proved less successful than in Nevis.

Conclusion

Examining the structure and operation of networks in the West India trade carried out by the firm of Tobin & Pinney has allowed us to clarify what happens when networks develop within a national framework and operate within a well-established legal and accounting framework, albeit one sometimes undermined by distance and costs. First, kinship ties were not as predominant as is usually stated in the literature. Indeed, family ties rendered it difficult for merchants to enforce business agreements. Second, personal relationships were essential to the operation of these networks, and their role was most evident in starting the network and enabling new connections. The firm's success was rooted in James Tobin's and John Pinney's knowledge of Nevis. Their experience as planters enabled them to form long-standing personal relationships that were first initiated in the community through repeated interactions. These relationships formed the basis of their commercial network, and sustained it over time. However, these ties could jeopardize the enforcement of informal agreements. Traders were aware of this pitfall

and therefore rarely formed business contacts purely on the grounds of personal recommendations and liking: other criteria mattered. In particular, John Pinney insisted that “friendships” in business should be preceded by the establishment of contractual relationships and on legal securities for his investments, thereby giving him a legal recourse against their clients. In his continuous involvement in the firm and well-known caution, we may find one of the explanations for the longevity of the firm.

This study therefore demonstrates that networks and social relationships were the preferred means by which merchants exchanged information and goods, yet it also points out that commercial facts travelled within a legal and contractual system that was also essential to the emergence of trust in business relations. This article, echoing research in other social sciences prompted by a growing interest in the social embeddedness of facts, shows that the dichotomy between formal and informal institutional mechanisms is more complex than previously assumed and that the ways in which we oppose modern and early modern commercial societies need to be refined.

This study also considered Tobin & Pinney's strategies when faced with new and riskier circumstances. The partners were successful in sustaining old relationships and establishing new ones and in time of war. Tobin & Pinney's network did even expand mildly rather than contract, and did so without the partners relying more on informal modes of operation than they did before.

The firm's success at expanding their activities beyond Nevis was however limited. In this respect, they did not differ much from other factoring firms active with the West Indies, which tended to concentrate their trade on one given island. Moreover, the commission system, as it operated in the 1780's encouraged this phenomenon and may explain the differences we noticed with earlier modes of organization of the West Indian trade. By the end of the eighteenth century, British and Irish commission firms traded directly with planters and bypassed local West Indian firms which used to act as intermediaries and whose activities were now confined to the slave trade. This shift often undermined the role of family members who were sent out to manage these West Indian branches. It however reinforced the role played by long-term, personal relationships in generating trust and the importance of community.

Although most attention in work on merchant networks has been on the role of kinship, the importance of friendship, locality and community to Tobin & Pinney's network parallels the findings of some recent work on other local networks. Jon Stobart, in his recent study of merchants in Chester in the eighteenth century, has highlighted on the one hand, the role of communities, the "links with friends and neighbours from the city or its immediate surroundings," and on the other local civic institutions, over that of kinship.⁶¹ He suggests that trust "was both acquired and maintained through relations with friends, neighbours and others with whom people dealt on a continual basis."⁶² Douglas Hamilton in his work on networks between Scotland and the West Indies also noted that geographical factors, based on physical proximity, took precedence over direct blood ties and that Scottish migrants developed networks with individuals coming from the same locality.⁶³ Hamilton's analysis applies to places of origins, but the case of Tobin & Pinney suggests it could be extended and generalised to West Indian locations.

The importance of locality and community, of "friends" and neighbours, also explains why the partners struggled to expand beyond Nevis. Granovetter argues that it is "weak ties" that are more efficient in "diffusion processes":⁶⁴ so when traders have access to new information, it is because "weak ties" are linking diverse groups together. Strong ties on the contrary exhaust the information in the network. Granovetter's distinction helps us recognize the limitations of relationships based on repeated interaction, such as the ones that developed between the partners and their Nevis correspondents. By focusing on "strong ties", Tobin & Pinney did indeed end up with a "snug little business and safe" rather than "an extensive one."

⁶¹ Jon Stobart, "Personal and commercial networks in an English port: Chester in the early eighteenth century," *Journal of Historical Geography* 30 (Apr. 2004): 283.

⁶² Craig Muldrew, *The Economy of Obligation: The Culture of Credit and Social Relations in Early Modern England* (New York, 1998), 2.

⁶³ Douglas Hamilton, *Scotland, the Caribbean and the Atlantic world, 1750-1820* (Manchester, 2005), 26. Laurence Fontaine similarly notes that merchants and pedlars who spread from the Alpine valleys also developed networks based on villages of origin, see Laurence Fontaine, *History of pedlars in Europe* (Cambridge, 1996), chapter 1.

⁶⁴ The strength of a tie is defined by the "the amount of time, the emotional intensity, the intimacy (...), and the reciprocal services which characterize the tie." Mark S. Granovetter, "The Strength of Weak Ties," *The American Journal of Sociology* 78 (1973): 1361.

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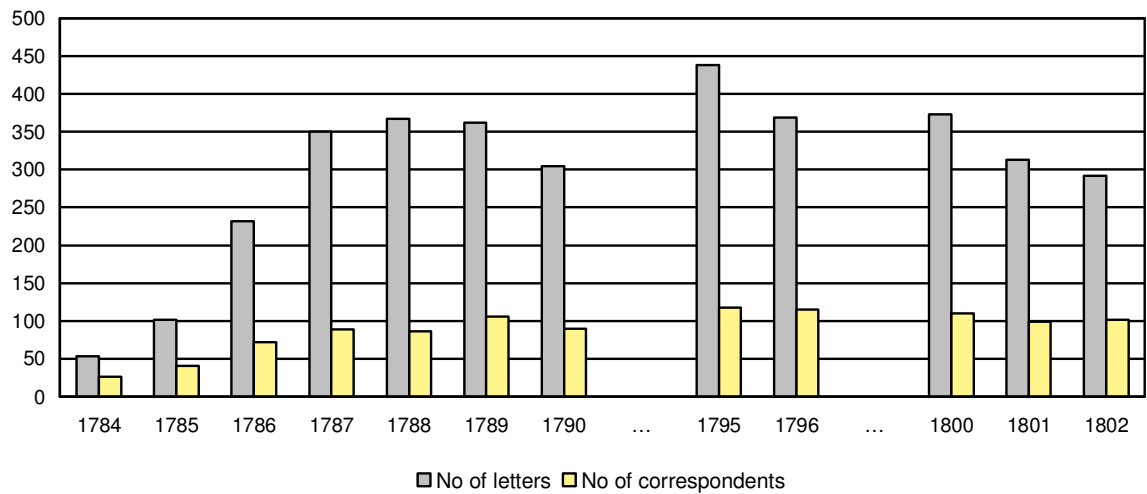
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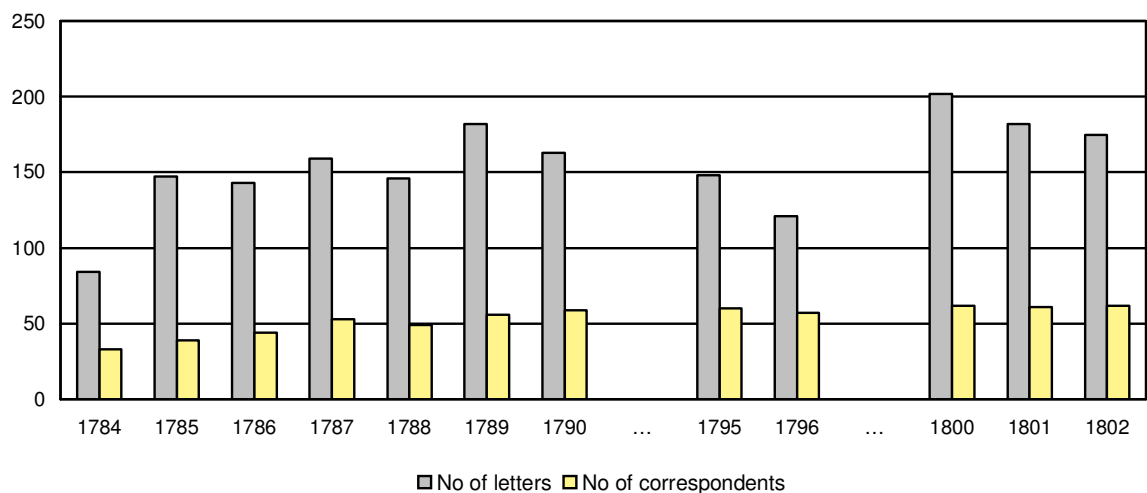
Appendix

Figure 1: Tobin & Pinney's volume of correspondence



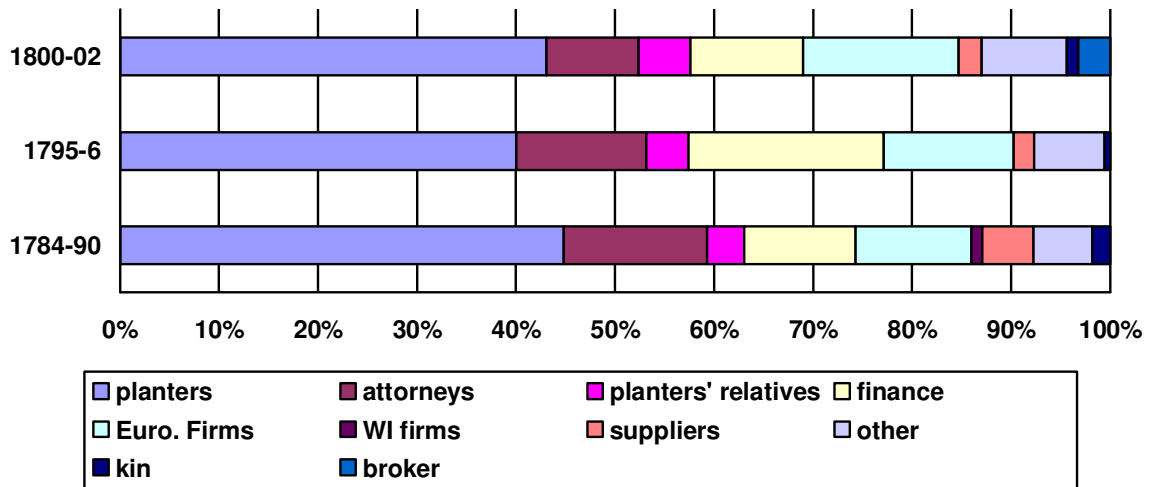
Sources: Bristol University Library, Special Collections, Pinney & Tobin Letterbook 37, Tobin & Pinney Letterbooks 38 & 39, Tobin, Pinney & Tobin Letterbooks 40 & 42.

Figure 2: John Pinney's volume of correspondence



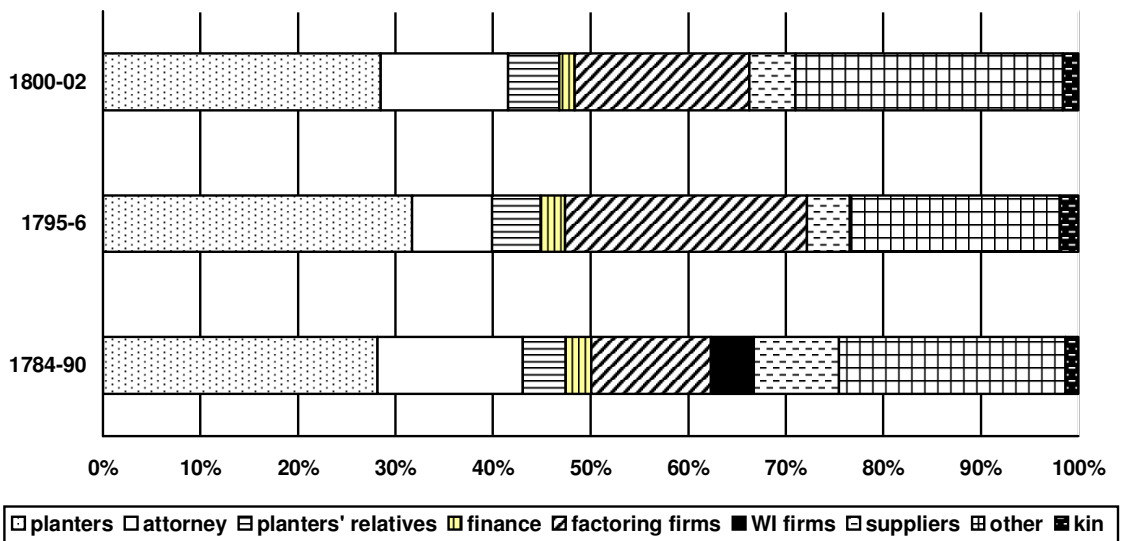
Sources: Bristol University Library, Special Collections, John Pinney Letterbooks 6,7,8,9,10,11,12,15,16 & 17.

Figure 3: The composition of the network (letters exchanged)



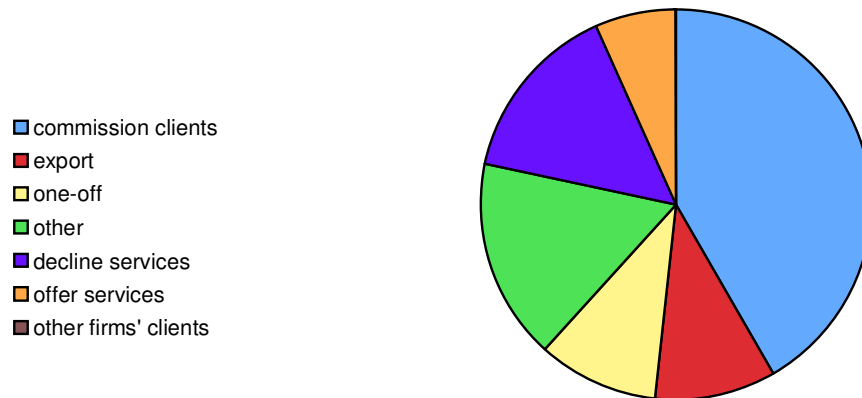
Sources: Bristol University Library, Special Collections, Pinney & Tobin Letterbook 37, Tobin & Pinney Letterbooks 38 & 39, Tobin, Pinney & Tobin Letterbooks 40 & 42.

Figure 4: the functional composition of the network (number of correspondents)



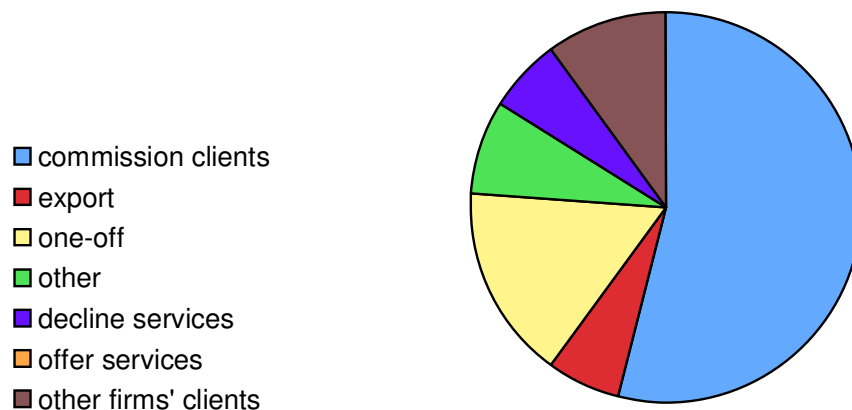
Sources: Bristol University Library, Special Collections, Pinney & Tobin Letterbook 37, Tobin & Pinney Letterbooks 38 & 39, Tobin, Pinney & Tobin Letterbooks 40 & 42.

Figure 5: Planters' relationships with Tobin & Pinney, 1784-90



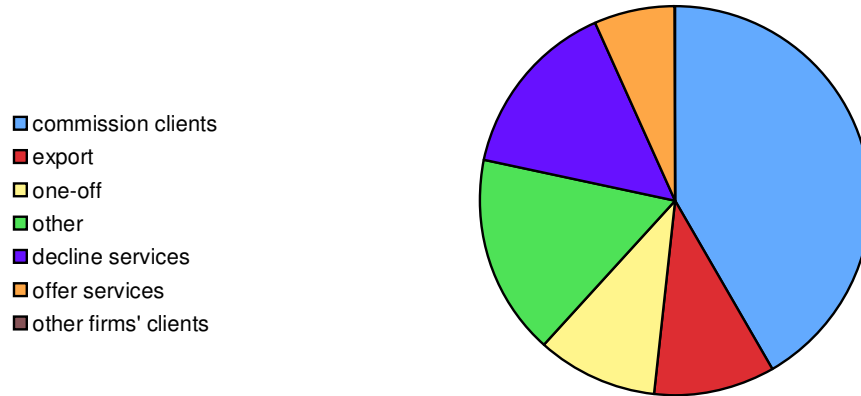
Sources: Bristol University Library, Special Collections, Pinney & Tobin Letterbook 37, Tobin & Pinney Letterbooks 38 & 39, Tobin, Pinney & Tobin Letterbooks 40 & 42.

Figure 6: Planters' relationships with Tobin & Pinney, 1795-96



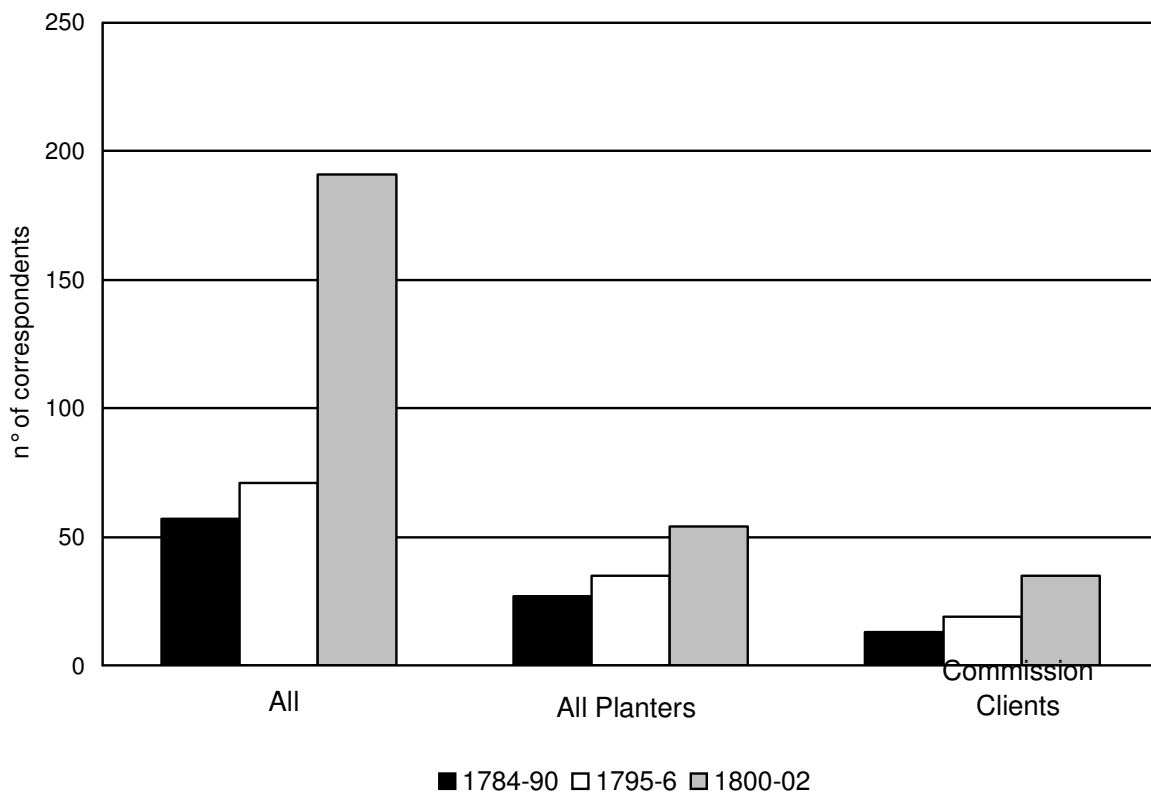
Sources: Bristol University Library, Special Collections, Pinney & Tobin Letterbook 37, Tobin & Pinney Letterbooks 38 & 39, Tobin, Pinney & Tobin Letterbooks 40 & 42.

Figure 7: Planters' relationships with the firm, 1800-02



Sources: Bristol University Library, Special Collections, Pinney & Tobin Letterbook 37, Tobin & Pinney Letterbooks 38 & 39, Tobin, Pinney & Tobin Letterbooks 40 & 42.

Figure 8: Persistence of the network, 1784-1802





Sources: Bristol University Library, Special Collections, Pinney & Tobin Letterbook 37, Tobin & Pinney Letterbooks 38 & 39, Tobin, Pinney & Tobin Letterbooks 40 & 42.

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Quality Standards and Travelling Facts in the British Wheat Markets of the Nineteenth Century

Introduction

During the nineteenth century the sources of wheat for the British markets changed significantly. This, coupled with organizational changes, changes in technology (transportation, port infrastructure, etc.), expansion of international trade routes (both in scale and scope), and the changing nature of the commodity, puts the spotlight on the importance of quality management in the wheat markets. One of the issues that the markets faced was how to capture facts about wheat quality *ex-ante* and how to make these facts travel effectively between the different market groups.

Generally, assessing quality of heterogeneous products such as wheat is difficult, as it is not practical to delineate all product attributes completely and generate facts about them.¹ Quality is a relative concept rather than an absolute one: it can have different meanings depending upon who is conducting the measurement. There is quality ‘in the eyes of producers’, but there is also quality ‘in the eyes of the consumers’.² To someone responsible for producing or inspecting a product, quality can be defined narrowly or absolutely. In contrast, to the user of that product, quality is a relative concept, to be compared with other similar or substitute products. Theoretically, this implies that facts about quality depend on the set of product attributes that a particular group chooses to proxy for the product’s quality. If attribute sets

¹ Yoram Barzel, "Measurement cost and the organization of markets," *Journal of Law and Economics* 25 (1982): 28-29; Stephen Craig Pirrong, "The efficient scope of private transactions-cost-reducing institutions: the successes and failures of commodity exchanges," *The Journal of Legal studies* 24 (1995).

² Peter Bowbrick, *The economics of quality, grades and brands* (London and New York: Routledge, 1992) 2-11.

differ amongst groups, then each group may generate different facts about the same commodity according to their different notions of product quality.³

In such a scenario, how 'well' could facts about wheat quality travel between different markets or different groups? The answer to this depends upon what we perceive to be travelling. In the context of quality management, travel could mean sharing particular information about the product, its composition, condition, functionality, etc. between groups who would otherwise have only partial access to such information. One way of making this happen is for all groups to make quality measurements using similar criteria using similar measurement artefacts and consistent practices, i.e. quality standards.⁴ This implies standardizing the attributes for assessing quality, developing standards to compare observations of selected attributes, establishing rules to sort products into different categories based on quality measurements, developing institutional rules and organizational structures to monitor the process, etc. This paper is an historical inquiry about whether such standards aided the travel of facts within the wheat markets in nineteenth century Britain, and the extent to which such facts about quality travelled. It explores the boundaries across which facts travelled and the elements that aided or inhibited the travelling.

Prima facie evidence suggests that different market groups developed their own individual criteria for evaluating the quality of wheat produce. Historically, samples of wheat would be assessed on the basis of numerous criteria, the assessment requiring a high degree of tacit knowledge and reliance on tactile senses (touch, smell, etc.).⁵ Literature suggests that with the advent of formal grading by commodity exchanges and trade associations in the latter half of the nineteenth century, product grading became the dominant way of conveying important

³ Barzel, "Measurement cost," 28-32, for a discussion of how buyers and sellers could sort commodities into multiple classes; Stefano Ponte and Peter Gibbon, "Quality standards, conventions and the governance of global value chains," *Economy and Society* 34 (2005): 7, for a discussion of quality from the perspective of 'convention theory'. They stress that 'there is no universal understanding of quality' and that 'quality is cognitively evaluated in different ways'; also, Benoit Daviron, "Small farm production and the standardization of tropical products," *Journal of Agrarian Change* 2 (2002).

⁴ Olivier Favereau, Olivier Biencourt, and François Eymard-Duvernay, "Where do markets come from? From (quality) conventions!," in *Conventions and structures in economic organization*, ed. Olivier Favereau and Emmanuel Lazega (Cheltenham, UK: Edward Elgar 2002), 243.

⁵ Stanley Dumbell, "The sale of corn in the nineteenth century," *The Economic Journal* 35 (1925): 144.



facts about wheat quality.⁶ But were wheat grades the only way in which facts about quality could travel between groups? How well did facts travel as a result of product grading?

This paper shows that there was no universal set of attributes that the markets used to measure quality even by the end of the nineteenth century. It demonstrates how quality assessment along the commodity chain involved the measurement of different sets of product attributes by different groups as the organization, technology and trade routes transformed and the number of 'standards' used to measure quality increased. It shows how different market groups developed different ways of capturing facts about product quality, which were not standardized across all market groups. As a result, I argue, that some facts travelled well across groups, but not all facts, and that the major barriers to travel were institutional rather than technological in nature.

The paper is organized as follows. The following section introduces the major issues that wheat markets faced in terms of quality in the nineteenth century. The subsequent three sections discuss quality management from the perspective of the trade or merchants, the major buyers of wheat (the millers), and the domestic wheat growers. The following section links these different perspectives in terms of quality measurements, wheat grades and standards and the institutions that developed them. Conclusions about quality and facts and how they travelled within and between market groups are offered in the final section.

Quality issues in the wheat markets

As the proportion of British population consuming wheat increased throughout the nineteenth century, the wheat trade underwent a significant change in composition and organization. Post-1860, more wheat was being imported than was being sold in the domestic markets: the

⁶ Pirrong, "Commodity Exchanges," 233; also Daviron, "Standardization of tropical products," for standardization of grades as a strategy to manage quality, although he admits that this is only 'one amongst a series of possible modes' to manage information asymmetry.

quantum of foreign imports was roughly eight times that of domestic sales.⁷ Imported wheat came from many sources, such as the US, Russia, Argentina, Australia, New Zealand, India, and several other locations in Europe. The structure of the trade had evolved since the eighteenth century and by the end of the nineteenth century involved a fairly complex organizational structure, characterized by layers of interrelated firms and organized commodity markets (figure 1).⁸

INSERT FIGURE 1 HERE

In the domestic markets, middlemen known as *corn factors* sold wheat in organized terminal markets, such as the Corn Exchange at Mark Lane in London. Very few farmers sold directly at Mark Lane and wheat was sold through the factors to millers or to shipping factors for re-shipment. Wheat that was not sent to London from the home counties, was sold to country millers, although it was not unusual for country millers to obtain wheat from London based factors.⁹ Although corn factors remained an important conduit for the trade buyers of wheat, the *importing merchant* became an important member in this chain as wheat imports increased. The structure of the trade at the exporting country became significant, particularly from the perspective of quality assessment, as we will see later on. Broadly speaking, wheat sold by the farmer to the *exporting merchant* for reshipment to Britain would normally arrive in sacks, which could be identified with the original seller. If grain was mixed it was done by the importing merchant at the port of import. The most important exception to this was North American corn, which was sold to the operators of the grain elevators. Here the grain would be mixed with other grain of similar quality, the farmer receiving the price according to the quality. The operators would sell this mixed grain, of 'standard' quality either at the trade exchanges or to the exporting or commission merchants at the large primary markets, such as Milwaukee or Chicago.¹⁰

⁷ In 1880, foreign wheat imports amounted to 55 million tons as opposed to 6.7 million tons reported in domestic returns; British Parliamentary Papers (hereafter *PP*) 1889 Vol. LX, *Statistical Tables of Corn Averages*, p. 423; *PP* 1886 Vol. LX, *Report of Grain Imported into the UK*, p. 405.

⁸ Morton Rothstein, "Multinationals in the grain trade, 1850-1914," *Business and Economic History* 12 (2nd Series) (1983).

⁹ C R Fay, "The London corn market at the beginning of the nineteenth century," *The American Economic Review* 15 (1925): 72-73; Dennis Baker, "The marketing of corn in the first half of the eighteenth century: North-east Kent," *Agricultural History Review* 18 (1970): 138.

¹⁰ Article in the trade journal, *Miller* (London), April 5, 1880, p 99; Rothstein, "Multinationals."



The trade dealt with numerous varieties of wheat grains, based upon botanical distinction as well as distinct characteristics of each botanical variety. By 1840 several new wheat varieties were added to the existing Red Lammas type of low yielding British varieties. At least 16 different domestic wheat types were available for sale in English grain markets in the 1850s, each differing not only in gluten content – the chemical substance which determines the bread-making ability of wheat - but also in terms of yield (i.e. quantity of grain per acre).¹¹ In addition to the domestic varieties, wheat imports greatly increased the total number of varieties available for sale in British markets. An analysis of English and foreign wheat available in 1884 listed more than 25 domestic varieties (including distinct grain types as well as grains of different quality) and about 40 foreign ones. The foreign varieties were used mainly in the manufacture of flour, particularly in South England.¹² Such heterogeneity was not unique in the wheat trade and is evident in other industrial commodities, such as cotton.¹³ On the whole, agricultural products were affected by several natural factors, and quality variations within the same variety or breed could occur in an unpredictable fashion. This made assessing their quality a particularly difficult process.¹⁴

An important issue here is at what stage in the long value chain was the quality of wheat measured and who measured it? Historically, it was in the interest of the mealman, who mixed different grades of wheat to get the ‘meal’ to bake bread, to assess the quality of grain he bought, as there was often a substantial price differential between the best and inferior quality wheats.¹⁵ When the millers integrated the functions of the mealman by the eighteenth century, the mixing of different grain quality, and therefore the assessment of quality, was done by them. With the establishment of the organized markets, such as Mark Lane or other regional markets, the assessment of quality was done at these nodes. This coincided with the

¹¹ John R Walton, "Varietal innovation and the competitiveness of the British cereals sector, 1760-1930," *Agricultural History Review* 47 (1999): 45-48.

¹² William Jago and William C Jago, *The technology of bread-making* (London: Kent & Co., 1911), 272-79.

¹³ Alonzo B Cox, "Relation of the price and quality of cotton," *Journal of Farm Economics* 11 (1929): 543; Alston Hill Garside, *Cotton goes to market : a graphic description of a great industry* (New York: Frederick A. Stokes Company, 1935), 46-67.

¹⁴ Wells A Sherman, "Standardizing production - what has been done and what can be done," *Annals of the American Academy of Political and Social Science* 142 (1929): 419.

¹⁵ Christian Petersen, *Bread and the British economy, c1770-1870*, ed. Andrew Jenkins (Aldershot, England: Solar Press, 1995), 158-9; *PP 1805 Vol. III*, p. 195, evidence of Peter Giles to the select committee stating that the price of good quality wheat could be double that of inferior quality.



rise in the practice of selling by sample. The buyer and the seller would agree on a price upon inspection of the sample and the delivery by the seller would have to conform to the quality of the assessed sample.¹⁶ When foreign grain was imported in large quantities after c1860, the inspection and sampling issues became particularly important to assess the quality of grain being imported, although their significance in earlier periods, especially for Irish imports, should not be underestimated.¹⁷ After c1860, grain imported from North America, especially from the Midwest area of the US, was shipped according to distinct quality grades. The grain elevator operators did the grading, particularly since grain from different producers was being mixed during storage and prior to transportation.

Broadly speaking, the nodes at which quality was measured changed and varied as the structure of the trade changed between the eighteenth and nineteenth centuries. Different groups developed their own individual criteria for evaluating the quality of produce and the degree to which it matched their requirements. Measurements were made some of the times at the exporting end, and at other times at the importing end of the trade. Why were the quality measurements made at different nodes along different trade routes? Why did different groups use different attribute sets to measure quality? To what extent did these practices inhibit the travel of facts about quality? Such issues are explored in more detail in the following sections.

Quality from the trade's perspective

Historically, samples of wheat sold in important markets such as London or Liverpool were submitted for inspection and the *natural weight* of the grain (i.e. its density or weight per cubic capacity), its colour, dryness, presence of impurities and other physical characteristics were important attributes on which quality was assessed. The extent to which tacit knowledge was used to assess quality was high as 'the eye, nose and hand were necessary [in] judging

¹⁶ Baker, "Corn marketing," 138; *PP 1834 Vol. XLIX* p. 259.

¹⁷ Dumbell, "Corn sales."



the value of grain and dealers could determine its specific gravity by “merely taking up and poisoning a small quantity of it in their hands”.¹⁸

In several domestic markets, selling on the basis of natural weight or density was a common method of assessing the quality of produce. This method guaranteed that the contracted volume of grain, say one-*bushel* measure, would weigh a specified amount, say 60 *lbs*. If the actual weight was more or less than the guaranteed weight per volume, the contract price was adjusted proportionately.¹⁹ For example, a contract for wheat from c1830, guaranteeing delivery weight to be 18 *stone* per *quarter*, specified price and terms as 54s 6d ‘pay or be paid’ i.e. the farmer was to make a ‘proportionate allowance’ to the merchant in case the net weight on delivery was under 18 *stone* 4 *lbs*, and conversely the farmer was to receive an allowance from the merchant in case the net weight on delivery was found to exceed 18 *stone* 4 *lbs*.²⁰ Also, wheat brought into Sheffield market from Gainsborough and Lynn was sold by the *quarter* weighing 504 *lbs*, whereas wheat from Hull was to be delivered at 480 *lbs* per *quarter*.²¹ There are similar examples from other market towns such as Lincoln, Stamford, York, Leeds, etc. The use of natural weights to assess the quality of wheat was not unique to Britain. French bakers regularly used this method to distinguish between good and average quality wheat.²²

Such natural weight measurements did not capture information about the *condition* of the grain, such as the presence of impurities, dryness or moisture content, texture, etc. – attributes that were equally important to the miller and the baker in addition to the composition of the grain. Historically, information about the condition of the grain could be verified through sampling and visual inspection. However, even inspecting samples proved to be problematic as samples sometimes hid the extent of variation in the quality of a given stock. For example,

¹⁸ Ibid. 144. It is important to consider the difference between *specific gravity* and *natural weight* in this context. Specific gravity measurements usually refer to the density of individual wheat grains. However, as will become clear later in the chapter, due to the manner in which natural weight measurements were made, they included the ‘density’ of empty spaces (or air) in addition to the density of the individual grain.

¹⁹ The other methods of selling grain in domestic markets were on the basis of volume-only or weight-only measures.

"Report from select committee on the sale of corn," in *PP 1834 Vol. VII*. Also, "Summary of returns by corn inspectors," in *PP 1878-79 Vol. LXV*.

²⁰ *PP 1834 Vol. XLIX*, p. 259; 1 *stone* equals 14 *lbs* and 6.35 *kgs*.

²¹ Ibid., 262.

²² Steven Laurence Kaplan, *Provisioning Paris: Merchants and millers in the grain and flour trade during the eighteenth century* (Ithaca and London: Cornell University Press, 1984), 52-3.



after selling on the basis of samples became common practice in the mid-eighteenth century, there were complaints against corn factors that they exposed only a selection of their samples so that the buyers did not get a complete picture of the actual quality of stock they represented. Sampling was also problematic in other commodity trades. Cotton sellers in Liverpool often accused brokers of carelessly handling samples, which ‘prejudiced the sale of the whole lot and often put the seller to the expense of re-sampling’.²³

From the mid-nineteenth century onwards, commodity exchanges, such as the London Corn Trade Association (LCTA) or the Chicago Board of Trade (CBT), began to develop detailed mechanisms to measure and grade these complex goods.²⁴ Developing grades involved selecting a finite set of characteristics, or ‘summary criteria’, such that the commodity could be graded into a manageable number of classes. Criteria used to determine the commercial grade of grain from the samples submitted for inspection included moisture content, natural weight, freedom from foreign material (cleanliness), condition and texture of the kernels, general condition (whether the grain is cool and sweet or it is musty, sour, heating or hot), etc.²⁵ Commodity exchanges initially found it difficult to fix numerical grading standards. When product attributes could not be graded absolutely or quantitatively, these exchanges provided an alternative by creating dispute resolution or arbitration mechanisms.²⁶ The commodity exchanges functioned as quality *assurance* or *guaranteeing* centres, and not only institutions that coordinated the measurement and grading activity.

The British exchanges, such as the LCTA and the Liverpool Corn Trade Association were primarily concerned with grading imported wheats, not domestic ones: there is no evidence that either of these exchanges developed formal grades for the domestic trade. By the end of the nineteenth century, guaranteeing quality of imported wheat traded in the London market involved four distinct grading methods: certificate final, sealed sample, fair average, and fair

²³ Daviron, "Standardization of tropical products," 169; Lowell D Hill, *Grain, grades and standards: Historical issues shaping the future* (Urbana & Chicago: University of Illinois Press, 1990), 6; Fay, "London corn market," 73; J C F Merrill, "Classification of grain into grades," *Annals of the American Academy of Political and Social Science* 38 (1911): 63; Thomas Ellison, *The cotton trade of Great Britain: including a history of the Liverpool cotton market and of the Liverpool cotton brokers' association* (London: E Wilson, 1886), 177.

²⁴ Pirrong, "Commodity Exchanges," 234.

²⁵ Lloyd S Tenny, "Standardization of farm products," *Annals of the American Academy of Political and Social Science* 137 (1928): 209.

²⁶ Pirrong, "Commodity Exchanges," 235.



average quality (FAQ).²⁷ The FAQ method was the one that was most commonly adopted in London. Under this method, samples of all grain imported into UK, including several ports in Europe, were periodically collected by LCTA who would then arrive at the grades for any given year. The actual mechanism or methods used to describe the grades could not be determined from the archival records. It is difficult to establish whether the FAQ grades were standards – as in a reference point that establishes conformity or deviation – or as ranked categories into which the different samples could be sorted. Since the grades were developed on a responsive basis, i.e. based on annual samples collected, it is likely they functioned as ranked categories rather than as standards.

When the LCTA began grading grain on the FAQ basis, the description of quality depended upon the source of the produce. For instance, when Indian grain was graded on FAQ terms, allowance was made for dirt and other impurities (such as non-farinaceous seeds).

‘[Not over] 3% of impurities of which 1(1/2)% may be dirt for shipments to the 30th June, and 3(1/2)% [impurities], of which 2% may be dirt, for the remainder of the seasons shipments’²⁸

Similarly, standards for New Zealand wheat were made separately for round berried and long berried wheat.²⁹ North American grain was gradually accepted on the basis of ‘official certificate of inspection to be final as to quality’, i.e. according to the quality guaranteed by the official inspection certificates issued in the US. Even so, LCTA would sometimes inspect the samples prior to accepting the grades.³⁰

While making the FAQ grades, the LCTA would take into account the differences in the natural weight of the grain from Argentina, Australia, California or other locations. For

²⁷ R B Forrester, "Commodity Exchanges in England," *Annals of the American Academy of Political and Social Science* 155 (1931): 202.

²⁸ London Corn Trade Association (LCTA), Minutes of East India grain committee: Vol. 1 (1888-96), entry for 8th Aug 1889.

²⁹ LCTA, Minutes of American and Australian grain committee: Vol 1 (1882-96), entry for 9th April 1891; John George Smith, *Organised produce markets* (New York: Longmans, Green and Co, 1922), 24-25.

³⁰ LCTA, Minutes of American and Australian grain committee: Vol 1 (1882-96), entry for 1st Jan 1891; Pirrong, "Commodity Exchanges," 236; LCTA, Papers of the Subcommittee to examine rules of arbitration, suggested alteration of Contract Forms 1898 proposed by the Liverpool Corn Trade Association on 8th Nov 1897 and accepted by committee.



example, while fixing the standard for Australian wheat in 1894, the LCTA fixed an average weight of 63 *lbs* per bushel for the seasons wheat. On the other hand, the average weight of Californian White was assumed to be 60.5 *lbs* per bushel, while fixing the standards for 1895. Similarly, for grain imported from the Black Sea ports, the committee had developed rules to account for the natural weight, especially for rye and barley.³¹ LCTA also used other criteria, such as cleanliness and colour, to establish its grades, as in the case of grain from India.

The use of natural weights is also evident in the case of the US wheat grades. In 1858, the Board of Trade of the City of Chicago (CBT) began classifying grades of grain according to descriptions of colour, quality and general condition and at the same time certifying to those grades.³² In 1859, CBT added 'test weight' i.e. natural weight, as a grading factor for wheat. The following minimum test weights (pounds per bushel) were introduced: Club, 60 *lbs*; No. 1, 56 *lbs*; Standard, 50 *lbs*; Rejected, 40 *lbs*. These did not always work, as in 1859 when grain less than 45 *lbs* per bushel but of Standard grade or better was delivered. As a result, CBT revised the grades and the minimum test weights as follows: No. 1, 56 *lbs*; Standard, 50 *lbs*; No. 2, 45 *lbs* and Rejected, 40 *lbs*. Even these 'standardized' natural weights failed to gain approval by the trade. The CBT consequently left the specification of the test weight to the discretion of the grain inspectors when ascertaining grade.³³

By the turn of the century, a numerical system of grading the various varieties of red, white, winter and spring wheat had emerged. For instance, No. 1 white winter wheat was defined as that which was pure white, sound, plump and well cleaned. No. 3 was defined as not clean and plump enough for No. 2 but which weighed not less than fifty-four *pounds* to the measured bushel. The Board of Railroad and Warehouse Commissioners had developed this system of rules for inspection in order to 'establish a proper number and standard of grades for inspection of grain'.³⁴ These rules took into account the natural weight of grains such as wheat, barley and oats to define certain grades in addition to other attributes.

³¹ LCTA, Minutes of American and Australian grain committee: Vol 1 (1882-96), entry Sep 24, 1895; Feb 20, 1894, etc.; LCTA, Minutes of Black Sea Grain Committee: Vol 1 (1890-1901), especially the comparative table for the regulation of the natural weight of rye; also, Forrester, "Commodity Exchanges," 202.

³² Merrill, "Grain grades," 58.

³³ Hill, *Grain, grades and standards*. 13-16.

³⁴ The forty-seventh annual report of the trade and commerce of Chicago published by the Chicago Board of Trade (Chicago, 1905), 30-33.



Nevertheless, the numerical grades in the US were not entirely based upon *quantitative* measurements of quality. Quantification of quality attributes continued to remain problematic and elusive. When the US Grain Dealers National Association adopted inspection rules in 1908, their Grade 1 specified moisture content to be 15%, impurities (dirt, broken grains, etc.) to be 1%. Yet in c1914, numerical grades continued to be based upon descriptions such as sound, dry, reasonably clean, sweet, mature, plump, etc.³⁵ Studies conducted by USDA after 1909 to identify ‘tangible factors’ influencing the ‘intrinsic value’ of corn considered weight per bushel as an important factor (apart from moisture, breakage, cleanliness, etc.). When the US Department of Agriculture (USDA) promulgated official grades for commercial corn in 1914, six distinct numerical grades were defined on the basis of moisture, damage to the kernels (due to heat or presence of broken corn, etc.) and presence of foreign material.³⁶

The foregoing discussion raises several issues regarding the measurement and management of quality in the British wheat trade. The first set of issues relates to the multiplicity of criteria used to define and measure the quality of wheat. Broadly speaking the density of wheat was considered as an important indicator of the bread-making ability of a given variety of wheat. Apart from density, other criteria were just as important in assessing the condition of the grain. Also, the set of attributes used to measure quality differed according to the trade route and sources of imported wheat.

The second set of issues relate to the difficulty in arriving at numerical standards of quality. Could the bread-making ability of wheat – an important test of grain quality of from a miller’s (and a baker’s) perspective – be quantified? What criteria should be included in this quantified measure? Understanding the buyers’ perspective of wheat quality will help to answer these questions.

³⁵ Hill, *Grain, grades and standards*. 76, table 3 comparing grades specified by USDA and those used in three major grain markets of New York, Chicago and Minneapolis.

³⁶ *Ibid.* 18-19 & 71-73.



The third set of issues relates to the nodes at which such measurements were made. For instance, why were quality measurements of American wheat, made in the exporting country? Why were they acceptable in British markets? Why was wheat imported from other sources checked for quality in British ports? These issues are explored in detail in the following sections.

Quality from the farmer's perspective

While the distinction between different wheat qualities was important, British wheat farmers were mainly concerned with the 'harvest index' of the crop. This index referred to the proportion of total shoot weight accounted for by the grain, the balance being the weight of the stalk (figure 2). To the farmer, both the grain as well as the stalk were of value, particularly in the high farming systems where the stalk provided valuable livestock fodder. In addition, there was an inverse relationship between the quantity of grain produced (yield) as opposed to its natural weight or density. Generally, varieties that had higher yields, in terms of volume per acre, had lower densities. Also, there was no single variety available that could produce heavy stalk yield and a large volume of grain at high densities preferred by the baking trade.³⁷

INSERT FIGURE 2 HERE

Grain yield was a multi-faceted concept to the farmer who had to balance all the three aspects of the harvest, i.e. the weight of the stalk, the weight of the grain and the total amount of grain produced. The application of high fertilizer doses in the nineteenth century, while increasing the overall yield of the crop, changed the character of the crop in one of two ways. If, the harvest index was reduced, that is the proportion of stalk to grain went up, this increased the density of the individual grains, while reducing its yield in terms of the total quantity of grain produced. But, if the overall quantity of the grain increased, i.e. the harvest

³⁷ Walton, "British cereals," 39-40.



index increased, it resulted in decreased density of the grains.³⁸ This quest for greater yield gradually resulted in a varietal shift of wheat available in domestic markets, as farmers preferred the high volumetric yielding varieties, but with lower density. These varieties of soft wheat began to replace the harder, lower volumetric, higher density yielding varieties previously grown.³⁹

For example, Talavera (originally introduced from Spain), a variety that offered a high flour extraction percentage and good quality flour, had a comparatively lower volumetric yield than another variety, such as Spalding, which had lower bushel weight and higher volume yields. By the 1860s, Talavera was largely abandoned by farmers, whereas Spalding, ‘a farmer’s wheat than a miller’s’, was extensively grown.⁴⁰ Thus, we see a dissonance between the preference of the farmers and large buyers of wheat: millers complained that they could not find suitable domestic wheats for bread-making. This varietal shift implied that the softer high yielding wheat increasingly grown in Britain after c1860 were unsuited to the rolling mill technology introduced in the 1880s and millers had to import hard wheats that were more suited for this new technology.

The foregoing demonstrates that different market groups held different notions of good, as opposed to unsuitable, grain quality. These different notions of grain quality arose due to the different sets of attributes that the producers and buyers of wheat used to assess quality.

Quality from the buyers’ perspective

While important changes were occurring in the British wheat trade in the latter half of the nineteenth century, there were corresponding and equally significant changes in the milling industry around the same time. Being one of the largest buyers of wheat, these changes cannot be merely coincidental and were intimately connected. The important question here is

³⁸ Ibid. 39-40 & 48.

³⁹ Ibid. 48-50.

⁴⁰ Ibid. 48-51.



how did the millers assess wheat quality and what problems did they face in measuring or quantifying quality.

After c1870, we discern a ‘professionalization’ of skills required in the milling industry as the process of milling became highly specialized and technically sophisticated. This is evidenced by at least two developments that have a direct relevance to the issues discussed here. First, in this period we witness some radical changes in the methods, locations and reorganization of the milling industry that stem from revolutionary technological advances made after c1870, primarily the introduction of roller milling technology. The main advantage of this new technology was that it improved the quality and the whiteness of flour obtained for the same proportion of grains used to produce the coarse ‘household’ grade flour using the older grinding technology.⁴¹ The speed and extent of adoption of roller milling was shaped by at least three important factors: increasing domestic demand for white flour, unsuitability of softer domestic wheat varieties, and increase in the imports of foreign flour and hard wheat varieties. Second, we also see the emergence of some institutions in this period that further engineered the professionalization of the trade. These institutions included technical and trade journals, and industry associations that sought to overcome the knowledge and skills deficit within the industry. The structural reorganization and institutions helped to modernize the milling industry.⁴²

Consequent to these changes, the manner in which grain quality was assessed, the quality attributes of grain that were considered important for making flour of a given quality, and the manner in which they were measured were re-examined and refined. It was generally acknowledged that ‘the value to the miller of a certain variety of wheat depends upon the quantity of fine flour it will yield.’⁴³ Wheat of least specific gravity was known to yield a lower quality of flour and vice versa. ‘More flour is produced from corn of higher specific gravity, and more bread from such flour, than from inferior corn or inferior flour’, a

⁴¹ Richard Perren, "Structural change and market growth in the food industry: Flour milling in Britain, Europe and America, 1850-1914," *The Economic History Review* 43 (1990): 423.

⁴² H Macrosty, "The grainmilling industry: A study in Organization," *The Economic Journal* 13 (1903); Glyn Jones, *The millers: A story of technological endeavour and industrial success, 1870-2001* (Lancaster: Carnegie Publishing Limited, 2001), esp. Chap. 1; Perren, "Flour milling."; Jennifer Tann and Glyn Jones, "Technology and transformation: The diffusion of the roller mill in the British flour milling industry, 1870-1907," *Technology and Culture* 37 (1996).

⁴³ *Miller*, May 5, 1879, Technical Issue, p. 193.



parliamentary report from 1834 had claimed.⁴⁴ Although lighter, coarser grains could yield a larger proportion of flour. This was achieved by including coarse bran and thereby reducing the quality of flour obtained.⁴⁵ Generally, the millers, and bakers, preferred wheat varieties with high natural weights to the 'softer' wheat varieties with lower densities.⁴⁶

But it wasn't only the density of the grain that was important to the miller: the 'strength' of the grain or flour was crucial to the miller (and the baker) as well. Strength was initially defined as the ability to absorb and retain moisture, which later was modified to indicate the quantity and quality of gluten the grain contained.⁴⁷ Stronger flour was preferred because the number of loaves obtained from a given weight of flour were more than those obtained from weaker flour.⁴⁸ Hard wheat of the low yielding (and conversely high density variety) were considered to be stronger wheats, whereas softer wheats were considered to be of the weaker kind. British wheats, on the whole, were considered to be of the weaker kind.⁴⁹ The miller basically had to balance both the density as well as moisture characteristics of the grain, as those varieties with the highest-bushel weight with low moisture content usually gave the greatest amount of flour.⁵⁰

One of the greatest skills that a miller had to possess was to know which varieties of wheats to process and mix together as 'grist'; i.e. flour that the bakers would accept as being of consistent quality. Flour itself could be graded into different types: whites, firsts (or best households), seconds (or second households or standard wheaten), thirds (third households or fine middlings), fourths (or coarse middlings or sharps), and wholemeal.⁵¹ Millers scarcely recognized a consistent system of grading flour, however, each flour grade required a different quality of grain.⁵² Mixing of different wheat qualities also allowed the widest possible use of inferior grade of wheats, which by themselves would have been unsuitable for making baking flour, particularly in London and other larger towns. Mixing also eked out the

⁴⁴ Report from select committee on sale of corn, *PP 1834 Vol. VII*.

⁴⁵ *Miller*, May 5, 1879, Technical Issue, p. 193; Nov. 3, 1879, p. 682.

⁴⁶ Walton, "British cereals," 39-40.

⁴⁷ Jago and Jago, *Breadmaking*, 291; also, Jones, *The millers*. 60.

⁴⁸ John Percival, *Wheat in Great Britain* (Reading, 1934). 69.

⁴⁹ *Ibid.* 71.

⁵⁰ *Ibid.* 72; See also Jago and Jago, *Breadmaking*. 369; Jones, *The millers*. 59-60.

⁵¹ Petersen, *Bread and Britain*. 53-54.

⁵² J Kirkland, "The relative prices of wheat and bread," *The Economic Journal* 6 (1896): 479.



supply of expensive best quality wheat, and enabled the miller to enhance his margin by mixing expensive and inexpensive wheats and still sell the mixed flour at a price higher than that of inferior quality flour.⁵³

A typical mixture recommended in the eighteenth century included one part best quality wheat to one part second-best quality wheat to two parts inferior quality wheat.⁵⁴ Such a mixture implied a price ratio of about 100:91:81 for best, second and inferior quality wheat respectively.⁵⁵ As the availability of foreign wheat increased, best quality imported wheat was mixed with lower quality domestic varieties.⁵⁶ Wheat imports greatly increased the choice of wheat available for the miller to mix in various proportions, vastly increasing the complexity of the mealing process. By the latter half of the nineteenth century, millers required knowledge about the varieties available, its sources, and quality. The miller's craft had begun to demand a great deal of experimentation and risk. Millers had to consider, for each variety of wheat, whether it would contribute to one or more aspect of flour quality: strength, colour, taste or general appearance. Consequently, wheat buying was governed by experience, general principles and a considerable degree of detailed knowledge, and no two millers agreed on what constituted good quality.

For instance, one miller invited comment on whether the following mixture 'ought to make a good sack of bakers flour': 3 sacks red winter; 2 sacks Michigan; 2 sacks No. 2 spring and 5 sacks of English white.⁵⁷ He received at least five suggestions from other millers – all different. One correspondent suggested that the proportion of English wheat was too high and instead recommended that 3 sacks of Michigan be used instead of 2, and that English white be limited to 2 sacks. Another correspondent suggested the original mixture would result in 'lack of strength and colour' and suggested eliminating English white altogether and adding

⁵³ *PP 1814-15 Vol. V*, p1353, evidence by E G Smith; Petersen, *Bread and Britain*. 158-9.

⁵⁴ Petersen, *Bread and Britain*, 159; Historically, wheat had been divided into 'best', 'second' and 'third' quality categories according to some quality attributes for the purpose of setting the Assize of Bread, 12 Henry VII cited in *PP 1814-15 Vol. V*, p. 1344.

⁵⁵ Petersen, *Bread and Britain*, table 6.2 on 160. The average prices in the table have been calculated from evidence provided to the Select Committee on Sale of Corn by Richard Page, *PP 1834 Vol. VII*, p356. These are unweighted averages and weighting them with the mix proportion suggests an average price of 88 for the grain mix compared to the relative prices of individual grain qualities.

⁵⁶ Petersen, *Bread and Britain*; *PP 1834 Vol. VII*; *PP 1814-15 Vol. V*, various testimonies.

⁵⁷ *Miller*, Feb 2, 1880, Letter no. 669, p. 922.



an extra sack of No. 2 spring to the mixture: alternatively, the red winter, No. 2 spring and the English white could be mixed in equal proportions. A third correspondent suggested leaving the English white out altogether, grinding the remaining mixture separately, and then letting the meal sit in the sack for a few days before mixing. The fourth correspondent suggested that if this was milled in the country then 6 parts each of No. 1 American spring with 'sound' new English white wheat, mixed well in a bin a week before grinding, could give the desired results. The fifth correspondent recommended one sack each of Dantzic and American spring, three sacks each of American white and American winter and four sacks of English white (part new and part old).⁵⁸ Thus, there was dissonance amongst the millers as to the quality differences between the various varieties and quality was a relative rather than an absolute value in this industry.

Mixing of different flours and getting the quality of the wheat was important since a direct volumetric relationship existed between grain inputs and flour output. Consider this example from more recent times. The Chicago CBT specified grade number 2 soft red winter wheat (SRW) uses a 58 pound per bushel as criteria. A miller usually bases grain price to flour ratios on the assumption of a 73% flour extraction rate, implying that 2.36 bushels would be required to produce 100 pounds of flour. A reduction of weight from 58 pound to 57 pound per bushel has two implications. First, at the same extraction rate, the miller now needs 2.40 bushels of wheat to produce 100 pounds of flour. Second, a reduction of weight, and hence quality of the grain, is likely accompanied by a reduction of extraction rate to say 70% which further increases the quantity of grain required, 2.50 bushels, to produce the same quantity of flour. The resulting cost differential of wheat to flour is not always reflected in the price discounts for the different wheat qualities.⁵⁹

Of course, to the British miller in the late nineteenth century it was not only the price of individual variety of wheat that was of ultimate importance, but the relative costs differentials between the individual varieties due to the blending of flours. The miller had to balance his

⁵⁸ Miller, Letters: reply to 669, Mar 1, 1880, p. 45-46; Apr 5, 1880, p. 119; See also Kirkland, "Bread prices," 481, for yet another example of grist mixture.

⁵⁹ Eluned Jones, "The role of information in US grain and oilseed markets," *Review of Agricultural Economics* 21 (1999): 250-251.



margins according to the price of bread and the price of wheat. Comparing the price of flour to the price of bread and wheat over a 52-week period between 1894 and 1895, we see the degree to which the millers had to manage this balancing act. Figure 6.7 compares the price of wheat to flour assuming that the following mixture of grains is used to make the grist: 30% each of No. 1 Spring American and Fine Russian and 20% each of Red Winter and Fine English. Moreover, millers were often forced by competition to sell flour at less than its value as compared to wheat or to the corresponding quality of the flour to make its price remunerative.⁶⁰

The foregoing discussion highlights the particular meaning of wheat quality to the miller. As the milling process became more specialized and sophisticated, the *differences* in quality between varieties as well as the *consistency* of quality in a given variety became crucially important. Managing wheat quality was necessary to achieve the desired quality of flour, and to enable the millers to remain profitable. How did the millers measure the quality of grain?

Throughout most of the nineteenth century millers relied upon the visual inspection of samples to purchase grain, the attributes of relevance being the density, colour, texture, and the extent of cleanliness. When the volume of imported grain increased and the number of varieties available multiplied, the millers, like the merchants, began to rely upon the grades and standards set by the various commodity associations, such as the LCTA or the Liverpool Corn Trade Association. The correspondence between millers presented above regarding the different varieties and grades of wheat is indicative of this shift. We discern a trend of shifting reliance from visual inspection and assessment of quality to a gradual acceptance of the grading and standards developed by the various commodity associations. Millers purchasing domestic grain continued to do so based on older techniques of visual inspection and natural weights, although the importance of domestic wheat had diminished by the twentieth century; only about 19 percent of home grown wheat was used for bread making by 1914, down from 60 percent in c1860.⁶¹

⁶⁰ Kirkland, "Bread prices," 481-2.

⁶¹ Perren, "Flour milling," 425, table 1; Jones, *The millers*, 59; Percival, *Wheat*. 71.



Notwithstanding this shifting reliance on grades, assessing the quality of grain still depended upon the ‘empiricism of the practical miller’.⁶² The following extract from *The Miller*, c1875 is illustrative:

‘In purchasing wheat and choosing the description necessary to secure a uniform brand of flour, millers must often feel the want of a reliable test to guide them. It requires a very long and constant experience to judge the quality of even those wheat appearing daily in our markets; but we are left with the most unpleasant uncertainty when new descriptions are introduced to our notice.’⁶³

By the last quarter of the nineteenth century, techniques for assessing the quality of wheat were still fairly uncertain. One expert wrote in 1890 that ‘it will be well for mixing purposes to consider wheat as coming under one of three heads – strong, coloury or neutral (*sic*)’.⁶⁴ He further pointed out that wheat buying was governed by experience, general principles and by what varieties of wheat happened to be available in supply. After 1880, changes in milling technology were accompanied by development and improvements in testing and measuring the different quality attributes. The increased understanding of the chemical composition and properties of gluten, the substance in grain that lends strength to the flour, aided these developments. Various testing methods and instruments were made available for assessing the quality of flour: Pekar’s method of assessing whiteness of flour, Boland’s aleurometer to test the strength of gluten, and Robine’s method for estimating quantity and likely bread output are some examples.⁶⁵ Even so, each miller had to discover for himself the strength of any given flour, as there was ‘no satisfactory method of numerically registering strength except through a baking test’.⁶⁶

To summarize, the milling industry, towards the end of the nineteenth century required more sophisticated ways of assessing the quality of wheat compared to the relatively crude test of natural weight measurements and visual inspection – methods largely used by the trade to

⁶² Jones, *The millers*, 61.

⁶³ *Miller*, Oct 4 1875, ‘The study of a method to meet the requirements of millers in the analysis of wheat and wheaten flour’, p 196-7.

⁶⁴ W R Voller, *Modern flour milling*, Gloucester, 1889, as cited in Jones, *The millers*, 59.

⁶⁵ *Ibid.* 59-61.

⁶⁶ Jago and Jago, *Breadmaking*, 291; also, Jones, *The millers*, 60-61.



grade grain quality. The millers sought to capture the grain composition in more explicit terms of gluten and protein content rather than the simplistic notion of density. The millers were beginning to rely upon the grades established by LCTA to assess the condition of grain reaching Britain. This was an iterative process with the grading of quality helping the milling industry to become more professional, which in turn, and in conjunction with other changes in the industry, required further refinement of the quality grades themselves. The industry thus played an important role in the standardization of *ex ante* assessment and guaranteeing of wheat quality based on its composition and condition. Even so, assessment and testing on the basis of performance criteria remained the miller's responsibility. The millers had to rely upon baking tests and other measurements to ascertain quality *ex post*.

Measurements, Standards and Travel

The foregoing discussion highlights several aspects of how different groups sought to measure and manage quality and, consequently, how facts about quality travelled within and between the groups. We have seen how the British farmers and millers favoured different quality attributes of the wheat grain. To the farmers, the composition of the grain was important in terms of its density; the lower the density of the individual grain, the higher the quantum of the yield obtained by the farmers. The composition of the grain was also important to the millers. However, they preferred the density of the grain to be higher, as it increased its bread-making ability. In addition, the millers were also concerned about other compositional attributes, such as colour, shape, and texture, as well as the condition of the grain. Practically, grain with certain 'undesirable' attributes, e.g. high moisture content, high impurities, etc., could be corrected and re-sorted into higher grades. But, grain with undesirable compositional attributes could not be corrected for.

When the merchants began grading wheat, they were based on several compositional and conditional attributes, including natural weight, moisture content, cleanliness, and other descriptors (such as long or round berried for New Zealand corn. The Liverpool Corn Trade Association (LvCTA) began establishing 'contract grades' of wheat after c1855, which



differed somewhat from the LCTA.⁶⁷ However, by the end of the nineteenth century, Liverpool merchants were content to use the grades established by the LCTA.⁶⁸ The grades so developed were primarily for wheat imports from East Europe, Australia, South America or India. Imports from the US, with the exception of California, were graded at source and were accompanied by certificates of quality by institutions such as the CBT. Why was US wheat graded at source, while wheat from other sources was graded in the UK?

The elevator-based storage system that developed in America in the latter half of the nineteenth century enabled formal grading, and in fact required it. The grain (wheat) was graded at the point when the farmer brought it for storage at the shipping point. The elevator agent upon examining the quality of the grain settled with the farmer both the grade of the grain and its value. This grain was stored in the elevator along with grain of similar quality, thus segregating the identity of the grain parcels from that of the individual sellers. The seller (farmer) received value according to the lowest quality that the grain could be graded into. This strengthened the incentives of those shipping the grain to elevators to maintain quality before storage.⁶⁹ Once the graded grain was loaded onto ships or railway cars for transport it was nearly impossible to mix grain of varying qualities. Such opportunism problems and malpractices were possible prior to storage.

In contrast, handling facilities for grain imported from other countries such as Argentina and Australia were extremely crude. Crude handling methods exposed the grain to varying weather and insect condition and the absence of elevators meant that it was most efficient to ship grain in bags. This made it virtually impossible to create parcels of grain of standardized grades by combining grain from individual growers prior to shipment, as was possible in the elevator based storages of North America. Further, with individual shipments retaining their identity, inspecting quality at the importing country economized on the number of measurements necessary along such a trade route. There were few incentives to prevent dissipation of quality prior to bagging and storage. But all things being equal, this system

⁶⁷ Forrester, "Commodity Exchanges," 203.

⁶⁸ Minute books of the LCTA, Guildhall Library.

⁶⁹ Pirrong, "Commodity Exchanges," 237; James Stewart, "Marketing wheat," *Annals of the American Academy of Political and Social Science* 107 (1923): 187-188.

would have given the shipper an incentive to take care of the cargo at sea.⁷⁰ In such practices quality could not be guaranteed prior to shipment. The FAQ system, an *ex-post* method of grading, was particularly suited in these instances. It adjusted standards to reflect systematic factors affecting the quality of grain from a particular location (level of quality due to grain composition as well as condition due to storage, transport, handling, etc.), and made fewer quality distinctions between different shipments. The method minimized the number of potential disputes regarding product quality.⁷¹

Why did the British buyer trust the LCTA (or CBT) grades? The grades developed by the commodity associations took into account the composition as well as the condition of the wheat grains. Earlier, buyers had had to rely upon visual inspection of samples to ascertain condition, potentially leading to disputes if the delivered stock did not conform to sample. Additionally, the associations that developed these grades functioned as quality assurance and dispute resolution centres, apart from aiding in the assessment and measurement of quality. Dispute resolution by arbitration became widespread in the latter half of the nineteenth century as the corn trade associations set up transparent resolution mechanisms. Mostly, disputes regarding the quality and condition of grain 'occupied the time of arbitrators.'⁷² Also, British associations helped to address quality problems concerning US graded grain by raising these issues directly with CBT or other exchanges.

In addition to the ability to resolve disputes over quality, the membership policies of some of these associations also gave credence to the grades. For instance, the arbitrators appointed by the LCTA in case of disputes would include millers in addition to merchants and corn factors, ensuring that buyers as well as sellers were represented in the process. At times, the National Association of British and Irish Millers (NABIM) was also involved in the process of setting grades and often made suggestions to LCTA on quality standards.⁷³

⁷⁰ This would also have depended upon the contract and shipping terms, i.e. who had the residual property rights on the cargo and who paid for insurance, freight, etc.

⁷¹ Pirrong, "Commodity Exchanges," 238-39.

⁷² Robert B Ferguson, "The adjudication of commercial disputes and the legal system in modern England," *British Journal of Law and Society* 7 (1980): 145; C Chattaway, "Arbitration in the Foreign Corn Trade in London," *The Economic Journal* 17 (1907).

⁷³ LCTA, Papers of the Subcommittee to examine rules of arbitration, entry for 1896.



But grading was not the only way of capturing and communicating facts about the wheat's quality. Coinciding with the increased role of third party organizations, there were technological changes, such as the introduction of newer testing methods for wheat quality, and the development of instruments that could measure the density of grain directly, such as the chondrometer or grain-tester.⁷⁴ Changes in milling technology, science (primarily in chemistry) and education also influenced quality measurement practices. Scientific study of the wheat grain and the nutritive value of its different parts focused on understanding the chemical and physical properties of its proteins, especially gluten.⁷⁵ An increased understanding of the chemistry of wheat and advances in testing increased the sophistication of quality assessment techniques in comparison with the relatively crude and unreliable estimation of quality using natural weight measurements. This was accompanied by an increased effort to educate millers in the 'science of milling'. The NAIBM organized meetings, presentations, symposia, technical classes, etc. to increase the awareness of these methods and further the practical requirements of retraining mill staff.⁷⁶ The millers had begun to use the terminology of the grades. Nevertheless, they continued to test the grade quality independently, governed by experience as well as new science of milling and bread-making.

What was the significance of these trends? The complexities involved in the quality assessment and control were managed through the involvement of third party organizations by the end of the nineteenth century. This was a form of coordination that the market adopted to make the monitoring and guaranteeing of quality more manageable and effective. But, different groups developed different methods to capture different aspects of the product's quality, i.e. its compositional, conditional or functional aspects. There was no unique way of capturing information about the products quality and this was reflected in the different practices by the millers (buyers) and the trade (sellers). There were differences in quality assessment practices between different groups of traders: US sellers versus rest of the exporting countries, domestic versus importing merchants, etc. This meant that the British

⁷⁴ *PP 1890-91 Vol. XII*, p. 54-56.

⁷⁵ Harriette Chick, "Wheat and bread: A historical introduction," *Proceedings of the Nutrition Society* (1957): 3; Jago and Jago, *Breadmaking*. 272-273 & 369-370.

⁷⁶ Jones, *The millers*. 150-156; Tann and Jones, "Technology and transformation," 68.



wheat markets did not use standardized practices across all trade routes as far as quality measurements were concerned. The attributes measured, the standards used, the measuring instruments and the measurement protocols all seemed to vary. This is not to imply that few standards existed – on the contrary, we detect an increase in the use of many different kinds of standards (product grades, instruments, metrological units, etc.). Coordination between these various practices – and as a consequence the circulation of facts about quality - was conditioned by market institutions and third party organizations.

Conclusions

In this paper we have seen that although general facts about quality travelled well between different groups in the wheat markets, particular facts tended to have a well-defined range of travel. Virtually all groups associated high quality with high density of the wheat grain. However, beyond this general fact, each group valued different facts about specific product attributes, be they compositional, conditional or functional in nature. Consequently, the groups developed different practices to capture the particular facts they valued most. Travel of these particular facts beyond the group's boundaries depended upon many other institutional factors.

This leads to an interesting observation that although general facts about quality travelled within the markets, the 'wellness' of travel depended upon the extent to which different groups reconciled them in the context of particular facts they themselves had captured. In other words, whether a particular variety of wheat was generally held to be of high quality by millers depended upon how they could establish that variety's quality in the context of the attributes they valued most, be it density, strength, smell, etc.

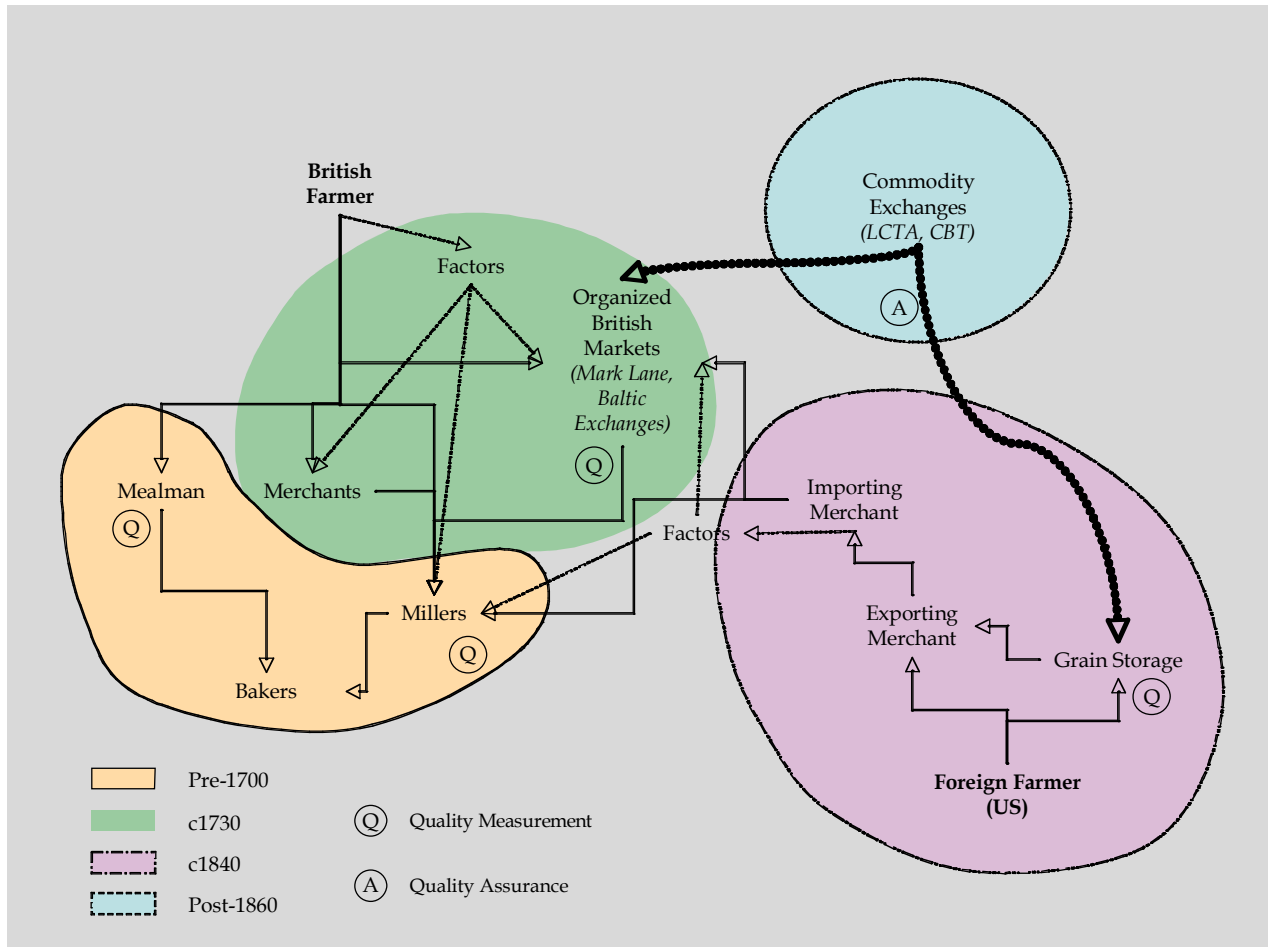
Institutionally, attempts to make particular facts immutable and portable by attaching labels are reflected in the attempts to grade different wheat varieties by the commodity associations. Such labels aided the travel of facts (and also the trade in those varieties), particularly over long distances; they helped to reduce transaction costs by reducing information costs.



Particular facts, along with such labels, travelled along with the commodity from the originating ports to the destinations in many cases. In other cases, these labels had to be developed at the destination ports, which in turn enabled particular facts (and the commodity) to travel from the merchants to the buyers. The important observation here is that the trust in these labels depended upon the institutional context in which they were developed. Trust did not depend upon whether they were numerical or quantified.

Even so, labels (in the form of grades or quality standards) were not sufficient to make facts travel. There is thus no evidence of 'true' facts about quality that were circulating within the wheat markets. There were no overriding facts about quality that travelled well within and between different groups, despite the increase of standardization and product grading. Facts about quality were made up of numerous particular facts that different groups valued in different ways.

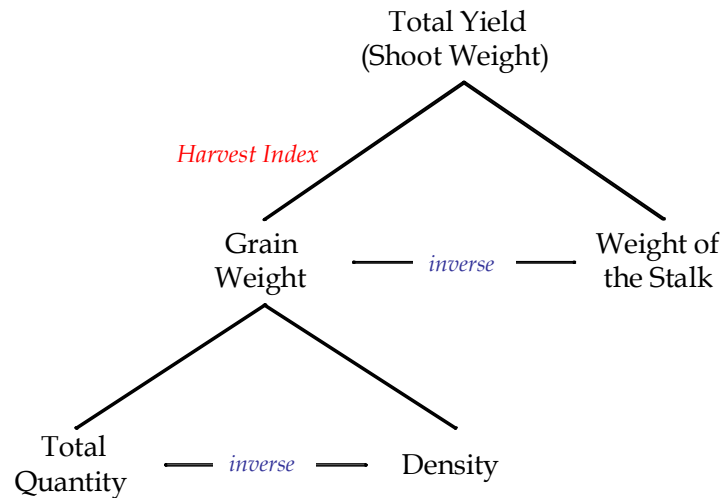
Figure 1



Source: See text

Figure 2

Components of Yield in 19th Century Grain Varieties



Source: Based on Figure 1 in Walton, "British cereals," 39-40 & 48.



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Poverty facts travelling between production and usage domains:

How successful has the HDI been?

Introduction

Two decades ago three academics gathered and laid the foundations of what would become a well known measure of development. Their names were Amartya Sen, who won the Nobel Prize in 1998 for his contributions to welfare economics, Meghnad Desai, Professor of Economics at the London School of Economics, and Mahbub ul Haq, Special Advisor to the United Nations Development Program (UNDP). What they discussed was a measure that would consider people to be the end goal of progress rather than the economy. The origins of the Human Development Index (HDI) were set. In 1990 the UNDP, the organisation within the UN that is mandated with development issues, introduced the HDI: a composite index representing human development in a number between zero and one where a higher score means higher development.

While the HDI is a development measure rather than a poverty measure, it focuses on those in deprivation and has been introduced to improve the lives of the poor. Poverty measures usually focus on a lack of means seen in income and the HDI has introduced a broader scope to combine standard of living with health and education to represent development. Thus even though the HDI is not a poverty measure, it has become used to clarify the conditions of the poor in a quantity and can therefore be seen as a poverty related measure. The index aimed to represent development on a global level and has attracted much attention through academic, political and public use ever since.

This paper assesses the success of the HDI and investigates how the measure has travelled between the production to the usage domains.¹ As a case study, the paper offers the analysis of the different dimensions and interrelated processes² and suggests insights for other poverty measures and even economic measures in general. In addition, the paper develops an innovative approach to statistics in the ‘product approach’:³ using the analogy with business products, that is, viewing the HDI as a product and adopting the business focus on production, distribution and usage. While most literature on statistics focuses on the technical aspects of the numbers and how they come about, the success of the number is not solely determined by the technical foundations. As a matter of fact, the analysis of the history of the HDI will show that the global aspects of the HDI, the emphasis on distribution, and the variety of users with different demands, determine the success of the HDI rather than its statistical make-up.

This paper uses the product approach to answer the question ‘How successful has the HDI been as a fact travelling between production and usage domains?’. The HDI literature has thus far mostly focused on the index itself and the elements that make up the measure.⁴ However, these issues matter in the product design part of the production, while the production process entails more factors and stakeholders. This paper broadens the scope to analyse other variables that are important in the production domain. The producers and their interests, the production process and its practical issues are important to take into account when questioning the globalisation of the HDI. Moreover, the distribution and usage domains are essential to understand the usage of the measure. The product approach is used to discuss in turn the production, secondly of distribution, and thirdly of the usage of the HDI. The analysis suggests that while the HDI has been more successful for some users than for others, the HDI has travelled well because it was a quantity that was successfully distributed to a variety of global users.

¹ The paper benefits from the work and outcomes of the larger research project ‘How well to facts travel?’ Working papers and the forthcoming book elaborate on the conceptual understanding of facts travelling; more information can be found at <http://www.lse.ac.uk/collections/economicHistory/Research/facts/>

² Robert K. Yin, *Case Study Research : Design and Methods*, 3rd ed., Applied Social Research Methods Series ; V. 5 (Thousand Oaks, California: Sage Publications, 2003).

³ The product approach is developed conceptually in one of my thesis chapters, which is available upon request.

⁴ See for example: Michael Ward, *Quantifying the World : Un Ideas and Statistics*, United Nations Intellectual History Project (Bloomington, Ind.: Indiana University Press, 2004), Sudhir Anand and Amartya Sen, "Human Development Index: Methodology and Measurement," *Human Development Report Office Occasional Paper* (1994), S. Morse, "For the Better or for Worse, Till the Human Development Index Do Us Part?," *Ecological Economics* 45 (2003).

1. Production domain of the HDI

1.1. Production of the first HDI in 1990

The production of the first HDI finds its origin in conversations between the economists Amartya Sen, Meghnad Desai⁵ and Mahbub ul Haq, who aimed to develop a measure that related to the capability approach.⁶ The goal was to 'put people back at the centre of the development process in terms of economic debate, policy and advocacy'.⁷ While there were indicators available for some aspects of developments, they were not captured in one number. To create a 'competitor' to GDP per capita growth as development measure, a composite index was created. The aim was to create a global, simple representation of human development. The director of the HDR teams from 1990-4 Mahbub ul Haq made this explicit. He noted that the HDI was a simple summary measure of human development: 'just one number, which is of the same level of vulgarity as the GNP-but a measure that is not blind to social aspect of human lives as the GNP is.'⁸

The concept behind the index has been that development entails more than economic growth alone. The UNDP has argued that income is not an end in itself, but an instrument to acquire human well-being.⁹ While access to income is one of the means to acquire human well-being, it is not the only one. Living a long life and knowledge are to be taken into account as well as done in the HDI, while political freedom, personal security, community participation and guaranteed human rights are important too but even more difficult to include in a measure.¹⁰

National income figures were viewed as insufficient, because they did not reveal the composition of income or its real beneficiaries. The UNDP disputed the assumption that income permits accessing every other choice people have or like to have and therefore justifies taking income as a proxy for development. Four reasons were given why this is only partly true. First, income is a

⁵ Meghnad Desai, *Poverty and Capability : Towards an Empirically Implementable Measure* (London: London School of Economics Suntory-Toyota International Centre for Economics and Related Disciplines, 1990). Also: LSE lecture, 2007. And: http://www.prospect-magazine.co.uk/article_details.php?id=3643

⁶ Developed by Amartya Sen, see <http://www.gprg.org/pubs/workingpapers/pdfs/gprg-wps-032.pdf> David A. Clark, "The Capability Approach: Its Development, Critiques and Recent Advances " *Global Poverty Research Group Working Paper Series 032*

⁷ <http://hdr.undp.org/aboutus/> accessed 31 May 2006

⁸ <http://hdr.undp.org/aboutus/> accessed 31 May 2006

⁹ United Nations Development Programme, "Human Development Report," (Oxford: Oxford University Press, 1990). p. iii

¹⁰ The UNDP has initiated other innovative measures as well aiming to measure these aspects, see section 2.2

means, not an end, and the well-being of a society depends on the uses to which income is put, not on the level of income itself. Secondly, countries at modest income levels can still attain high levels of human development and relatively high-income countries can show poor human development. Thirdly, the figure on income is a snapshot, and thus current income does not necessarily indicate future growth prospects. Investments in people increase potential income, but can be visible only later. Fourth, high-income levels are by themselves no guarantee for human progress, since problems in rich industrial nations can increase.¹¹ Therefore, the UNDP has claimed that there is a 'demand' for a better, competing measure of development, for which they produced the Human Development Index.

The production process from the 'world' to the index can be described by Figure 1. The HDI is about one of the features of the world, development. This feature is selected and defined as human development (step 1). Whereas the UNDP acknowledges that there are more variables to human development including political freedom and personal security,¹² due to measurement feasibility, three aspects are selected. As essential to human development the HDR takes: to lead a long and healthy life, to acquire knowledge and to have access to resources needed for a decent standard of living (step 2). These qualitative aspects need to be formulated as measurable entities to enable quantification. Therefore, proxies have to be taken, which are not the entire aspect (the black horizontal oval shape in Figure 1), but a changed proxy that only covers part of the aspect (grey diagonal oval shape in Figure 1). Figure 1 emphasises that the proxies are crude approximations of the aspects they are to represent as can be seen by their different shapes (step 3). Life expectancy at birth is only a crude indicator for leading a long and healthy life, as is the adult literacy rate as a proxy for knowledge, and adjusted per capita real GDP in purchasing power parity terms is taken to represent the standard of living. Of these proxies national data is collected, which are the 'raw materials' of the index. These are supplied by national or international data agencies (step 4). For each country, the information on the three aspects then needs to be normalized into the same units, by determining a deprivation measure. This measure reflects the deprivation that a country suffers in each of the three basic variables. This is done by determining the maximum and minimum value for each of the three variables given the actual values of the countries. Thus the normalisation depends on the relative position of the country in

¹¹ United Nations Development Programme, "Human Development Report." pp.10-11

¹² Ibid. p.10

question compared to the highest and lowest performing country. The deprivation measure then places the country in the range between zero and one as defined by the difference between the maximum and the minimum (step 5). Then, averaging the three deprivation indicators gives the deprivation ratio in a simple, unweighted average (step 6). The final equation, 1 minus this average deprivation rate (step 7), yields the final product: the average human development index for each country (step 8).¹³

The production process just described determines how the index was designed in 1990. This is the main blueprint of the product, the product design that was used for the following stages of the production. In 1992, 1994, and 1997 the product design was amended to include different proxies to better reflect health and knowledge. The product design directs the following process of the actual collection and assemblage of the raw material to yield the HDI numbers and in addition, the ranking of the countries according to their performance on human development as measured by the HDI. Diagram 1 demonstrates how the most recent HDI has been constructed.

The HDI is a global product in the way that the product is aimed to be one measure for all the countries, in contrast to other measures that are country specific, such as national poverty lines. Moreover, the index takes together different elements of different sorts in a composite index, which then allows for the comparison of all countries through one index. This global perspective has had to take into account the limitations of data collection in different countries, which compromises the accuracy and quality of the data supply. That is, in more developed countries more sophisticated measures and data are available, but the global perspective directs that the HDI uses elements that are available in developing countries as well. This is where the global aim for the HDI plays a role: because the measure is aimed to be relevant for all countries, a compromised product design is chosen to allow for the product to be global. Thus while in theoretical terms there are better indicators available, the practical constraints of data collection imply for an ‘inferior’ quality of the product.

¹³ Over the years, the methodology of the Human Development Index has changed, but for purposes of this paper the first HDI produced in 1990 is discussed and made visual in the figure.

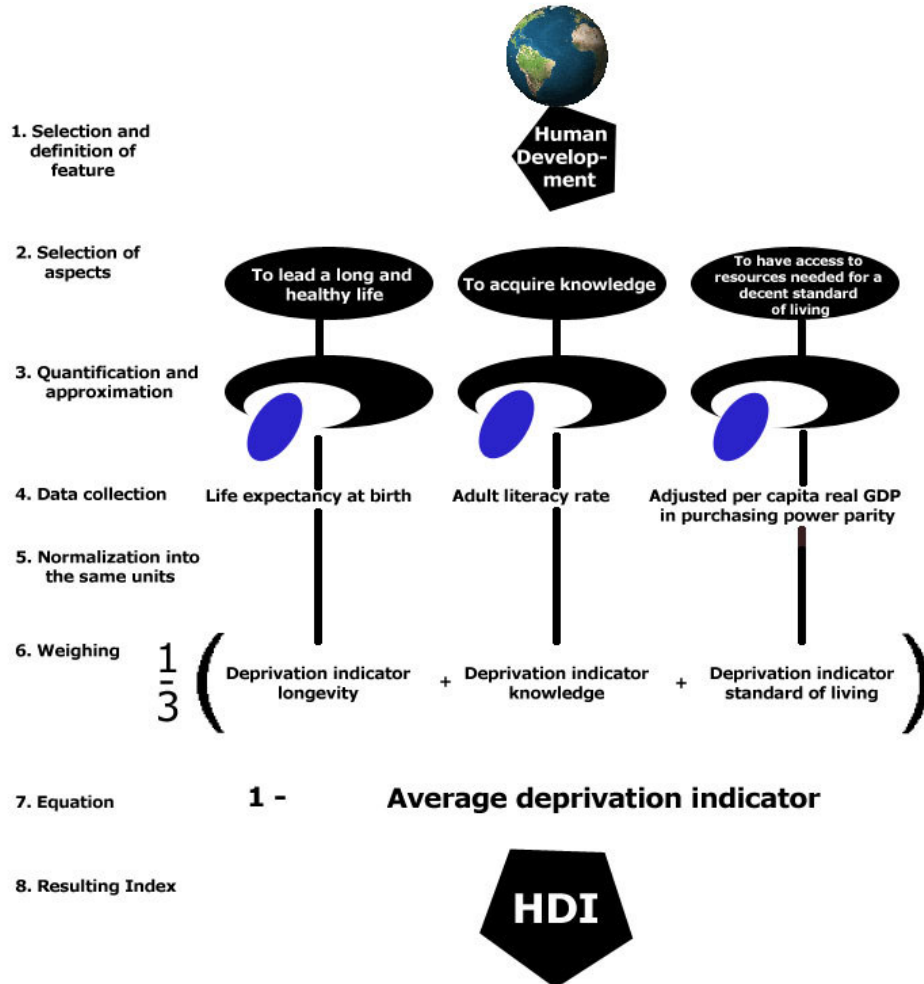


Figure 1. Construction of the first HDI in 1990¹⁴

¹⁴ I constructed this figure based upon the information in the first HRD: United Nations Development Programme, "Human Development Report." In subsequent years the measure was changed and therefore this figure only represents the HDI in 1990. However, the main steps undertaken during the product design and production process remain similar over time and therefore the illustration of the process remains valid.

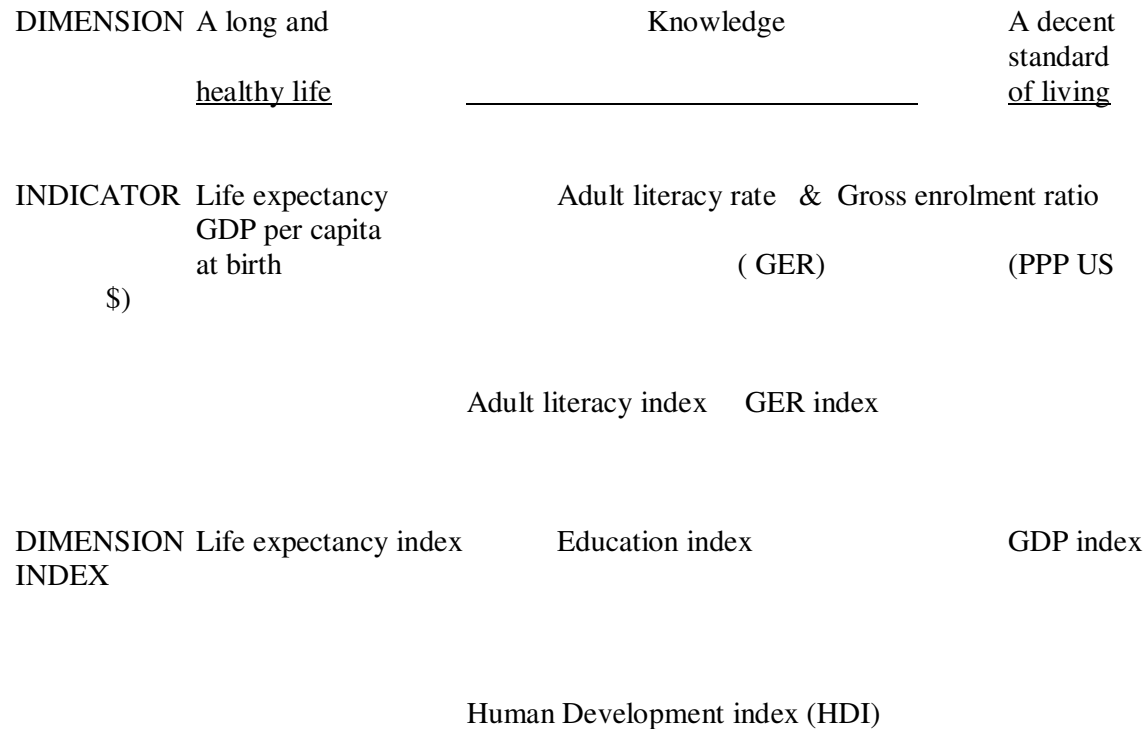


Diagram 1. Construction of the HDI. ¹⁵

1.2 The Producers: UNDP as the multinational

The producers of a number determine the way the quantification process is set up and performed. Their background and goals influence the final product and how the number functions after production. Similar to a multinational enterprise, the initiator and investor of the HDI has been an international organisation, the UNDP. This is the global development network of the United Nations and is on the ground in 166 countries. Its aim is to advocate for change and connect countries to knowledge, experiences and resources to help people build a better life.¹⁶ Since 1990

¹⁵ Source: Human Development report 2007/8 p. 355. The dimension indices are calculated taking the minimum and maximum value and then assessing a countries performance. The dimension indices are then combined into the HDI. This is illustrated in the Human Development Report 2007-8 technical notes, p. 356.

¹⁶ <http://www.undp.org/about/> accessed 31 May 2006

one of the activities to advocate for change has been the publication of the Human Development Reports (HDR) which have the HDI as its prominent feature.¹⁷

The producers of the HDI have been the HDR team advised by a panel of advisors and aided by the UNDP staff in the field. In turn, they have depended on the UNDP network throughout the world and international and national data agencies that provide statistical data. As was seen in Figure 1 the HDI relies on data on a national level that are supplied by national statistical agencies, or international statistical agencies such as the OECD. There are many international suppliers of inputs involved in the production. In case of the national statistical agencies not being able to provide sufficient data of acceptable quality, the UNDP becomes involved in the national data collection as well, when UNDP teams cooperate locally for the statistical operations. Thus the UNDP undertakes vertical expansion within the production process, where the producers take on part of the production for which in other cases the producers can rely on local suppliers rather than having to produce themselves. Figure 2 gives an impression of the international character of the production process. The international movements are depicted more simplistically than the actual complex and diverse flow of products and people, but it is meant as an illustration of the globalisation of the production process. The place of origin is within the multinational organisation, the UN that has its headquarters in New York. Within the UN the UNDP is the sub organisation, within which the HDR team is responsible for the production of the HDI. The product design stage takes place in New York, where the concepts are developed, as well as the HDI formats and the HDR. The input requirements go to the suppliers of the 'raw material', which are the international and national data agencies. In terms of products, the first product is the HDI product design,¹⁸ which provides the requirements for the raw material to be collected locally. The product design requirements go down to the country level. For clarity this figure takes the country level as visualised in South America, but in reality the formats go to each country, where the government is requested to provide the data. This involves the national statistical agencies and if applicable UNDP statistical teams. This data then go to the headquarters again, so the HDR team can combine the national data and assemble the second product: HDI outcomes for each country, for example the 2005 HDI for El Salvador was 0.735 and for

¹⁷ While the first HDRs introduced and elaborated on the HDI and the human development concept, later reports started having annual themes focusing on certain aspects of development, such as climate change. Until 2008 the report and the HDI were a joined product, but 2008 saw the first separate publication of the statistics. <http://hdr.undp.org/en/mediacentre/news/title,15493,en.html> accessed 6 February 2009.

¹⁸ As seen in Figure 1

United Kingdom 0.946. Based on these outcomes, a third product, the ranking is produced that demonstrates the comparison of the countries based on their human development, which means that in 2005 El Salvador was ranked on number 103 and the United Kingdom on 16 out of 177 countries.

In addition there are other products that the UNDP produced, including the National Development Reports (NDRs) and their formats, on which section 2.1 will elaborate. These reports require more specific data which forms another international flow of NDR format and reports.

1.3 Globalisation in production domain

The production is thus clearly globalised, in terms of the set of products being a global measure, the producers, the process of product design and the production process itself. There are various production flows between the head office in New York and the local level in the particular countries, where the inputs are provided and the outcomes are consumed. Part of the production is outsourced while the head office remains in charge. The production of the HDI can be compared to a multinational organisation, that sets a standard for local production of the elements which the headquarters uses in their production activities. The international organisation is the producer: the UNDP, which is part of the larger UN organisation. Within the UNDP there is an international production development team, which is the HDR team, which combines a group of people from various nationalities and backgrounds. Then there are international suppliers of inputs, which include the national statistical agencies. The product is actually assembled in New York, but then dispersed again internationally. This dispersion depends on the distribution process, which will be discussed next.

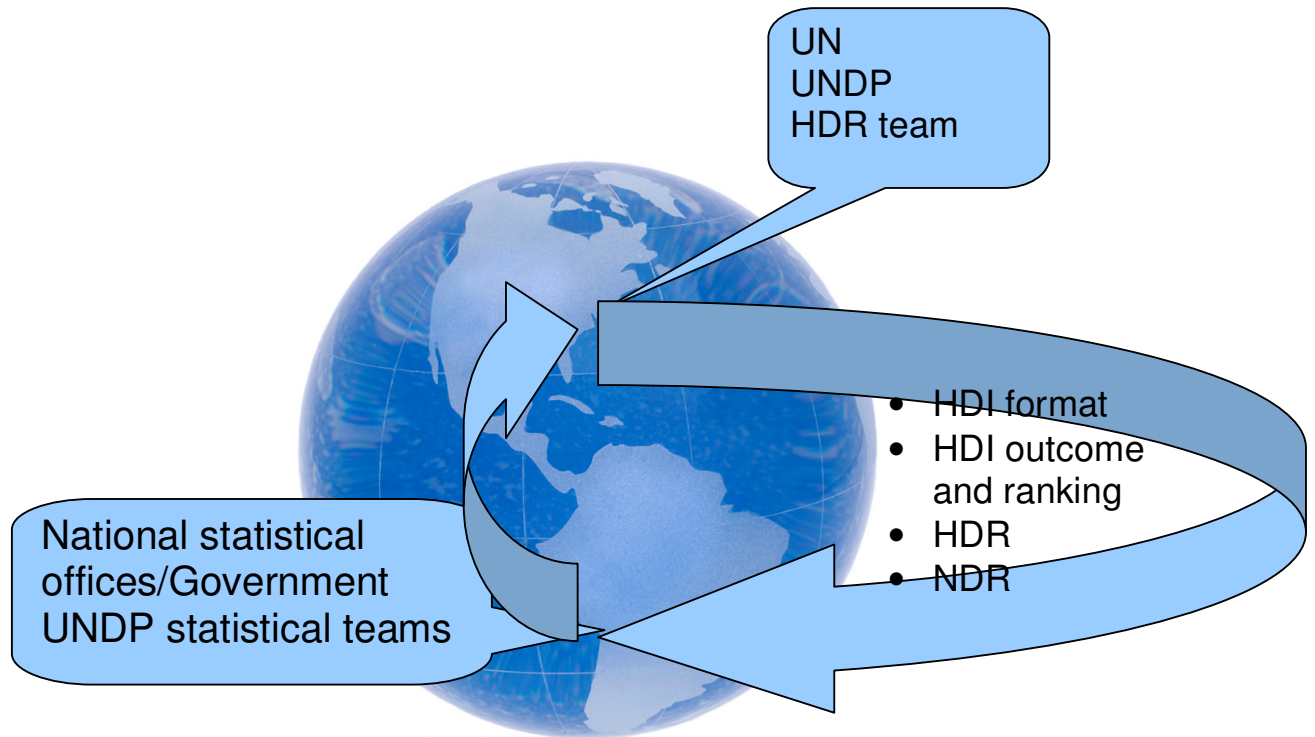


Figure 2 Globalisation in Production

2. Distribution of the HDI

2.1 Distribution channels and complementary products

Statistics are different from other goods because they are information products that can be freely shared in informal ways which are difficult to detect afterwards. They appear not to need physical packaging and distribution. Moreover, producers of statistics seem not have to take into account their users as much as commercial enterprises have to consider their consumers. For commercial enterprises product sales are the essential part of the business and provide the evidence for the demand that is met by the supply of the product. For statistics on the other hand, the products are not sold per end product and therefore the process is less demand driven. The

users other than the producers themselves are not well known, nor is the variety of purposes for which the product will be used. In addition, existence of the UNDP as an organisation does not depend on the statistical products only, as contrasted to commercial enterprises whose main business is related to the supply and sales of products and therefore forces the attention on optimal distribution and marketing strategies.

However, despite the negative properties of the analogy between statistics and commercial products, distribution and marketing strategies, including identifying and targeting certain user groups, are essential to the globalisation and usage of poverty measures. Statistics are packaged as well albeit in a different way than commercial products. Especially for a globalised product, the brand awareness has to be built to compete with the alternative measures that can as easily be found within the large supply of measures available through public sources and the internet. The case of the HDI illustrates this.

The UNDP differentiates itself from other statistical agencies because it emphasises the wide dispersion of the HDI and employs a range of distribution channels. The distribution can be seen as a global approach though the availability of all data and documents online and the interaction within the academic domain. Both are global, they not clearly limited to one geographical space although they are bound by language and academic networks which are clearly biased to certain countries that are well developed academically.

One of the stated aims of the UNDP was to allow the discussion about the development of the measurement¹⁹ and the UNDP has made efforts to maximise the dispersion of the measure. In order to analyse this dispersion it is important to realise that there actually is a set of different products, the HDI itself and complementary products and services. As pointed out, for the index there are three related products: there is the HDI measure, the HDI outcome for a particular country and a particular time, and the HDI ranking that lists the countries. The complementary products include the HDRs, the NDRs, the academic journal and network, and the internet related platforms and services. These complementary products both serve as products themselves as well as media for the distribution of the HDI products.

¹⁹ United Nations Development Programme., *Human Development Report 1990* (New York: Oxford University Press for the United Nations Development Programme (UNDP), 1990). P 11

The UNDP aimed for a large market, for which the index and additional products have been presented in simple and accessible language without too many technical details. In addition, the technical details have been offered for academic use, especially in combination with the HDI format that was introduced via the reports. Academic users immediately used the HDI and the UNDP has engaged with the many responses the HDI quickly gathered in the academic domain.²⁰ The individual HDI outcomes per country have been published in a list that ranks countries according to their performance. This ranking list has proved to be an effective distribution channel and an appealing product in itself, as ranking lists usually hint to competition and allow citizens to compare their country to surrounding or other countries.

The UNDP has developed a variety of complementary products to distribute the outcomes: first of all, these three products of the HDI have been packaged in the Human Development Reports. The annual global HDR can be seen as a product that combines the information on human development themes, one of which is the HDI. The report is both a distribution mechanism for the HDI, as well as for the other themes that are discussed in words rather than indices. Moreover, the HDR is a complementary product in itself. It is the report that physically can be distributed, both in hard copies as well as online documents. The publication of the report further facilitates marketing and advertising, both of the HDI and of the written information on human development themes that the report focuses on. This is because the reports have been published each year and are launched accordingly. This launch has become an event for which press has been notified and politicians and other officials have been included in terms of giving speeches.²¹

Due to the initial success of the annual global edition, the publications have been expanded to regional and national publications as well, to over 120 national and regional issues. These issues often have a specific theme, such as gender, political reform, or climate change.²²

Moreover, the HDR website forms an additional distribution channel. The website allows for the user to obtain the HDI products, as well as interactive services that enable the user to obtain additional information as well as make comparisons over time and over regions. All publications

²⁰ For example Anand and Sen, "Human Development Index: Methodology and Measurement."

²¹ For example, *on 24 July 2002* the President of the Philippines gave the opening speech to the Global Launch of the Human Development Report 2002. Archive speeches: <http://www.ops.gov.ph/speeches2002/index.htm>

²² http://hdr.undp.org/reports/view_reports.cfm?year=0&country=0®ion=0&type=0&theme=17&launched=0 accessed 15 June 2006

can be downloaded, as well as interactive maps, background information on the reports and concepts. It also provides platforms for researchers, officials and other interested parties to gather and share information. In addition, it provides toolkits for the national teams preparing a report or constructing indices. The UNDP further promotes institution building as they provide support for statistical practices and local advise and assistance by their teams. Also, biennially a training course ‘Human development from theory to practice is organised at Oxford University where politicians, academics and other professionals can use the HDI concepts.’²³

For academic use, in 2000 the *Journal of Human Development* was launched to expand concepts and measurement tools for human development.²⁴ This journal is connected to the ‘Human Development and Capability Association’ that was launched in 2004. This association promotes interdisciplinary research from many disciplines on key problems including poverty, justice, well-being, and economics. The presidents have been Amartya Sen and Martha Nussbaum, both seen as the initiators of the capability approach,²⁵ which further aids the justification of the HDI as an academic index.

The UNDP has reached out to the public as well, through its own networks as well as through international and national media. The press kits are made available, the reports are launched in formal events including well known political speakers.

To aid the globalisation of the HDI several other marketing strategies have been used. The index, publications and website services have used the reputations of the UN, publisher and panel of advisors to strengthen their credibility and distribution. The reports have been published by the well known academic publisher the Oxford University Press. Moreover, it has been made clear that the panel of advisors has included the Nobel laureate Amartya Sen. These can be seen as part of the advertisement similar to celebrities promoting certain products.

²³ <http://hdr.undp.org/training/> accessed 15 June 2006; <http://hdr.undp.org/en/nhdr/training/oxford/> accessed May 2008

²⁴ <http://hdr.undp.org/publications/journal.cfm> accessed 15 June 2006

²⁵ from website <http://www.capabilityapproach.com/About.php?aboutsub=about1&sid=292d866dd872fc487bc7a771c1b94c08> viewed May 27 2008

The way the UNDP has distributed the HDI mostly focused on the dispersion of the measure. On the one hand, this is understandable as information products are not easily made excludable²⁶ and therefore the usage cannot be tracked through individual sales numbers. Dispersion is very much a supply driven concept that does not necessarily take into account the users. On the other hand, regarding the aims of the production of the HDI it seems a limited approach to assume that launching the products is enough to have the products be used.

Relative to other statistical producers such as national statistical agencies, the UNDP actually does put a lot of effort into directing the dispersion of its products. This can be related to the stated aims of the UNDP for the HDI as providing a crude measure that can be used as an advocacy tool. This advocacy function only gains power when the HDI is known and used, thus the distribution is an essential part of building brand awareness that further enhances the use of the HDI. Moreover, the efforts put into the dispersion of the product are essential to the globalisation of the measure as well. International trade requires infrastructure, which in the case of the HDI can be seen as the UN networks and the international involvement of different producers and users.

2.2 Horizontal and vertical expansion

The globalisation of the HDI can be seen as connected to two expansions over time. First there is a horizontal expansion of product lines that broadens the base for measures. Since the first HDI in 1990, the product design of the HDI has been amended.²⁷ Moreover, new measures have been introduced and include the Human Poverty Index in two varieties, and Gender-related Development Index and the Gender Empowerment Measure.²⁸ Secondly there has been a vertical expansion in terms of distribution channels that deepen the scope and variety of products. There have been more reports, additional services on the website and the journals and courses. This is related to the expansion of reports from one global edition, to various regional and national

²⁶ Although consulting analyses and reports are sold, as are for example Bloomberg's business data.

²⁷ HDI changes in 1992, 1994 and 1997 and in 2008 and the achievements of the human development approach are planned to be described in the 2010 Human Development Report (forthcoming).

²⁸ The Gender Related Development Index and the Gender Empowerment Measure were introduced in 1995 while the 1997 report introduced the Human Poverty Indices. HPI-1 for developing countries and HPI-2 for a group of select high-income OECD countries. HDR 1995, 1997, and HRD 2007-8 technical notes on pp.355-361 for the way this is measured.

reports. These are not only distribution channels as they incorporate additional research following the HDR formats and thereby also engaging with the local contexts adding to the local applicability of the global concepts.

The global features of the distribution can be visualised in Figure 2. The different HDI related products and channels are distributed to the local level where they are dispersed through academia, use in the media and in the public domain. These user groups are interlinked, although they might not be specific in their geographical location. That is, the website, academia and networks are not bound to one geographical location although they are clearly connected. The NDRs require local inputs and measuring efforts that go beyond the information that is already available for the global HDI and therefore the preparation for the NDRs provide another interaction. The requirements to fulfil the UNDP standards thus provide a further distribution of the HDI products by having the local community engage with the human development concepts.

2.3 Global products and global relevance

The HDI and complementary products are global in their approach of taking the measure around the world and having the measure applicable to all countries. Thus the product is global, but for it to actually gain relevance globally, it needs to reach the people in their local environments, where the measure can have an impact. That is, for the HDI to become meaningful for the people, it needs to be distributed in order to be used locally. The UNDP in New York distributes the final product and makes the local actors engage with the concept and product because they have to commit to the HDI and NDR formats. This is what makes the globalisation process as one that is incentivised ‘top down,’ rather than ‘bottom up.’ The UNDP claims about national reports: ‘from the *bottom-up*, they are breaking down the global targets for poverty reduction and human development into national benchmarks and action plans that enjoy increasing political attention, debate and mobilization.’²⁹ It is true that there is a difference with for example the World Bank ‘dollar a day’ measure in which the local engagement is unnecessary for the poverty measures. Thus the UNDP has globally integrated production process, yet the NDRs do not

²⁹ [NHDR Corporate Policy \(document\)](http://hdr.undp.org/en/nhdr/about/undp/) http://hdr.undp.org/en/nhdr/about/undp/, viewed June 3, 2008 p 1

appear bottom-up. Rather, the process is directed through the format and infrastructure requirements, thus from above: top-down.³⁰

To conclude, while the information product can easily be spread, it still needs a distribution channel that directs the move. The UNDP has aimed to direct the distribution to ensure usage by academic and politicians as well as the public. It is important to note that the human development concepts are actually packages of products and services, including the HDI products and the reports. Thus whereas information is seen as a good that can be freely accessed through the internet, the packaging and distribution channels are essential for the usage. A possible user needs to be aware of the product, and even though it is an information product, it still requires an infrastructure to move along. Therefore the distribution of statistics is important for their usage. The distribution by the UNDP is offered through a variety of levels, academically and public to increase the usage of the HDI. While the distribution is essential for people to be aware of the product, it does not necessarily ensure the actual usage or what the measure it used for, which will be discussed next.

³⁰ The global flows of the production process, distribution and of the eventual products are thus more complex than Figure 2 can demonstrate.

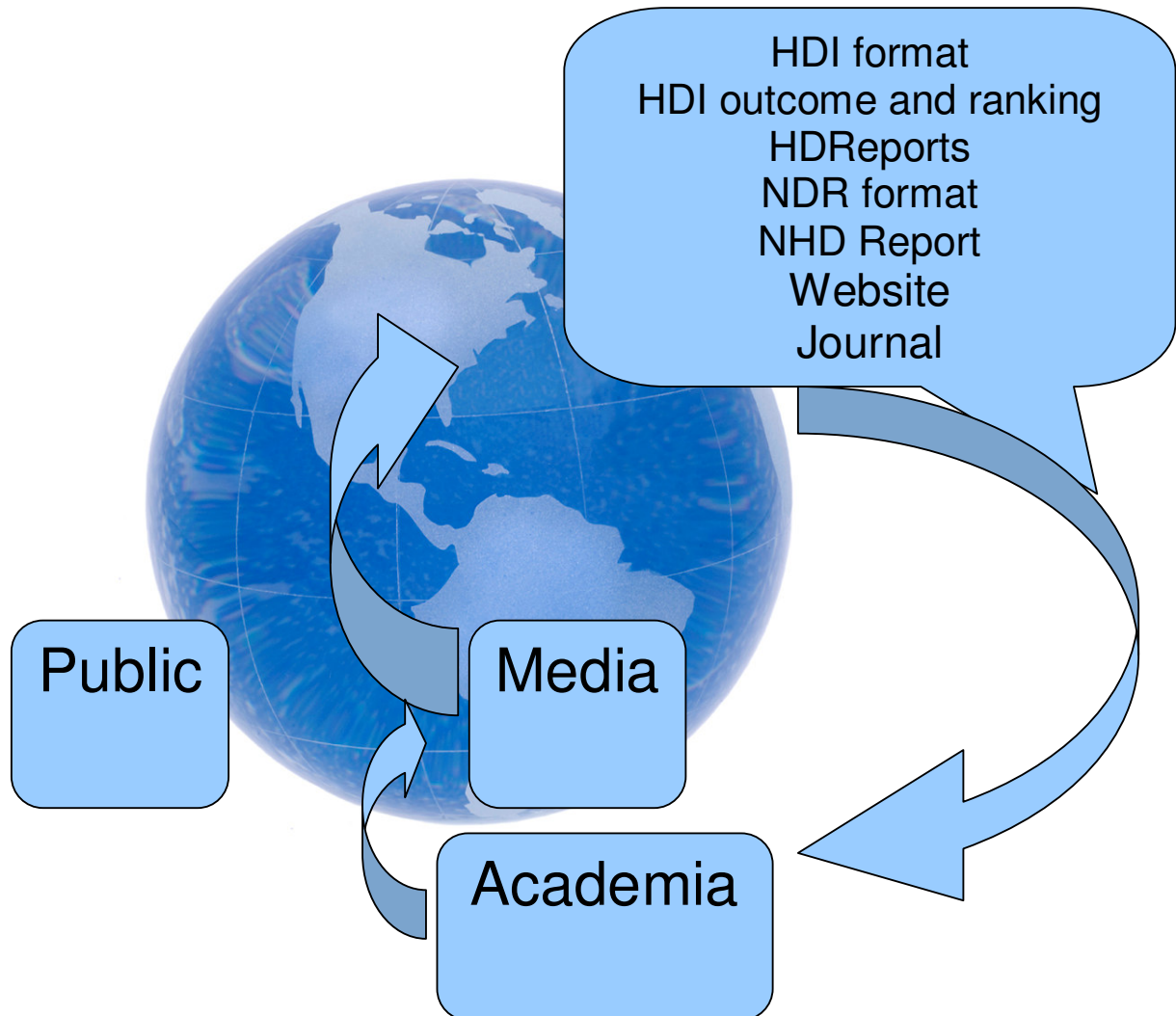


Figure 3. Global distribution channels

3. User domain of the HDI

Because statistics are an information product it is difficult to trace the actual usage because information can be gathered free of cost when it is released. However, poverty measures can have important uses and consequences. When assessing the globalisation of the HDI the users can be seen in different geographical areas as well as in different domains.

3.1. International users

A first user is the UNDP itself. It uses the HDI as a tool to gather more attention to development issues, the UNDP as an organisation and its work. Moreover, the HDI is used to identify the development countries that require assistance through the development programme. The UNDP funding flows are allocated according to the HDI listings. This means that the HDI also gets used as an indicator of where aid flows are most needed. This is also used by national countries to allocate their bilateral development aid flows. Moreover, international NGO's such as Plan international, and poor-activists can use the HDI to compare and make their case stronger.

The HDR teams use the HDI and the reports to draw attention to the human development and capability approach and change the focus away from the GDP per capita, which was the original measure of development. For them the HDI functions as a flagship, as an 'attention grabber' that allows the underlying information and additional products and services to become visible and be used. The fact that the HDI is quantitative is essential here. While the messages of the capability approach have been around longer than 1990, the fact that the HDI captures the message in quantitative form is essential.³¹ This is because the product is different, it is not just the packaging in a quantitative format, it is an essential feature that channels the attention to the elements taken into account, and more importantly, it combines the different elements in one composite index. This makes comparison possible, which in verbal or other formats of information would have been more difficult. However, as the academic users point out, this composite index as well as the comparative features can be criticized or form the reason to dismiss the measure.

The UN as the umbrella organisation cannot easily be connected to direct use of the HDI. The United Nations Statistics Division has been internationally active in cooperating and

³¹ Sen and Nussbaum developed the capability approach which provides the theoretical basis on which the HDI was built. While initially Sen had been reluctant to specify the capabilities and therefore inhibiting any definition for measurement, he became one of the initiators of the HDI, he was one of the advisors the HDR teams and involved in the changes made to the HDI. Moreover, he has been involved in the biannual Human Development Course in Oxford.

standardising statistical data since the Second World War. Interestingly, a search for the HDI on both the UN and the UN Statistics Division yield ‘no results.’³²

Other users are the cooperating and competing organisations, such as the OECD and the World Bank. These organisations are internationally operating and although head quarters and offices are located within a country, their operations can be seen as globally spread.

3.2 Academic and internet users

Another international set of users are academics. Although biased towards English speaking countries, the academic domain is not specifically located within one geographical domain. The journals, conference and university contacts are international when it concerns human development topics, which means that the academic use is internationally spread. Authors from different backgrounds ‘gather’ in the academic domain and relate to human development either from a global perspective, or relating the HDI to the country experiences. The UNDP actively invited the debates about the HDI and therefore the academic journals and subsequent reactions from UNDP can be compared with a customer complaint loop, in which academics complain and criticize the product, depending on which the UNDP decides which criticisms to take seriously and amend product design. This is what happened in 1992, 1994, and 1997 when the HDI was changed in the way it is measured. The elements taken into account were still longevity, knowledge and standard of living, but the proxies were different.

The academics are also part of the production, in advisory committees and production teams. The academic character of the HDI is actually an important feature of the HDI. It was important to have the involvement of Amartya Sen as an approval because of his contributions and reputation as a prominent academic, originating from a developing country himself. Moreover, statistics in general are connected to the academic character of the product; aiming to capture a phenomenon of the word into a number, is not only producing a new product but also an academic endeavour in itself, by analysing and making statements about the world: creating facts. This is an important

³² Searches on the websites were performed by entering HDI and Human Development Index on the search field of the search page of both UN and UN statistics division websites. Accessed 4 June 2008

difference from other product, which have inherent features which are not aimed at academic progress.

This academic feature is further enhanced by the involvement of different academics, as well the organisation of the Human Development Course which is held at Oxford University Press. Moreover, the Oxford University Press is the publisher of the reports, and the UNDP claims that the reports are 'independent.' The academic connection contributes to the fact like character of the HDI, which can be compared to health claims on consumption goods.

The website is another platform that most users will access, although as in the academic domain, the internet users cannot be located geographically. The website further encourages international engagements through their forums and platforms in which researchers and other professionals can exchange ideas and information.

The political domain is what the producers had claimed to target. However, the political domain is not homogeneous. Internationally, there are players such as the UNDP itself and international organizations that aim for political pressure and action. The UN allocates resources according to the classification that is made with the HDI list, in terms of high, medium and low developed countries. Moreover, international aid flows are affected by the classification, in terms of selecting the countries for bilateral aid.³³

3.3 National users

The use on the national level is where it could fulfil its functions for advocacy and change in most direct ways. Statisticians collect the data that acts as inputs for the global HDI, in cooperation with the OECD and the UN. Politicians refer to the HDI in interviews when it gives a good image, but also use it for policy decisions. Brazil for example has embraced the Human Development approach and has made the HDI an explicit target. Education is the part of the HDI

³³ Remarkably for the Millennium Goals the UNDP itself uses the World Bank 'dollar a day' measure, rather than the HDI. This can be related to the HDI being a relative measure, as the normalization process is based upon the best and worst performing countries and therefore makes it difficult to state a clear goal for the HDI as an improvement level to aim for. However, if the focus is on the human development approach, more direct usage of the HDI would be expected, especially from the UNDP itself.

that is most accessible for targeting policy. This is because education is an input measure, enrolment rates, rather than the output measures that are used for health and standard of living, which are both outcomes of broader policy. Thus by focusing on enlarging enrolment rates, the HDI will increase immediately, while investments in health and GDP growth will only become visible in the HDI over time. Thus the HDI allows for use as policy target but mostly indirect. More generally it can be used for emphasising government investment in health and standard of living, but this use cannot easily be audited by the HDI because the results are indirect and lagged.

As an advocacy tool the HDI can be effective, but mostly when the results are surprising or shocking. This means that the comparative feature of the HDI allows for countries to compare their situation to neighbouring countries, or peer countries that are similar in size, culture or otherwise important. However, when the HDI demonstrates a good performance, the advocacy role loses its power as the HDI could actually become ammunition for politicians aiming to relax government's involvement in health and education, rather than a tool to improve it.

The product design of the HDI functions as an advocacy tool for the human development concepts to be taken into account rather than merely focusing on economic growth. The outcome in the numbers does not serve as an advocacy tool as such, although the comparison does. The most successful HDI product for advocacy has been the ranking list in which the countries can compare their situation to others. The ranking list proves very effective as it attracts much attention from journalists in the public debate, which in turn makes the HDI ranking act as a prestige issue. This is present for the higher ranked countries, for example because of their dropped ranking the United States supplied a different data set on education after the 1994 change in the HDI.³⁴ The prestige issue also plays a role for lower ranked countries such as India and Pakistan. The following quotes illustrate this.³⁵

‘In the Human Development Index (HDI), India stands at a low 138th (of the total 175 countries). *But the fact is that for the first time, India has done better than*

³⁴ The United States changed their supply of education data when due to the HDI measurement changes in 1992, 1994 and 1997 their ranking had dropped. *United Nations Development Programme.*, Human Development Report 1990. 1990-1997

³⁵ Both from Morse, "For the Better or for Worse, Till the Human Development Index Do Us Part?." pp 292-3

Pakistan. HDI of Pakistan is only 139, and this does bring a small measure of solace.’³⁶

‘Pak beat India, both lose!’ The United Nations Development Programme report for 1998, released on Wednesday, shows that India and Pakistan continue to be somewhere at the bottom of the ladder of human development.... Had the *‘human development’* contest between the two been for the top positions, there may still have been something in it for either side to crow about.... The UNDP has given Canada the top rank on the human development scale for the fifth consecutive year. *India should study and adapt the Canadian model* for moving up the human development ladder.’³⁷

These quotes demonstrate the competition element between the two countries. Moreover, there is a reference to the human development contest, appealing to the idea that in order to win countries have to make an effort. The relation is then made between the Canadian outcome, that was highest on the list that year and India, arguing that India should follow the Canadian model. While this type of reasoning has been the UNDP’s goal, it is unclear what ‘studying the Canadian model’ would do for India. Problems of different contexts and histories arise as well as questions such as what exactly is this Canadian model and which parts of the model are relevant or even applicable to India. Although these issues are problematic, they deserve more attention and the HDI makes them get known. Thus this example shows that the HDI serves as an attention grabber as well as an advocacy tool to focus on development issues. The HDI ranking and the HDI can thus be seen as a gateway to the underlying data and the ways in which policy changes inspired by other countries can make a difference for human development.

For the national level the classification according to the HDI outcomes into higher, medium and lower developed countries might cause an unintended use of lower ranked countries. Because the money flows are made dependent upon the HDI scores, incentives are created for lower ranked countries to stay within the lowest band, rather than develop into higher levels of human development. For higher ranked countries, issues of prestige become important, especially when linked to government performance.

³⁶ Source: Indian Express Newspaper (India; June 12 1997) (Italics added).

³⁷ Source: The Tribune (India; September 14, 1998) (Italics added).

The prestige issue is not only relevant for countries high on the list. As a matter of fact, this comparison to other countries is one of the value added that makes the ranking of the HDI so successful. Ranking lists prove very appealing in the media because they allow for comparison and imply a competition element.

The public is separate from government but also part of the political domain, as the public mandates government, as well as plays a role in terms of the public debate and civil society and parliament questions. The users can be seen as the public, civil society, NGOs and think tanks and other research agencies.

In the national domain the media are important users that further make the product known. They refer to the HDI launch as well as report the HDI as background information for other stories.³⁸ Interest groups can be seen in NGO's working in the field of human development, using the HDI as further justification of their work or for gathering funds.

The local use of the HDI is strongly connected to the NDRs as devices to gear political action toward the collection of additional data and describe human development themes that are present in that country or region. The UNDP acts as the head office of a franchise organisation here, where it supplies the network, infrastructure, product development and brand name and reputations of the UNDP and HDI. It allows for national themes to be taken up and investigated. On the other hand, the NDR comes with a restrictive framework and requirements attached to motivate the nations to collect the data and perform the NDR process to be connected. Moreover, the toolkit checklist allows the national inputs to gear towards the topics that are decided by the UNDP and HDR teams. This means that the UNDP uses the HDI at NDR formats to make the attention shift to their focus areas, as well as standardise the NDR procedures. The national agencies can rely on the brand name and expertise, in return for agreeing to follow the guidelines. This requires additional work from the national agencies that might want to focus on their own preferred topics, but have to comply with the standards and requirements set. This involves gathering additional data that otherwise might not have been gathered. This is another important way in which the products are used.

³⁸ For example the Financial Times country background information includes the HDI.

The cooperation between the UNDP and the local teams means that resources are shifted into the research done on human development topics, and therefore assures that at least the people involved engage with these issues, as well as the final report that addresses the topics in terms of outcomes. This cooperation during the process is different from products which only are used as the end product, and as this is a political process the activity of gathering the data is already a use, rather than only a part of the production process that is isolated from engagement with users. Thus rather than using only a good that is the end product, the HDI is actually already used during the production process. This is different from commercial goods which are only used in its final product.

3.4 The poor

Interestingly the HDI aims to make a difference for the poor, which is actually a group of people that is not in position to use the HDI for their own advocacy. The measure enables others to represent them, but while the ultimate aim is to alleviate poverty and aid development, the actual beneficiaries are not aided by the HDI per se. The action has to merge through the academic and political decision making process before action is taken that eventually targets the poor. This is the case for all poverty measures, that in one way unite the poor, but only on paper. In practice the poor do not gather as a group, although the measure does collect them in statistical terms. In this way the unemployed are more easily organised through government tax and benefit requirements involving employment bureaus and registration. The poor however, cannot as easily be united, they remain individuals that through poor laws or other state support can become eligible but still remain united for action. This creates the problem that there is the representation by other parties who in effect are accountable to their funders but not to the people they aim their programs at.³⁹

In sum, the success of the usage of the HDI has varied depending on which user group is taken into account. The HDI functions differently for academics as opposed to the politicians and the public domain. The geographical scope is important in the way that the global product does not offer policy prescriptions on the local level. Nevertheless, through the product expansion the

³⁹ Refers to point made by Tim Allen at 22 May 2008 LSE workshop about aid organisations and evidence reporting schemes.

NDRs actually allow for more locally inspired research and political action, although the format is still directed from above. Therefore it is important to view the HDI within its context and the way the production and distribution is set up, because it is through the interactions between the head office and the local government, academics and public domain (as visualized in Figure 3) that the HDI enlarges its user domain, its global and local relevance as well as the eventual impact of the HDI to the poor.

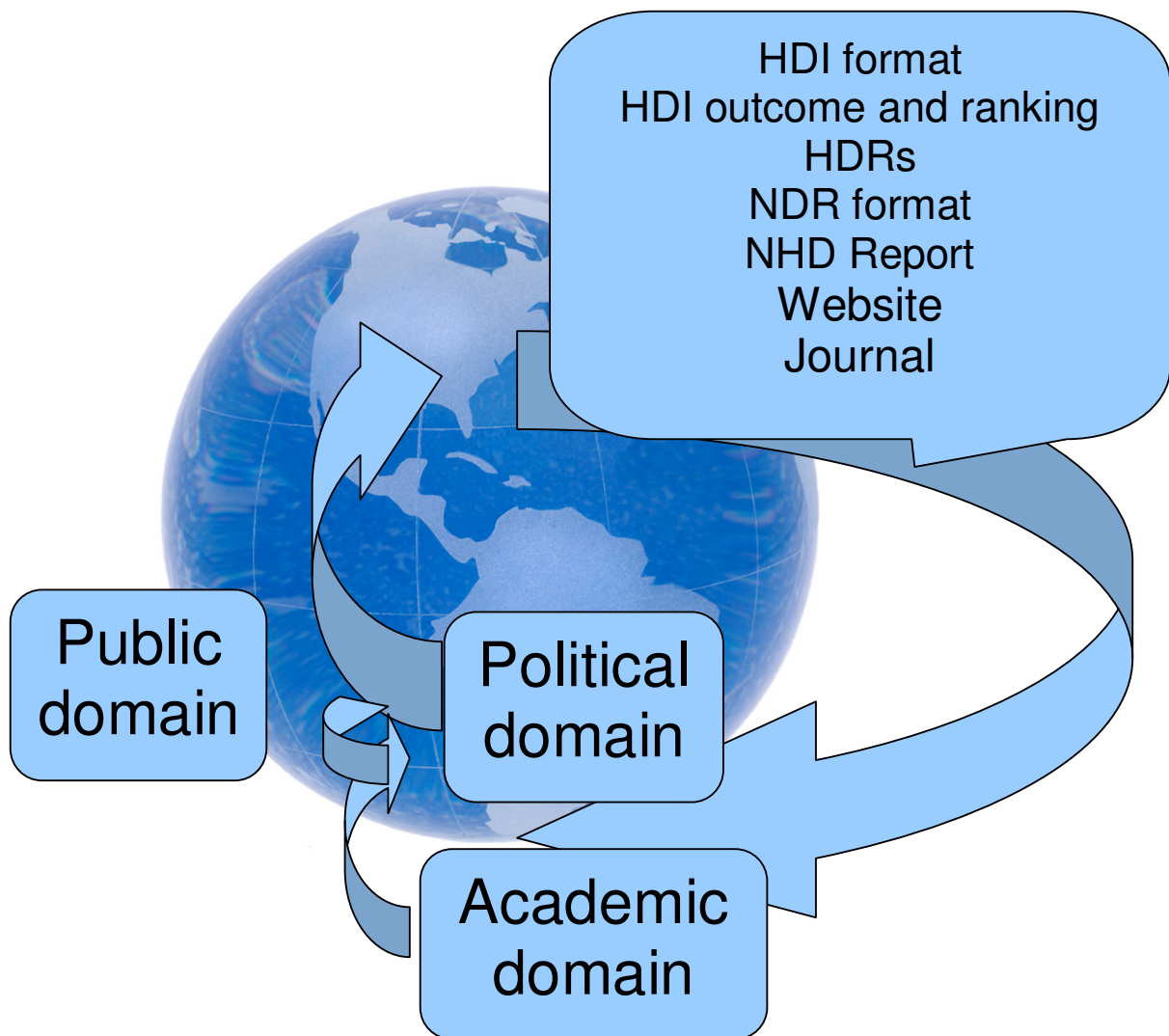


Figure 3: Globalisation of users of the HDI

Conclusions

Analysing the history of the HDI according to the product approach has demonstrated that the global aspects of the HDI on all phases of the production, distribution and usage have affected the success of the HDI as a fact travelling. The products, producers and production process all involve international interaction. While the HDI is an information product and therefore different from commercial products that are transported to the customer that can then use it, the distribution through the different channels has been essential for the success of the HDI. Different from statistical agencies, the UNDP has had a clear agenda for change and in order to achieve this the distribution and usage of the HDI has achieved much attention. The distribution of the HDI actually involved a larger package of goods and services that include not only the index itself, but also the complementary products such as the HDRs and website services. These have allowed for the products to disperse, which has been successful due to the distribution channels chosen as well as the format requirements that demand local interaction with the UNDP.

The user groups can be seen as international, academic and internet users, and national users, while the poor themselves are the aimed eventual beneficiaries, but are not users of the HDI. Usage can be seen within the academic, political and public domain, where the HDI functions in different ways. There is a tension between the global product and local applicability which makes the local use of the global HDI problematic, especially considering the aims for the HDI to perform the role of the advocacy tool for policy purposes. However, because the HDI is a composite index and education, health, and standard of living require different policy decisions, the HDI does not offer direct policy advice. On the other hand, through the comparative and ranking device, the HDI is used in the public and media, acting as an effective advocacy device to gather attention to development topics to get them on the political agenda.

While the intrinsic features of the HDI have been criticised in the academic domain, for policy and public use the HDI has been effective around the world. The user groups and their aims thus determine whether the HDI can be used effectively. When taking the academic use as a guideline, the product can be seen to have travelled well despite criticism on the concept and measurement. On the other hand, the simplicity of the HDI taking a composite index of three

elements of development people can relate to, makes the HDI effective in public and political domains. The globalisation of the HDI has aided the use that not only functions as the end product, but also during the production process because the UNDP formats have the local users engage with the human development issues that without the HDI would not have been achieved.

This paper has analysed these three phases, the production, distribution and usage of the HDI to answer the question ‘How successful has the HDI been as a fact travelling between production and usage domains?’ and suggests four factors of success. First, the production of the HDI created a fact by quantification and the numerical nature of the HDI has facilitated its travels. Whereas the quantification and production process have been criticised, they have produced a number on human development that previously was not there. The HDI was therefore successful in offering a quantity, a fact of human development as opposed to a verbal message. This was due to the attempts of the producers to create a competitor to GDP per capita. The global production process was essential for the provision of the HDI as a competing quantity.

Secondly, the HDI has been successful because the emphasis the producers have placed on the distribution and marketing of their product. Moreover, the facilitation by the UNDP and by the ties with the academic community and the media created the networks according to which the HDI could travel well. The UNDP has offered the data and information globally, in non technical terms and through various channels. The ranking lists, reports, press releases and internet stimulated the media coverage, in addition to the national reports more applicable to local interests and concerns.

A third factor of success is the way the HDI spoke to a variety of users including academics, politicians and the public. Usage by academics is limited by the caveats of the theoretical basis of the HDI. On the other hand, exactly this theoretical basis and UNDP’s willingness to open the debate and the academic mentors of the HDI actually make the HDI successful in academia in terms of attracting attention and inspiring new research and debates, which resulted in for example the academic journal of human development. The HDI provoked increased interest in the concept of human development and the improvements and intellectual debates through new research.

The usage by politicians is not straightforward, as the HDI does not offer guidance for policy design. There is a tension between the global measure and local applicability. Rather than as an explicit goal, the HDI has been used as a gateway to the underlying information and the national reports focus on the applicability per country. Therefore direct links between the HDI and change in political outcomes are difficult to demonstrate. While there are nations such as Brazil that explicitly use improvements in the HDI as an aim, the applicability of the HDI for national policy design is limited.

The HDI has been very popular in the public domain. The ranking list provides a competition element that has been taken up by the media. Therefore through the public domain and national debates the reports have inspired, an additional use of the HDI for academics and politicians can be seen as indirect.

A fourth feature of success is related to the global aims and interests attached to the HDI. The UNDP aimed for change. This makes the HDI different from other statistics, which focus on capturing a certain concept in number, not necessarily envisioning a political use for the statistics. This aim for change also informs the way the UNDP emphasised the dispersion of the data. Although this is also increasingly done by other statistical organisations,⁴⁰ the aims and opportunities for the UNDP were special because it could rely on the global nature of the organisation and its networks. Resource allocation, political aims and prestige became attached to the HDI, partly because the index was widely dispersed and the ranking lists created the competition element.

In sum, this case study of the HDI suggests that for the HDI to travel, statistical foundations have proven not to be the determinant factor. While the success varies according to the users, the HDI has been successful and travelled well between production and usage domains because as a quantity it offered a competitor to GDP per capita, because there was an emphasis on the distribution of the HDI, because the HDI was connected to global aims, and because the HDI spoke to a variety of users.

⁴⁰ As expressed during the OECD Istanbul World Forum – Measuring and Fostering the Progress of societies. 27-30 June 2007, Istanbul, Turkey. OECD, *Statistics, Knowledge and Policy 2007. Measuring and Fostering the Progress of Societies* (OECD Publishing, 2008).

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