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John Wade's early endogenous dynamic model: 'Commercial cycle' and theories of crises

1. Early approaches to crises and cycles

A number of inquiries on early theories of crises ad cycles stressed that by the 1830s there was some awareness of approximate periodicity in the return of times of distress, and there had been attempts to formulate descriptions or even explanations of this phenomenon. In 1823, Thomas Tooke wrote of 'waves'[1] in prices, which he attributed mainly to exogenous events: bad seasons, by causing price increases, encourage the development of credit which in turn feeds back on prices.[2] Later, in his *History of Prices* Tooke also incorporated endogenous elements, describing some phases (crises, in particular) as a reaction to the previous development.[3] By the end of the 1820s, descriptions of the alternation of prosperities, with rising prices and speculation, and depressions accompanied by falling prices, were already commonplace (Miller 1927, p. 193). At this time we find the first attempts to estimate the period: an anonymous American reported in 1829 that "an opinion is entertained by many" that the average period of these "fluctuations" (the term is used several times) that "do take place, and [...] always will take place in countries, where paper money has been extensively introduced" is about 14 years. In 1838 Hyde Clarke was under the impression that cycles (this is the term he used), in nature and society, are subject to an elementary mathematical law (Clarke 1838; without, however, specific reference to economic cycles); he considered not only 10-years cycles, but also 54-years long waves, yet he did not actually publish these reflections until 1847.[4] In 1840 Briaune, in a pamphlet on *Des crises commerciales. De leur causes et de leur remèdes* explicitly wrote about the "périodicité des crises commerciales" (p. 2), referring only to their return, without any reference to a

[1] The oceanic metaphor frequently reappears in connection with cycles, for instance in Langton: "These disturbances [quarterly and seasonal fluctuations] are the accompaniment of another wave, which appears to have a decennial period, and in the generation of which, moral causes have no doubt an important share" (1857, p. 11). Mills, who cites Langton approvingly, specifies: "They are indeed 'waves', as distinguished from the current or tide" (1868, p. 13). Other early occurrences are cited by Miller (1927): a speaker in the Massachussets House of Representatives attributed to "periodical revulsions, "occurring "about every three years" "as much reguarity as the billow from the ocean (Rantoul 1836, p. 14); Balfour commented on the "apparently tidal regularity" with which crises recur (1848, p. 477).

[2] Tooke 1823, Part I, section VII: "Explanation of the causes of extension and contraction of private paper and credit". For a discussion see Arnon 1991, pp. 74–77.

[3] Tooke 1838–57. For a discussion see Link 1959, pp. 127–147; for Schumpeter's appreciation of the endogenous character of Tooke's account see 1954, pp. 744–5.

[4] See Collison Black 1992, Henderson 1992, and for early appreciations Jevons 1878 and Bergmann 1895, p. 239.

more or less strict period. In 1848 Coquelin wrote that 'commercial perturbations' "have become in certain countries in some degree periodical";[5] Lawson wrote that examining the English panics "we shall find these periods of commercial distress regularly and periodically recurring in cycles of from five to seven years" (Lawson 1848, p. 2). Within a couple of decades, most writers agreed on a period of about seven to 11 years, culminating of course in Jevons' claim that the phenomenon is strictly periodical.[6] "Crises" and "panics" began to appear, in the plural, in the titles of articles and pamphlets,[7] and some histories of crises were published.[8]

Most (but by no means not all) of the early explanations of the phenomenon focused on crises. Apart from being the most obvious and dramatic event during the whole cycle, this reflected the dominant interpretation of these phenomena as exceptions to the 'normal' course of events. As such, crises called for an explanation, which was therefore given in terms of some special cause, extraneous to the proper working of the system, disrupting the proper functioning of the exchange or production mechanisms: "wars, embargoes, oppressive duties, the dangers and difficulties of transportation", social unreast increasing uncertainty, arbitrary exactions, jobbing and speculation. In this conception, troubles only last until the external disturbance persist: "No sooner is the cause of this political disease removed, than the means of production feel a natural impulse towards the vacant channels, the replenishment of which restores activity to all the others. One kind of production would seldom out-strip every other, and its products be disproportionately cheapened, were production left entirely free".[9]

The majority of those who realized that crises returned with similar features and almost periodically, and accordingly decided to understand them as part of a broader chain of events, also thought of crises as the fact to be explained. While the previous group of writers treated crises as disjunct occurrences each caused by a special condition, the theorists stressing the periodicity of crises identified a sigle cause (or set of causes) common to the whole series, and indeed rejected (and sometimes ridiculed) the individual expanations of crises as scientifically inadequate to explain the *new* phenomenon they were identifying, describing and trying to explain. This new phenomenon, however, was characterized in terms of recurring crises, not yet of cycles:[10] the emphasis was placed on

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[5] Coquelin 1848, cited from the 1850 translation, p. 219; and Coquelin 1852, p. 528.

[6] Summaries of the main positions are given in Jevons (1878) 1884, pp. 222–4, and Miller 1927, pp. 192–3. The most detailed account is Bergmann's (1895, pp. 235–60).

[7] Among the early ones Chitti 1839, Briaune 1840, Lawson 1848, Coquelin 1848, 1849 and 1850, Joplin 1854. Société d'Économie Politique 1857, Clément 1858, Bonnet 1859.

[8] Bell 1850; Members of the New York Press 1857; Wirth 1858; Evans 1859.

[9] Say 1803, cited from the 1880 translation of the 4th edition, Book 1, Chs. 15 and 16.

[10] This is also witnessed by the terminology. Juglar, for instance, titled his book (commonly seen as the first full-blown treatise on cycles) *Des Crises Commerciales et de leur Retour Périodique* (1862); dozens of other examples could be cited, some of which to be fond in the references list to this paper. As Schumpeter noted, this terminology eventually lagged behing and remained in use after the transition to cycle theories was completed (1954, p. 1123).

the disruption of the normal course of events.[11] The transition from this kind of theories to proper theories of the cycle was a gradual process that took several decades, and was only completed at the eve of World War I with the theories of Tugan-Baranowsky, Spiethoff, Mitchell, Bouniatian, Aftalion and a few others.

There was, however, a smaller number of writers who approached the problem of the alternation of periods of prosperity and distress straight away in terms of cycles, that is, conceiving it as a specific phenomenon to be explained as a whole, rather than as a necessary repetition of the most dramatic of its phases.[12] Lord Overstone, for instance, had in mind an "established cycle", of which he gave a well-known description in 1837 recognizing ten characteristic states: "a state of quiescence, — next improvement, —growing confidence, — prosperity, — excitement, — overtrading, — convulsion, — pressure, — stagnation, — distress, — ending again in quiescence".[13] Or again John Wilson, who in 1839 formulated an agricultural cycle based on a cobweb-like mechanism (see Link 1959 for a discussion).

2. John Wade, and the *History of the Middle and Working Classes*

An author who has received little notice, in spite of having produced one of the first, if not *the* first, endogenous models of the cycle, as distinct from returning crises, is John Wade. In his *History of the Middle and Working Classes*, published in 1833, he explicitly spoke of a commercial cycle intrinsic to a mercantile society,[14] which he saw as a persistent cause of fluctuation in employment. To explain this phenomenon, he sketched a mechanism based on the effect of price dynamics on consumption and production, in turn determining further price changes.

Wade (1788–1875), after having worked for a decade as a journeman woolsorter, became a journalist, mainly interested in Trade Union matters and parliamentary reform. He run his own paper, *The Gorgon*, from 1818 to 1819, on funds lent by Jeremy Bentham (whom Wade described as the apostle of reason), Henry Bickerseth (later Baron Langdale) and Francis Place.[15] From his columns, Wade referred to the Benthamite principle of the greatest happines for the largest number to advocate "the improvement of the condition of the laboring classes".[16] Later (1828) he joined the staff of *The*

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[11] Although Marx also stressed crises more than cycles, he considered them as the resolution of the cntradictions intrinsic to capitalism, and conversely regarded equilibrium as a transitory and essentially casual occurrence (for a discussion see e.g. Besomi 2006).

[12] I am indebted on this point to lengthy discussions with Denis O'Brien.

[13] Overstone 1837, p. 31; see O'Brien 1994.

[14] A number of statements to this effect are scattered through the book, such as for instance: "the alternations of prosperity and depression inseparable from commercial and manufacturing pursuits" (p. 512). Others are cited in the text.

[15] Place noted that "He repaid all the money which had been lent to him". Place described the publication as "political, but [containing] much that related to trade, manufactures, and domestic policy" (cited in Wallas 1898, p. 203).

[16] Wade, from an article in *The Gorgon*, 25 July 1818, p. 8, cited by Ashcraft 1993, p. 253. For a later inference from this principle see below, **footnote 21.** According to E. P. Thompson, "the *Gorgon*'s

Spectator. In 1919 he published anonymously the first edition of *The Black Book, or, Corruption Unmasked*, followed in 1931 by *The Extraordinary Black book : an exposition of the United church of England and Ireland; civil list and crown revenues incomes, privileges and power of the aristocracy ..,* a compendium of information on the revenues of aristocrats and clergy and anyone connected with government and power structures, and on their relationship with big companies, with which he aimed at convincing his readers of the necessity of parliamentary reform.[17] The book was influential: it sold over 50,000 copies and went through five editions, the last published in 1835.[18]

Wade was quite eclectic in in his interests. He also published titles such as *Manchester massacre!! An authentic narrative of the magisterial and yeomanry massacre, at Manchester, with remarks on the illegal conduct of the magistrates in suppressing the meeting, and their proceedings towards Mr. Hunt: ...* (1919), *A political dictionary; or, pocket companion: chiefly designed for the use of members of parliament, whigs, tories, loyalists, magistrates, clergymen, half-pay officers, worshipful aldermen and reviewers; being an illustration and commentary on all words, phrases, and proper names in the vocabulary of corruption ... with biographical illustrations ...* (1821), *The cabinet lawyer: a popular digest of the laws of England, civil, criminal, and constitutional: intended for practical use and general information* (1826, 24th edition in 1869), *Select proverbs of all nations: illustrated with notes and comments*[19] (1824, 1847), *Digest of Facts and Principles on Banking* (1826), *An account of public charities in England and* Wales (1828), A *treatise on the police and crimes of the metropolis ...* (1829), *The book of penalties, or, Summary of the pecuniary penalties inflicted by the laws of England on the commercial, manufacturing, trading, and professional classes …* (1834), *British history, chronologically arranged* (1839), *Glances at the times, and Reform Government* (1840), *Principles of money, with their application to the reform of the currency and of banking, etc.* (1842), *Unreformed abuses in Church and State: with*

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main influence was upon the shaping theory of the working-class movement, where it served as junction between the Utilitarians and the Radical trade unionists: 'we wish' (declared Wade) 'the Ultra Reformers, the Universal Suffrage men, to which we belong, to make some advances to the moderate Reformers'" (Thompson 1963, p. 676, quoting from the same issue of *The Gorgon* cited above; see also Thompson, pp. 768–76). Similarly Wahrman (1995, p. 198).

[17] It is in this context that Wade's earlier references to crises are found. He discussed the agricultural crisis, and the similar "calamities of 1818", not as a periodic event, but as a terminal one, on which he rejoiced for it indicated "that the horrid system of folly, injustice and robbery has attained its acme; that it is cracking and ready to tumble on the heads of its authors", namely, the "Borough ruffians" who controlled parliament. Wade claimed that the system of corruption "contains the seeds of destruction within itself", and that it "must inevitably fall to pieces" (from *The Gorgon* N. 29, 1818, pp. 226–28, cited in Gilmartin 1996, pp. 61–62).

[18] For biographical notes see Harling 2004, Zegger 1979, Bose **18????**, and Spartacus Educational (undated). On the *Black Book* see Edmond and Frow 1994, Rubinstein 1977, pp. 118–20, Wahrman 1995, pp. 205 and 354–6, and Harling 1999.

[19] Some proverbs are reproduced in the *History of the Middle and Working Classes*, in the final part of the Appendix dedicated to Maxims of conduct.

a preliminary Tractate on the Continental Revolutions (1849), *England's greatness: its rise and progress in government, laws, religion, and social life; agriculture, commerce, and manufactures; science, literature, and the arts* (1856), *The Cabinet Gazetteer: a popular exposition of the countries of the world. ...* (1853), *Women, past and present: exhibiting their social vicissitudes; single and matrimonial relations; rights, privileges, and wrongs ...* (1859), *Harlotry and concubinage: a supplementary chapter to Women, past and present ...* (1859).

The *History of the Middle and Working Classes*[20] was concerned with the implications of the transition from a mainly agricultural to society to manifactural supremacy, in particular with the "anomalies peculiar to our existing state", including

> the growth of an opulent commercial, and a numerous and intelligent operative class—sudden alternations of prosperity and depression—extremes of wealth and destitution—the increase of crime—the spread of education—political excitement—conflicting claims of capital and industry—divided and independent opinions on every public question (Wade 1833, p. iv).

The book aimed at presenting the history and the present state of the middle and working classes, well illustrated with figures reproduced in a vast appendix, and a "brief and popular exposition of the social and economical questions which agitate the community" (p. v); he showed how the 'industrious classes' were mutually dependent, and pleaded for the solidarity of capital and labor in the common interest. The first part of the book (just over one hundred pages) is historical. The second—"Political economy of the industrious order"— gives a "popular exposition of the principles which influence the relations and conditions of the agricultural, commercial, and manufacturing classes" (p. vi). It formes the main bulk of the book (over three hundred pages), where labour, the division of labour, money and paper currency, the determination of rents, wages and profits, poor laws, fluctuations in employment, and trade unions are discussed. Wade stresses that the latter are problems peculiar to the most recent stages of development of a mercantile society, on which therefore little or no guidance can be found in Smith's *Wealth of Nations*. Wade tries "to be practical, and avoid, both in matter and language, what may be termed the metaphysics of economic science" (p. vi). The author omitted to elaborate further on the latter comment, except for noticing that this "science of general concernment" "has been adulterated" with "sophistries and obscurities" (p. 512).[21]

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[20] According to Wahrman, this may have been the first work to have included the histry of the 'middle class' in its title (1995, p. 365).

[21] Bergmann (on whose interpretation of Wade see Section 6) defined as 'rejecting' Wade's attitude towards political economy. He cited the following passage as a fair characterization: "I am a great admirer of political economy, but do not implicitly adopt all its dogmas. National happiness is more important than national wealth, very unequally apportioned" (Bergmann 1895, p. 236, with reference to Wade 1933, p. 299. Wade explained further that he thought that in all fiscal and policy measures, the authority should adopt the maxim "that it is better 100 persons should live comfortably, than one luxuriantly"). Schumpeter was more drastic in his comment that Wade's "politeness towards 'political economy' barely veils feelings akin to contempt" (1954, p. 743n; no references to specific passages are given). N. W. Thompson, instead, wrote that Wade's *Gorgon* "took a particularly positive approach to the discipline of

Part 3 of Wade's book (one hundred pages) is concerned with 'Political philosophy': it discusses the basic principles of natural and civil liberty, government, constitution, law and morals, rights of property, marriage, and especially popular education. This chapter is particularly important in the light of Wade's opinion that the best remedy to the evils of fluctuations of employment and poverty is "individual prudence" (p. viii) rather than public institutions such as the poor laws, and that the understanding of the laws governing wages and employment would increase the peace and the well-being of the community (pp. 512–14). The aim of this *History of the Middle and Working Classes* was itself educational, and the book was accordingly designed as "a popular compendium of useful knowledge, to state pinciples briefly and clearly on public topics of great interest" (p. ix) and printed "in a cheap and accessible form" (p. v).[22]

3. A model of periodic cycles

Wade's discussion of the commercial cycle is to be seen in this context: "Fluctuations in employment are the great bane of communities" (p. 268), and workers should learn how to cover themselves from the evils associated to unemployment. Learning that fluctuations recur periodically can prepare workers to save out of their wage in good years for bad ones, or to negociate the terms of employment in such a way as to even out salary fluctuations (which, we shall see, are linked to employment fluctuations) during the period of an "ordinary commercial cycle of depression and prosperity" (p. 265)

As the commercial cycle is influences by various circumstances, its period "cannot be subject of calculation". Nevertheless its main cause is of such a nature that

> though not returning annually, or at any fixed intervals, yet returns with so much certainty and almost regularity as to be entitled to be considered periodic. It is for fluctuations of this description, at least, that the workman ought to be prepared; he ought to be prepared to encounter a scarcity of employment after a previous redundancy, and the intensity and duration of this scarcity will mostly be proportioned to the preceding excess (p. 264).

Remarks on periodicity recur at different places in the book, e.g. when observing that "mercantile revulsions [...] may be likened to the plague and pestilence which formerly desolated the earth, and returned with as much periodic regularity" (p. 255). Wade speculated that "The commercial cycle is ordinarily completed in five or seven years, within which terms it will be found, by reference to our commercial history during the last

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political economy", which he believed "could prove an important analytical tool with which to investigate and explain the impoverished condition of the labouring classes", provided, however, that the opinion of these 'frozen-hearted philosophers' was translated 'out of their own heatenish dialect' (Thompson 1984, pp. 9–11; the passages within single quotation marks are cited from *The Gorgon* 48, 1819, pp. 377–8. See also Thompson, pp. 118–20).

[22] Such educational concern was widely shared by Radical publications of the early XIX century, including Wade's *The Gorgon*: see Gilmartin 1996, pp. 99–104.

seventy years, alternate periods of prosperity and depression have been experienced" (p. 211).[23]

Wade's discussion of the main cause of fluctuations focuses on manifacture. Fluctuations occur in all branches of trade; but while agriculture is subject to both foreseable seasonal variations and to unexpectd changes, in the commercial and manufacturing industries employment undergoes "more sudden development or contraction", for capital can be more easily injected or withdrawn in manifacture than in agriculture (253). In manifacture, producers can more easily adjust their production to fluctuations in demand, not only by acquiring new and more powerful machinery, but also by increasing the hours of working and the number of workers.

> This is one of the most general causes of fluctuation of employment, and of the alternate periods of depression and prosperity, inseparable from mercantile pursuits. Spring is not a more sure harbinger of summer, that great commercial activity of depression, or stagnation of trade of its subsequent revival. It arises from the opposite influence of high and low prices on consumption. A cessation of demand causes prices to fall, but consumption is promoted by *cheapness*, as it is lessened by *dearness*. As consumption increases, prices increase also; and the temptation of higher prices tends to increase the quantity industry applies to production. But a rise in prices operates on consumption like the power which retards the ascent of bodies on an inclined plane; as prices advance, consumption proportionally diminishes, till at length the additional employment created by the temptation of high prices, becomes redundant, and then follows what is significantly denominted in the commercial world, a reaction (p. 254).

The mechanism is intriguing, considering it was suggested in 1833. Price movements trigger both changes in demand and in production, which in turn react against the original movement. When prices increase, demand falls while production increases. Supply thus outpaces demand, and prices fall, setting off the opposite movement. Not surprisingly, a part of the explanation is not spelt out: if the reaction were instantaneous, price changes would be immediately wiped out. Wade is thus implicitly assuming that reactions are either slow or lagged (a few pages below in the text, however, the lag was specified in full: see section 4): the mechanism thus belongs to the cobweb family. It is coupled with the procyclical effect of the wage changes associated with the fluctuations in production. When activity is increasing, wages also rise, for the rate of wages depends on the relationship of the demand for workers (that is, on production) and the available number of workers (that is, on population dynamics, which is much slower than production changes), and conversely during depressions.[24] But "A reduction of wages

[23] Wade did not supply dates for his cycle; he indicated, however, some crises years (p. 150): 1763, 1772, 1793, 1811, 1816, 1825–6. This may be compared with Jevons's series: 1763, 1772–3, 1783, 1793, (1804–5?), 1815, 1825 (Jevons 1878, p. 231).

[24] Wade maintains that the rate of wages is determined by the number of unemployed: many unemployed competing for a limited number of jobs would diminish wages; the opposite happens during periods of prosperity when entrepreneurs compete for workers (pp. 214–5). The idea that wages are determined by supply and demand was already expounded in *The Gorgon* in 1818 (the passage is cited in Thompson 1984, p. 118).

compels a workman either to reduce his expenditure, or by increased exertion make up the diminution of his income." Wade only examines the second option, concluding that the lengthening of hours would make the problem worse by further making other workers redundant: this "only aggravates the evil of scarcity of employment, and thereby accelerates the downward tendency of wages". Wade noted that if workers had made provisions to use for periods of depressions, they would have no need to work harder and this problem would not present itself (pp. 206–7).

Interestingly, Wade does not examine the first (and, one would think, more realistic) alternative, that is, a reduction of workers' consumption. This would also exert procyclical effects, and would therefore not impair Wade's conclusion but rather re-inforce it. What is notable, is that Wade missed the rather obvious point that a reduction of *some* workers' consumption means reduced demand for some entrepreneur, and therefore more unemployment for his employees. Missing the interconnectedness between various branches of production is consistent with Wade's opinion that "it never happens that all branches of industry are simultaneously depressed": he even agreed in principle with the suggestion that workers could counteract the evil effects of fluctuations in their own trade by being trained to take up different occupations —except that he found it difficult to put this recommendation into practice (p. 264).

The 'commercial cycle' described by Wade thus refers to individual branches of trade, although it could be easily generalized (indeed many observers in later years maintained that the solidarity of various branches of trade contributed to explain the generality of gluts, even between countries: see e.g. Juglar 1862, p. 13 and passim). The model, however, clearly aims at introducing a purely endogenous explanation of a cycle, fully symmetrical,[25] without special emphasis on crises (Wade allowed, however, for the suddenness of crises: see section 5). This view also reflects in the terminology: the words 'cycle' and 'fluctuations' recur throughout the book, while the qualification (here and elsewhere in the book) of the turning points as 'reactions' stresses the endogenous nature of the mechanism.[26]

[25] It should be noticed, however, that the course of the upturn is not explicity described, although Wade is adamant that the effect of prices on consumption is precisely reversed and that a stagnation of trade is followed by a prosperity precisely as prosperity is followed by a downturn. The only relationship he does not explicitly reverse in the passage on p. 254, cited above, is that between high prices and application of more capital to production.

[26] This usage of the term has precedents—not surprisingly, in the light of Wade's remark that the term was so employed in the commercial words. Thomas Attwood used it with reference to the lower turning point, also having in mind an endogenos mechanism in which 'natural remedies' stopped and reversed cumulative movements (Link 1959, pp. 6–13): "When the stocks of both necessaries, and luxuries, and riches of all kinds, are greatly diminished, and when the labourers have little employment, and less wages for their subsistence, a reaction is promoted by the diminution of produce, thus restoring high prices" (Attwood 1817, p. 38).

4. Correctives to the main mechanism

Along with the "general principles which govern the commercial cycle", Wade considered other "minor causes of fluctuations in manifacturing employment" (p. 255), and discussed some aggravating or relieving circumstances.

He listed three principal classes of minor causes of fluctuations (pp. 255–7). The first consists in the often injurious effect of "foreign rivalry, regulations, and prohibitions" that "narrow[s] the commercial circle". The second refers to "changes of fashion or of place". This illustrates again Wade's interpretation of the cycle as affecting specific branches of production (in remarkable contrast with the observation on the narrowing of the commercial circle reported a few lines above), such as the distress of peruke-makers in 1765 when many people began to wear their own hair; having observed that changes in fashion often imply the substitution of one product by another, Wade stops shorts from remarking that aggregate employment may not be affected. It should be remembered, however, that he was concerned with the fluctuations in employment each worker has to face, since his suggested remedy was individual rather than institutional. The third minor cause of fluctuation is related to "improvements in machinery" which, by increasing productivity, substitute workers. Wade, however, believes this cause generally to produce only temporary effect: the cost of production decreases, its price also diminishes, so that consumption of that product is stimulated and workers are brought back to work, though perhaps with a different occupation. Here the lag between change in price, change in demand and change in production, on which the principal cyclical mechanism implicitly relied, becomes apparent.

The activity of merchants is among the factors moderating the evils of gluts. By buying where goods are abundant and cheap and selling where they are scarce and dear, merchants even out the supply and demand for commodities, and help reducing local fluctuations in prices. Moreover, when trade stagnates and prices fall, merchants who think this to be a temporary situation buy on advantageous terms part of the stocks being accumulated by manifacturers:

> both parties are benefited from his [the merchant's] interference; the force of the reaction is abated, the depression in prices is not so great as it otherwise would be, the manufacturer is not obliged suddenly to reduce to the same extent the number of his workpeople or the working of his machinery, and thus the evils which are in some degree inseparable from fluctuations in manufacturing employments, are mitigated if not averted (pp. 172–4).

Also the application of machinery to production reduces the fluctuations in employment. Manufacturers who have invested a large capital in machinery do not want to keep it idle, for they would lose profit on capital invested and damage the machine by keeping it inactive. It is therefore in the producer's interest to plan "its productive power agreeably with the average demand of a long series of years rather than a particular season" (pp. 262–3). On this point, Wade was surely overoptimistic: that manufacturers do not behave that way, but invest during periods of prosperity, is one of the postulates of his own model of the cycle. Indeed, a few decades later the 'fixity of fixed capital' was seen as one of the factors aggravating fluctuations, if not their main cause: when capital has been invested, it rational for entrepreneurs to carry on producing even when they realize that too much of that good is supplied already.[27]

5. Speculation and crises

A factor that is instead aggravating fluctuations, and is indeed responsible for the suddenness and the violence of some reactions, is speculation. Wade distinguished between legitimate and illusive speculation. The former is the merchants' reponse to a probable scarcity of some consumption goods: merchants buy cheap in view of possible rises of price; this, however, anticipates the increase of prices, signalling to consumers to be less wasteful, mitigating the evils of the actual scarcity when it comes. Illusive speculations "are nothing more than gambling, or fraudolent devices got up to entrap the unwary"; they are set up in periods of excitement and have an "epidemic" character, with "schemes […] addressed to the passion, not the reason of mankind" (pp. 208–9). Such schemes are facilitated and fostered primarily by the too facile issue of credit (pp. 157–9), and by paper currency: contrary to coins that possess an intrinsic value, paper money does not. This

> has formed a principal cause of those disastrous vicissitudes in our monetary system, which have distinguished the last thirty years of our commercial history. Fabricated almost without expense, it executed all the functions of money, and the same advantages were derived from its employmnt. More of it advanced in loans, and greater the interest realized; more of it employed in trade, and greater the profit. The temptation to issue it in excess were too great to be resisted.[28] Advances were made to individuals without adequate security; a spirit of over-speculation was encouraged in every branch of national industry; prices, rents, tithes, mortages, every thing, in short, the value of which is measured by money, was forced up to an unnatural height; and then, when the artificial impulse could no longer be supported, came a mercantile reaction—a subsidence of the pecuniary deluge, leaving the land, not enriched, like Egypt, by the overflowing of the Nile, but covered with the debris of aërial castle-building! (p. 148)

If speculation is responsible for the violence of crises, Wade is adamant that this cause is aggravating only: "the stagnation of trade originated in a want of remunerative returns, not of commercial currency, which last mercantile men have a ready way of producing among themselves when not deterred by the aspect of the time" (pp. 159–60). Crises and panics should thus be kept distinct from cycles: Wade sees them as particularly distressing and ruinous moments in the course of the cycle, but while the latter is intrinsic to a commercial world, crises are characterized by unchecked excesses and hazards. The cycle results precisely from the system's tendency to correct price

[27] See e.g. Crocker 1887, pp. 364–5, Wells 1887, p. 382 and Smart 1895, pp. 203–4.

[28] Wade therefore strongly objected to the view that the issue of money should be regulated by competition in absence from legislative interference by analogy with the production of commodities (p. 148).

fluctuations: price rises set up themselves the conditions for a decrease in prices, via the changes in consumption and production they trigger.[29] Crises, on the contrary, arise from the fact that during the excitement of speculation periods there is no time or opportunity to verify whether investments are sound, so that the exaggerated estimates regarding demand remain unchecked until the credit on which speculation is built ceases, revealing that it was built upon insecure foundation (p. 149).

Here we find two peculiarities of Wade's approach. One, as already stated, is the emphasis on cycles rather than on crises. This was quite uncommon at the time, and was to remain uncommon for several decades thereafter. The second unusual feature consists in the subordinate role played by monetary factors, only capable of aggravating fuctuations rather than causing them. Similar views also were to remain uncommon for a long time, as most of the early explanations of crises of the time focussed on the problems related to the issue of money and credit. The controversy between the currency and banking schools is an obvious case in point. But a number of other writers also blamed crises upon credit and banking, especially via speculative activities or mismanagement: some, under the influence of the quantity theory of money, attributed price fluctuations to corresponding oscillations in the quantity of money; others, under the influence of Say's law, attempted to find in monetary factors an escape to the impossibility of general gluts in a barter-like economy; others were impressed by the phenomena of financial panics frequently associated to economic crises. Among the early rare exceptions, one may cite James Wilson's mechanism describing fluctuations in the application of capital to agriculture based on the influence of price changes on the decision to cultivate or abandon land and the subsequent delayed effects on production and prices (Wilson 1939; see Link 1959, pp. 104–7).

6. Crises *vs.* dynamic model of cycles: Wade in the literature

Wade's cycle model seems to have passed largely unnoticed in the literature, in spite of its pioneering characters and unconventional (for the time) features. Among the misses, it worth citing Jevons's survey of writings stressing the periodicity of crises (1878), Jones's otherwise comprehensive discussion of previous writings on crises (1900), Hansen's (1927), Fritz's (1934), Macfie's (1934) and Haberler's (1937) histories and classifications of business-cycle theories, Link's study of early English theories of economic fluatuations (1959), Burton's otherwise well read book on financial crises and industrial and commercial depression (1902). Hutchison (1953) discussed a number of little cited early writers in cycles and crises but overlooked Wade, as did some

[29] Apart from the obvious analogies between Wade's mechanism and Aftalion's (1913), both based on a delayed response to price changes, and the equally obvious differences, as the former is based mainly on fluctuations of demand in response to prices and the latter focusing more on production (both, however, admit fluctuation on the other side), they both share the idea that the cycle results from the equilibrating tendence, which is prevented by slowness or delays from re-establishing equilibrium (on Aftalion on this point see Dangel and Raybaut 1997).

recent reprints of fundamental writings in early cycle theory (O'Brien 1997, Hagemann 2002 and Boianovsky 2005).

I am aware of four references to Wade's *History of the Middle and Working classes* in the literature on cycles. The young Friedrich Engels took up Wade's cycle model in full, including the evaluation of the period, making the lag explicit and giving an elegant dialectical interpretation of the in his "Outlines of a critique to political economy" (1844, pp. 433–4):

> The law of competition is that demand and supply always strive to complement each other, and therefore never do so. The two sides are torn apart again and transformed into flat opposition. Supply always follows close on demand without ever quite covering it. It is either too big or too small, never corresponding to demand; because in this unconscious condition of mankind no one knows how big supply or demand is. If demand is greater than supply the price rises and, as a result, supply is to a certain degree stimulated. As soon as it comes on to the market, prices fall; and if it becomes greater than demand, then the fall in prices is so significant that demand is once again stimulated. So it goes on unendingly—a permanently unhealthy state of affairs—a constant alternation of overstimulation and flagging which precludes all advance—a state of perpetual fluctuation without ever reaching its goal. This law with its constant adjustment, in which whatever is lost here is gained there, is regarded as something excellent by the economist. It is his chief glory—he cannot see enough of it, and considers it in all its possible and impossible applications. Yet it is obvious that this law is purely a law of nature and not a law of the mind. It is a law which produces revolution. The economist comes along with his lovely theory of demand and supply, proves to you that 'one can never produce too much', and practice replies with trade crises, which reappear as regularly as the comets, and of which we have now on the average one every five to seven years. For the last eighty years these trade crises have arrived just as regularly as the great plagues did in the past—and they have brought in their train more misery and more immorality than the latter. (Compare Wade: *History of the Middle and Working Classes*, London, 1835, p. 211.) Of course, these commercial upheavals confirm the law, confirm it exhaustively—but in a manner different from that which the economist would have us believe to be the case. What are we to think of a law which can only assert itself through periodic upheavals?

A year later Engels considerably elaborated upon this outline in his *Condition of the Working Class*. He first argued that with the development of capitalism and the consequent interlocking of markets, crises are no longer confined to single branches of trade but are generalized and become periodical. The premise is the anarchy of production, which implies ignorance as to the actual state of supply and demand. The spreading of favorable news induces to invest in some market, which quickly saturates and causes production to halt. This generalizes to the whole system. Producers cannot afford to maintain their capital inactive: the small firms quickly fail, while the larger ones reduce production. Some workers lose their jobs, and start competing with the employed, determining a drop in wages, while unemployment spreads further. At some point the situation will improve: stocks are depleted; producers, being still pessimistic, do not react immediately, so that prices begin to rise. This is taken as a signal that recovery is on its way: demand increases, so do prices. Speculators, betting on further price rises, stock up goods, both on internal and foreign markets, thereby further increasing the gap between demand and supply. More hazardous speculations sets in, based on credit and fictitious capital, in a spiralling movement. At some point speculators on foreign markets, who need liquid money, begin selling. This breaks the spell, prices stop rising and start falling, determining a generalized panic. This is the beginning of the crisis, which repeats its course in an endless cycle recurring every five or six years (Engels 1845, **pp. ??????**). It is interesting to notice how Wade's cycle model is clearly still at the basis of Engels's description,[30] but the emphasis was shifted on crises: not only the crisis is the beginning and final point in the discussion, but the treatment is no longer in terms of gentle action and reaction. Speculation is incorporated as part of the mechanism, the boom is accelerated and the consequent fall precipitous. Interestingly, anticipating Marx's later interpretation of the phenomenon, Engles considers crises as the form taken by a *contradiction*: the lack of symmetry between supply and demand for labour, for workers are permanently in excess (except for brief periods at the acme of the boom) with respect to demand, so that competition among them is constantly higher than competition among entrepreneurs.[31]

The next extensive reference to Wade is in Eugen von Bergmann's very detailed history of crises theories (1895), where a fair summary is provided and some relevant passages are cited. On the main cyclical mechanism, Begmann's comment is interesting:

> Wade is reconducing the changes in the volume of production of goods to changes in the volume of consumption, which is influenced by the level of prices. And in turn he explains the changes in prices in terms of the influence of the different levels of consumption. Although a mutual influence between production and consumption (and demand, respectively) cannot be be doubted, this obviously cannot suffice as an explanation, for it relies solely on reciprocal influences and correlations without offering a primary cause (Bergmann 1895, p. 237; my translation).

The last sentence witnesses that Bergmann failed to understand how Wade's mechanism could give rise to endogenous and persistent oscillations: cobweb-like mechanisms had not yet been discussed in the literature, and Wade's omission to explicitly mention the lag (or the slowness of reaction) certainly did not help. The remark about the missing primary cause is particularly instructive, for it shows the totally different perspective between

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30 Wade, however, is not cited at this point (he is cited later, in connection with statistics on population). Hobsbawm, in his preface to the book, noted that Engles could have been indebted to Wade (1974, p. ???? italian translation p. 12). The 1844 passage cited above leaves no doubt about the correctedness of Hobsbawm's intuition.

31 Marx also referred to Wade. He was, however, more interested in Wade's views on the nature of capital vis à vis labour. In the *Grundrisse*, Marx cited the following passages: "Labour is he agency by which capital is made *productive of wages, profits, or revenue*" (p. 161); "capital is stored up industry, provided to develop itself in new and equivalent forms; it is *collective force*" (162); "it is only another name for *civilization*"(164) (Marx 1857–58, p. 479). Generally on Wade's book, Marx commented: "In the abstract economic section of his book Wade has some original points for his time, e.g. on commercial crises, etc. The whole of the historical part is, in contrast, a striking example of the shameless plagiarism that predominates among the English economists. It is in fact copied almost word for word from Sir F. Morton Eden, *The State of the Poor etc.*, 3 vols, London, 1797" (Marx 1861–63, 1) Transformation of Money into Capital. The Valorisation Process. Unity of the Labour Process and the Valorisation Process. (The Capitalist Production Process).

cycle-theorists like Wade and the crises theorists who formed the main bulk of writers discussed by Bergmann. Crises theorists aimed at identifying the causes of crises: those who understood crises as disconnected events pointed at individual and occasional causes, while those who reasoned in terms of sequence of crises seeked causes common to the whole series, to be complemented, modified or triggered into action by secondary causes. In the cycle perspective, the notion of causality becomes somehow slippery and circular, for the point to be explained is no longer the cause of one particular state, but the succession of states of the system, each of which is somehow the outcome of the preceding one. The route to cycle theories passing through theories of repeating crises is characterised, in a number of authors, by explicit reflections on causality. However, as soon as the theories of fluctuations focusing on crises eventually gave pace to cycle theories —in the first decade of the XX Century— the question "why" was replyced by the question "how". The transition was codified exactly a century after Wade's book by Ragnar Frisch, who defined dynamics as a theory "that explains how one situation grows out of the foregoing. In this type of analysis we consider not only a set of magnitudes in a given point of time and study the interrelations between them, but we consider the magnitudes of certain variables in different points of time, and we introduce certain equations which embrace at the same time several of these magnitudes belonging to different instants. […] Only by a theory of this type we can explain how a situation grows out of the foregoing".[32]

Wade's book had also been noticed by Wesley Mitchell, but only in relation to periodicity (Mitchell 1927, p. 10), and was mentioned only in terms of a "casual observation, made in 1833, that the 'commercial cycle' with its 'alternate periods of prosperity and depression,' had been running its course in England 'during the last seventy years'" (p. 452, with reference to Wade's p. 211, cited in section 3 above).

Schumpeter, noted that "Faulty and inconclusive though [Wade's] reasoning is, it is of some interest as a primitive instance of an endogenous dynamic model that reproduces alternation of depression and prosperity by virtue of a lagged relation between prices and consumption" (Schumpeter 1954, p. 743n). Schumpeter's account is too crude, and his lack of references to the original text suggests that he may not have seen the original but learned of Wade from Bergmann. Schumpeter is seeing the implicit lag, but omits the role of production from his account, and does not explain why he deems Wade's argument to be faulty and inconclusive. Nevertheless, Schumpeter stressed the point that escaped previous commentators, and for which Wade deserves to be remembered: the endogenous and dynamic character of the model, most probably the first one in the history of economic thought.

[32] Frisch 1933, pp. 171–2. This point is discusse at length in Besomi [in preparation2].

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