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On the Renting of Persons: The Neo-Abolitionist Case Against Today's Peculiar Institution

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Abstract

Liberal thought (in the sense of classical liberalism) is based on the juxtaposition of consent to coercion. Autocracy and slavery were seen as based on coercion whereas today's political democracy and economic 'employment system' are based on consent to voluntary contracts. This paper retrieves an almost forgotten dark side of contractarian thought that based autocracy and slavery on explicit or implicit voluntary contracts. To answer these 'best case' arguments for slavery and autocracy, the democratic and abolitionist movements forged arguments not simply in favour of consent, but arguments that voluntary contracts to legally alienate aspects of personhood were invalid 'even with consent' – which made the underlying rights inherently inalienable. Once understood, those arguments have the perhaps 'unintended consequence' of making the neo-abolitionist case for ruling out today's self-rental contract, the employer-employee contract. The paper has to also retrieve these inalienable rights arguments since they have been largely lost on the Left, not to mention in liberal thought.

Keywords: employer-employee relationship, voluntary self-sale contract, inalienable rights theory, Marxism, neo-abolitionism

1. Introduction

The Dark Side of Liberal Contractarian Thought

Modern liberal thought¹ juxtaposes today's political and economic order based on voluntary contracts to the coercive systems of autocracy and slavery in the past. But there is a skeleton in the closet, a dark side to contractarian thought. From Antiquity down to the present day, there has been a contractarian tradition which argued that economic as well as political forms of subjection could be based on explicit or implicit voluntary contracts. This dark side of contractarian thought fully agreed with today's liberal emphasis on (explicit or implicit) consent and with the condemnation of coercion.

If the historical democratic and abolitionist movements were to do more than just have 'higher standards' about the reality or quality of the consent to such contracts, then they needed to find an *inherent* flaw in those contracts to alienate one's self-governing rights to political or economic masters. If such alienation contracts were inherently flawed, then the rights that those contracts would pretend to alienate would be *inalienable rights*.

My entry point is the workplace governance debate which is hopelessly miscast as a debate about 'ownership' rather than about the employment relationship. After recovering the contractual underpinnings of the corresponding historical debates about governance, I delve

¹ I use 'liberalism' in the European sense as 'classical liberalism,' not in the American sense juxtaposed to conservatism. The fundamental tenet of liberalism is a society based on voluntary contract, not coercion.

into the dark side of contractarian thought to retrieve the arguments for slavery based on explicit or implicit contracts, e.g., a voluntary slavery contract. Then I turn to the counterargument, the *theory* of inalienable rights that descends largely from the Reformation and the Enlightenment. The ‘problem’ with a *theory* of inalienable rights is that – unlike isolated historical condemnations of certain institutions – a theory might have ‘unintended consequences’ such as a critique of the alienation contract at the basis of today’s economy, the employment contract to rent persons.

Ownership and Governance

At one time, the king was seen as the owner of a country, the prince as the owner of a principality, and the feudal lord was the owner of his dominion. This ‘ownership’ was not just a bare property interest in real estate; it included the governance of the people living on the land. The landlord was the Lord of the land. The governance of people living on land was taken as an attribute of the ownership of that land: ‘ownership blends with lordship, rulership, sovereignty in the vague medieval *dominium*,....’ (Maitland, 1960, p. 174). As Otto Gierke put it, ‘Rulership and Ownership were blent’ (Gierke, 1958, p. 88).

To understand the workplace governance debates of today it may be useful to revisit this mentality of the kings, princes, and lords who ‘owned’ their dominions. A commonality with today is the mentality that the governance over the people actually working their property was all part of the owners’ dominion. The inhabitants of the king’s, prince’s, or lord’s dominion had no standing in that governance. The rulers and their agents did not rule as delegates, representatives, or otherwise in the name of those inhabitants. The ‘very idea’ seemed somewhat outlandish.

Today, the same mentality is very much with us in the notion of corporate ownership. The only people who are under the authority of the owners and their agents are the ones who work their property, the employees of the corporation. Just as the Canadians or citizens of another country might be affected by the actions of the U.S. government but are not under the authority of that government, so many are affected by the activities of a corporation but only the employees are under its authority. But the ‘very idea’ that the employees qua workers (i.e., as those who are governed or managed) would have any standing in that governance seems an outlandish perversion of the very idea of ‘ownership’.

If political governance was previously thought to be based on land ownership and now isn’t, then what about the connection between corporate ownership and workplace governance? What is the legal basis for the rights of government or management not over the land, buildings, or machinery of the corporation but over all the people who work in a corporation? Both the right and left give remarkably confused answers to that simple question.

The most common answer harks back to the theory that ‘rulership’ is part of ownership. The shareholders are the owners of the corporation and their governance rights are even seen as part of the ownership of capital assets. This view of the ‘rights of capital’ seems to be one point of agreement between Marx and the defenders of the current system.

It is not because he is a leader of industry that a man is a capitalist; on the contrary, he is a leader of industry because he is a capitalist. The leadership of industry is an attribute of capital, just as in feudal times the functions of general and judge were attributes of landed property (Marx, 1867[1967], p. 332).

The view that 'Rulership and Ownership are blent' is also uncritically promulgated by most economists, e.g., the 'rights of authority at the firm level are defined by the ownership of assets, tangible (machines or money) or intangible (goodwill or reputation)' (Holmstrom and Tirole, 1989, p. 123).

If by the 'rights of authority' at the firm level, one only means the rights to exclude a trespasser then that indeed is based on property rights. But if the 'rights of authority' are taken to include the discretionary rights of management over the people working in the firm, then that requires the employment contract. The 'governance' that is supposed to be exercised by the shareholders and their agents is not the giving of commands to land, buildings, or machines; it is indirectly and directly giving orders to the people who are working with those properties.

The legal authority over the workers is not based on the ownership of capital assets but the ownership of the employees' labour which was purchased in the employment contract. Of course, the ownership of assets gave those owners the bargaining power to almost always enforce 'capital hiring labour' rather than the reverse, but the technical point about the structure of governing rights is that the management rights over workers are based on the employment contract wherein the owners of capital hire or rent workers, not on the rights of capital ownership *per se*. Thus changing workplace governance is not just about changing the bundle of rights involved in asset ownership. It is about the employment contract, the renting of persons.

2. Contractarian Arguments for Slavery

2.1 Contractual Slavery in Modern Liberalism

How can there be an inherent rights violation in a fully voluntary contract? Perhaps the argument is that some contracts are not 'fully voluntary' in some sociological or historical sense (Marx) – or that some voluntary contracts should be overridden on paternalistic grounds? No, those are not the arguments being recovered here. There is a critique of the voluntary contracts of alienation² that was hammered out in the anti-slavery and democratic movements.

But that analysis has been lost to the mainstream of modern liberalism that focuses on the question of consent versus coercion. Today, the contract at the basis of the economic system is the employment contract, the voluntary contract to rent or hire oneself out to an employer for a certain purpose and time period. Ordinarily the word 'hire' is preferred but I use the synonym 'rent' to help us think out of the old mental ruts. The words are otherwise equivalent. Americans say 'rent a car' and the British say 'hire a car' but they mean the same thing. As Paul Samuelson puts it:

One can even say that wages are the rentals paid for the use of a man's personal services for a day or a week or a year. This may seem a strange use of terms, but on second thought, one recognizes that every agreement to hire labor is really for some limited period of time. By outright purchase, you might avoid ever renting any kind of land. But in our society, labor is one of the few productive factors that cannot legally be bought outright. Labor can

² To be more precise, they are contracts for a person of full capacity to voluntarily take on or accept the legal role of a person of diminished capacity or of a non-person within the scope of the contract.

only be rented, and the wage rate is really a rental (Samuelson, 1976, p. 569).

Or as another economics textbook puts it:

The commodity that is traded in the labor market is labor services, or hours of labor. The corresponding price is the wage per hour. We can think of the wage per hour as the price at which the firm rents the services of a worker, or the rental rate for labor. We do not have asset prices in the labor market because workers cannot be bought or sold in modern societies; they can only be rented. (In a society with slavery, the asset price would be the price of a slave.) (Fischer, Dornbusch and Schmalensee, 1988, p. 323).

Involuntary slavery has been abolished, but what about a truly voluntary self-sale contract to sell one's labour by the lifetime instead of by the hour, week, or month? History has already ruled out such a voluntary slavery contract along with the institution of involuntary slavery. Again, as Paul Samuelson puts it:

Since slavery was abolished, human earning power is forbidden by law to be capitalized. A man is not even free to sell himself; he must *rent* himself at a wage (Samuelson, 1976, p. 52, italics in the original).³

Robert Nozick, the late prominent moral philosopher from Harvard University, argued on strict libertarian grounds that the self-sale or voluntary slavery contract should be (re)validated.⁴ This contract comes in both a collective and individual form. The collective form was historically known as the pact of subjection or *pactum subjectionis*, wherein a people alienated and transferred their right to govern themselves to a monarch or some other form of a Hobbesian sovereign. Professor Nozick argued that a free libertarian society should validate that sort of a contract with a 'dominant protective association' (Nozick, 1974, p. 15) playing the role of the Hobbesian sovereign. And the same reasoning applied to the individual version of the alienation contract.

The comparable question about an individual is whether a free system will allow him to sell himself into slavery. I believe that it would (Nozick, 1974, p. 331).

Accordingly Nozick completely abandoned the notion of inalienable rights developed in the anti-slavery and democratic movements. But he kept the phrase by redefining it as a right that could not be taken away without one's consent. But that is only a right as opposed to a privilege. Nozick had no notion of an 'inalienable right' that may not be alienated 'even with consent' (to use Spinoza's phrase).

Nozick was not alone in this suggested revision of post-bellum jurisprudence to again accept the self-sale contract. Nozick's libertarian 'yelps for liberty'⁵ to rent or buy persons have neoclassical economics as a silent partner. Allocative efficiency requires full futures

³ Note that the use of 'rent' here is merely descriptive and not hyperbolic like the phrase 'wage slavery' which should be avoided in serious arguments.

⁴ It is 're-validated' since in the decade before the Civil War, six states had explicit laws 'to permit a free Negro to become a slave voluntarily' (Gray, 1858, p. 527).

⁵ Paraphrasing Dr Johnson's question: 'how is it that we hear the loudest yelps for liberty among the drivers of negroes?' (Johnson, 1913).

markets in all commodities including human labour. Any attempt to truncate self-rental contracts at, say, T years could violate market efficiency since there might today be willing buyers and sellers of labour T+1 years in the future. Hence market efficiency requires full future markets in labour – essentially the self-sale contract.⁶ One might try to find a neoclassical textbook that admits this implication. But the Johns Hopkins University economist Carl Christ made the point quite explicit in no less a forum than Congressional testimony.

Now it is time to state the conditions under which private property and free contract will lead to an optimal allocation of resources.... The institution of private property and free contract as we know it is modified to permit individuals to sell or mortgage their persons in return for present and/or future benefits (Christ, 1975, p. 334).

Thus Robert Nozick explicitly and neoclassical economics more implicitly accepts the self-sale contract.

2.2 Retrieving the History of Voluntary Self-Sale Contracts

Modern liberalism can ignore the idea of rights-violating voluntary contracts since it promulgates an over-simplified version of the historic debate about slavery as a morality play of consent versus coercion. The defenders of slavery are pictured as condoning coercion – at least of people with a sufficiently different ethnicity or race. Modern liberalism prides itself on having achieved the superior moral insight that coercion is always wrong – regardless of race or ethnicity.

But that is a gross falsification of the actual historical debates. In fact, from ancient times there have been defenses of slavery on *contractarian* grounds. In the *Institutes* of Justinian, Roman law provided three legal ways to become a slave.

Slaves either are born or become so. They are born so when their mother is a slave; they become so either by the law of nations, that is, by captivity, or by the civil law, as when a free person, above the age of twenty, suffers himself to be sold, that he may share the price given for him (See *Institutes* Lib. I, Tit. III, 4).

In addition to the third means of outright contractual slavery, the other two means were also seen as having aspects of contract. A person born of a slave mother and raised using the master's food, clothing, and shelter was considered as being in a perpetual servitude contract to trade a lifetime of labour for the past and future provisions.⁷ Manumission was an early repayment of that debt. And Thomas Hobbes, for example, clearly saw a covenant in this ancient practice of enslaving prisoners of war.

And this dominion is then acquired to the victor when the vanquished, to avoid the present stroke of death, covenants either in express words or by

⁶ 'The only difference is, in the mode of purchasing. The owner of the slave purchases, at once, the whole of the labour, which the man can ever perform: he, who pays wages, purchases only so much of a man's labour as he can perform in a day, or any other stipulated time' (Mill, 1826, Chapter I, section II).

⁷ 'Whereas, therefore, the Master afforded such Infant Nourishment, long before his Service could be of any Use to him; and whereas all the following Services of his Life could not much exceed the Value of his Maintenance, he is not to leave his Master's Service without his Consent. But 'tis manifest, That since these Bondmen came into a State of Servitude not by any Fault of their own, there can be no Pretence that they should be otherwise dealt withal, than as if they were in the Condition of perpetual hired Servants' (Pufendorf, 1673[2003] pp. 186-7).

other sufficient signs of the will that, so long as his life and the liberty of his body is allowed him, the victor shall have the use thereof at his pleasure. ... It is not, therefore, the victory that gives the right of dominion over the vanquished but his own covenant (Hobbes, 1651, Bk. II, chapter 20).

The point is not the factual question of interpreting this as a covenant; the point is the attempt by Hobbes and many others to ground slavery on the basis of explicit or implicit consent.

John Locke's *Two Treatises of Government* (1690) is a classic of liberal thought. Locke would not condone a contract which gave the master the power of life or death over the slave.

For a Man, not having the Power of his own Life, *cannot*, by Compact or his own Consent, *enslave* himself to any one, nor put himself under the Absolute, Arbitrary Power of another, to take away his Life, when he pleases (Locke, 1690[1960], section 23).

Locke is ruling out a voluntary version of the old Roman slavery where the master could take the life of the slave with impunity. But once the contract was put on a more civilized footing, Locke saw no problem and nicely renamed it 'drudgery'.

For, if once *Compact* enter between them, and make an agreement for a limited Power on the one side, and Obedience on the other, the State of War and *Slavery* ceases, as long as the Compact endures.... I confess, we find among the *Jews*, as well as other Nations, that Men did sell themselves; but, 'tis plain, this was only to *Drudgery*, *not to Slavery*. For, it is evident, the Person sold was not under an Absolute, Arbitrary, Despotical Power (Locke, 1690[1960], section 24).

Moreover, Locke agreed with Hobbes on the practice of enslaving the captives in a 'Just War' as a *quid pro quo* exchange based on the on-going consent of the captive.

Indeed having, by his fault, forfeited his own Life, by some Act that deserves Death; he, to whom he has forfeited it, may (when he has him in his Power) delay to take it, and make use of him to his own Service, and he does him no injury by it. For, whenever he finds the hardship of his Slavery out-weigh the value of his Life, 'tis in his Power, by resisting the Will of his Master, to draw on himself the Death he desires (Locke, 1690[1960], section 23).

Locke seemed to have justified slavery in the Carolinas by interpreting the slaves from Africa as captives in wars (e.g., inside Africa) who had made that covenant (see Laslett, 1960, notes on section 24, pp. 325-326).

An interesting case study in liberal intellectual history is the treatment of the American proslavery writers. The proslavery position is almost always presented as being based on illiberal racist or feudal paternalistic arguments. Considerable attention is lavished on illiberal writers such as George Fitzhugh (see Genovese, 1971; Wish, ed., 1960; or Fitzhugh, 1960) while liberal contractarian defenders of slavery are passed over in silence. For example, Rev. Samuel Seabury gave a sophisticated liberal defense of ante-bellum slavery in the Grotius-Hobbes-Pufendorf tradition of alienable natural rights theory.

From all which it appears that, wherever slavery exists as a settled condition or institution of society, the bond which unites master and servant is of a moral nature; founded in *right*, not in *might*; Let the origin of the relation have been what it may, yet when once it can plead such prescription of time as to have received a fixed and determinate character, it must be assumed to be founded in the consent of the parties, and to be, to all intents and purposes, a compact or covenant, of the same kind with that which lies at the foundation of all human society (Seabury 1861[1969] p.144).

Seabury easily anticipated the retort to his classical tacit-contract argument.

‘Contract!’ methinks I hear them exclaim; ‘look at the poor fugitive from his master’s service! He bound by contract! A good joke, truly.’ But ask these same men what binds them to society? Are they slaves to their rulers? O no! They are bound together by the COMPACT on which society is founded. Very good; but did you ever sign this compact? Did your fathers every sign it? ‘No; it is a tacit and implied contract’ (Seabury 1861[1969] p.153).

If modern liberals had recognized the past contractarian arguments for slavery (and autocracy), then they might be in the uncomfortable position of disagreeing with those proslavery thinkers only in matters of fact. They might be reduced to arguing on empirical grounds that the implied contract for society as a whole has ‘genuine’ tacit consent, but that the implied slavery contract did not. It is no surprise that modern liberalism has just avoided this quandary by promulgating the simplistic consent-or-coercion version of the slavery debates. The sophisticated contractual arguments to permit slavery go down the memory hole.⁸ It’s just a question of consent or coercion, and, thank goodness, liberalism has taken a courageous moral stand in favour of consent.

There is a largely parallel story (see Ellerman, 2010, pp. 571-599) to be told about the defense of non-democratic government based on explicit or implicit voluntary collective contracts of subjection. The idea was that where non-democratic government persisted, then it was vouchsafed by the prescription of time in the consent of the governed. But the focus here is on the individual contracts to sell or rent oneself to a master or employer.

3. The Counterargument: Inalienable Rights Theory

3.1 *The Essentials of the Inalienable Rights Argument*

We have seen that the debate about slavery was not a simple consent-versus-coercion debate. From Antiquity down to the present, there were consent-based arguments for slavery as being founded on certain explicit or implicit contracts. The abolitionist movement needed to

⁸ Eric McKittrick, (1963) collects essays of fifteen pro-slavery writers; future Harvard President, Drew Gilpin Faust (1981) collects essays from seven pro-slavery writers; Paul Finkelman (2003) collects seventeen excerpts from pro-slavery writings. But *none* of them include a single writer who argues to allow slavery on a contractual basis such as Seabury – not to mention Grotius, Pufendorf, Locke, Blackstone, Montesquieu, and a host of Scholastics such as Jean Gerson, Silvestro Mazzolini da Prierio, Luis de Molina, and Francisco Suarez (on the Scholastics, see: Tuck, 1979). If a contractual relationship to own other people was still morally wrong in spite of being voluntary, then the current economic system based on the voluntary contract to rent other people might be put in moral jeopardy. Hence responsible liberal scholars just cannot go there. On the feeble liberal attempts to morally differentiate part-time from full-time ownership of other people’s responsible agency, see my pseudonymous spoof of Harvard’s Nozick (Ellerman, 1982, pp. 43–58) which genuinely agreed with Nozick that voluntarily owning and renting people were in the same moral boat.

counter not the worst but the 'best' arguments for slavery. They needed to counter the arguments that slavery could be based on explicit or implicit voluntary contracts.

The task was to develop arguments that there was something inherently invalid in the alienation contracts, and thus that the rights which these contracts pretended to alienate were in fact inalienable. The key is that in consenting to such an alienation contract, a person is agreeing to, in effect, take on the legal role of a non-adult, indeed, a non-person or thing. Yet all the consent in the world would not in fact turn an adult into a minor or person of diminished capacity, not to mention, turn a person into a thing. The most the person could do was obey the master, sovereign, or employer – and the authorities would 'count' *that* as fulfilling the contract. Then all the legal rights and obligations would be assigned according to the 'contract' (as if the person in fact had diminished or no capacity). But since the person remained a *de facto* fully capacitated adult person with only the contractual role of a non-person, the contract was impossible and invalid. A system of positive law that accepted such contracts was only a legalized fraud on an institutional scale.

Applying this argument requires prior analysis to tell when a contract puts a person in the legal role of a non-person. Having the role of a non-person is not necessarily explicit in the contract. And it has nothing to do with the payment in the contract, the incompleteness of the contract, or the like. Persons and things can be distinguished on the basis of decision-making and responsibility. For instance, a genuine thing such as a tool like a shovel can be alienated or transferred from person A to B. Person A, the owner of the tool, can indeed give up making decisions about the use of the tool and person B can take over making those decisions. Person A does not have the responsibility for the consequences of the employment of the tool by person B. Person B makes the decisions about using the tool and has the *de facto* responsibility for the results of that use. Thus a contract to sell or rent a tool such as a shovel from A to B can actually be fulfilled. The decision-making and responsibility for employing the tool can *in fact* be transferred or alienated from A to B.

But now replace the tool by person A himself or herself. Suppose that the contract was for person A to sell or rent himself or herself to person B – as if a person was a transferable or alienable instrument that could be 'employed' by another person like a shovel. The *pactum subjectionis* is a collective version of such a contract but it is easier to understand the individualistic version. The contract could be perfectly voluntary. For whatever reason and compensation, person A is willing to take on the legal role of a talking instrument (to use Aristotle's phrase). But person A cannot in fact transfer decision-making or responsibility over his or her own actions to B. The point is not that a person should not or ought not do it or that the person is not paid enough; the point is that a person *cannot* in fact make such a voluntary transfer. At most, person A can agree to cooperate with B by doing what B says – even if B's instructions are quite complete. But that is no alienation or transference of decision-making or responsibility. Person A is still inexorably involved in ratifying B's decisions and person A inextricably shares the *de facto* responsibility for the results of A's and B's joint activity – as everyone recognizes in the case of a hired criminal regardless of the completeness of the instructions.

Yet a legal system could 'validate' such a (non-criminous) contract and could 'count' obedience to the master or sovereign as 'fulfilling' the contract and then rights are structured *as if* it were actually fulfilled, i.e., as if the person were actually of diminished or no capacity. But such an institutionalised fraud always has one revealing moment where even the most servile apologists can see the legal fiction behind the system. That is when the legalised 'thing' would commit a crime. Then the 'thing' would be suddenly metamorphosed – in the eyes of the law – back into being a person to be held legally responsible for the crime. For instance, an antebellum Alabama court asserted that slaves:

... are rational beings, they are capable of committing crimes; and in reference to acts which are crimes, are regarded as persons. Because they are slaves, they are ... incapable of performing civil acts, and, in reference to all such, they are things, not persons (Catterall, 1926, p. 247).

Since there was no legal theory that slaves *physically* became things in their 'civil acts', the fiction involved in treating the slaves as 'things' was clear. And this is a question of the facts about human nature, facts that are unchanged by consent or contract. If the slave had acquired that legal role in a voluntary contract, it would not change the fact that the slave remained a *de facto* person with the law only 'counting' the contractual slave's non-criminal obedience as 'fulfilling' the contract to play the legal role of a non-responsible entity, a non-person or thing.

The key insight is the difference in the factual transferability of a thing's services and our own actions – the person-thing mismatch. I can voluntarily transfer the services of my shovel to another person so that the other person can employ the shovel and be solely *de facto* responsible for the results. I cannot voluntarily transfer my own actions in like manner. Thus the contract to rent out my shovel is a valid contract that I fulfil by transferring the employment of the shovel to its employer.

The inalienability argument applies as well to the self-rental contract – that is, today's employment contract – as to the self-sale contract or pact of subjection.⁹ I can certainly voluntarily agree to a contract to be 'employed' by an 'employer' on a long or short term basis, but I cannot in fact 'transfer' my own actions for the long or short term. The factual inalienability of responsible human action and decision-making is independent of the duration of the contract. This analysis of the renting of persons is not based on the fact that the employment relation, like many other aspects of life, might be unpleasant, psychologically alienating, not conducive to human flourishing, involve contested human relations, and so forth. More importantly, the factual inalienability of responsible agency is also independent of the compensation paid in the contract – which is why this inalienability analysis has *nothing* to do with exploitation theories of either the neoclassical variety (paying wages less than the value of marginal productivity) or the Marxian variety (extracting more labour time than is embodied in the wages). Even if we heroically waive all the problems in the labour theory of value as a descriptive theory, it was still superficial in the sense that it would only be a critique of *underpaid* wage labour, not a critique of wage labour *per se*. As Marx himself put it:

It will be seen later that the labour expended during the so-called normal day is paid below its value, so that the overtime is simply a capitalist trick to extort more surplus labour. In any case, this would remain true of overtime even if the labour-power expended during the normal working day were paid for at its full value (Marx 1867[1977] p. 357 fn. or Chap. 10, sec. 3 in other editions).

⁹ As in the quote from the antebellum Alabama judge, there is today the same curious dichotomy between the legal treatment of an employee (agent) who commits a crime and one who only follows non-criminal orders. '[B]oth the principal and the agent, the person who hires the hit man and the hit man who carries out the murder, are held liable. ... The general thesis in the hit-man case is straightforward: agents are not held responsible for actions that, if taken under one's own authority, are not criminal, but they are held personally responsible for actions that are criminal acts as defined by the law of the land' (Coleman, 1982, p.99).

Thus Marx explicitly notes that there could be such a thing as 'labour-power...[being] paid for at its full value' (so the 'exploitation theory' is not a critique of wage-labour *per se*), but he, of course, argues on factual grounds that wage-labour would not be 'paid for at its full value'.¹⁰

Where the legal system 'validates' such contracts, it must fictitiously 'count' one's inextricably co-responsible co-operation with the 'employer' as fulfilling the employment contract – unless, of course, the employer and employee commit a crime together. The servant in work then morphs into the partner in crime.

All who participate in a crime with a guilty intent are liable to punishment. A master and servant who so participate in a crime are liable criminally, not because they are master and servant, but because they jointly carried out a criminal venture and are both criminous (Batt, 1967, p. 612).

When the 'venture' being 'jointly carried out' by the employer and employee is not criminous, then the *facts* about human responsibility are unchanged. But then the fiction takes over. The joint venture or partnership is transformed into the employer's sole venture. The employee is legally transformed from being a co-responsible partner to being only an input supplier sharing no legal responsibility for either the input liabilities or the produced outputs of the employer's business. And then the orthodox intellectual hirelings, whose profession is to 'account for' our economic civilisation based on the renting of persons, can point out that the system is founded on a voluntary contract – unlike those coercive systems of the past.

3.2 Some Intellectual History of the Person-Thing Mismatch

Where has this key insight – that a person cannot voluntarily fit the legal role of a non-person (e.g., the *de facto* inalienability of responsible agency) – erupted in the history of thought? The Ancients did not see this matter clearly. For Aristotle, slavery was based on 'fact'; some adults were seen as being inherently of diminished capacity if not as 'talking instruments' marked for slavery 'from the hour of their birth'. Treating them as slaves was no more inappropriate for Aristotle than treating a donkey as a non-person.

The Stoics held the radically different view that no one was a slave by their nature; slavery was an *external* condition juxtaposed to the internal freedom of the soul. After being essentially lost during the Middle Ages, the Stoic doctrine that the 'inner part cannot be delivered into bondage'¹¹ re-emerged in the Reformation doctrine of liberty of conscience. Secular authorities who try to compel belief can only secure external conformity.

Besides, the blind, wretched folk do not see how utterly hopeless and impossible a thing they are attempting. For no matter how much they fret and fume, they cannot do more than make people obey them by word or deed; the heart they cannot constrain, though they wear themselves out trying. For the proverb is true, 'Thoughts are free'. Why then would they constrain people to believe from the heart, when they see that it is impossible? (Luther, 1942, p. 316).

¹⁰ It is perhaps of interest in the sociology of knowledge how so many on the Left will support the Marxian labour theory of value and exploitation even though (leaving aside its descriptive deficiencies) it is only of the superficial 'wages are too damn low' variety (rather than a critique of wage-labour itself). This indicates that allegiance to the Marxian theory is perceived as a 'Badge of Red Courage' to support a certain posture or identity.

¹¹ Seneca quoted in Davis (1966, p. 77).

Martin Luther was explicit about the *de facto* element; it was 'impossible' to 'constrain people to believe from the heart'.

Furthermore, every man is responsible for his own faith, and he must see it for himself that he believes rightly. As little as another can go to hell or heaven for me, so little can he believe or disbelieve for me; and as little as he can open or shut heaven or hell for me, so little can he drive me to faith or unbelief. Since, then, belief or unbelief is a matter of every one's conscience, and since this is no lessening of the secular power, the latter should be content and attend to its own affairs and permit men to believe one thing or another, as they are able and willing, and constrain no one by force (Luther, 1942, p. 316).

Perhaps it was the atheist Jew, Benedict de Spinoza, who first translated the Protestant doctrine of the liberty of conscience into the political notion of a right that could not be ceded 'even with consent'. In Spinoza's *Theologico-Political Treatise*, he spelled out the essentials of the inalienable rights argument:

However, we have shown already (Chapter XVII) that no man's mind can possibly lie wholly at the disposition of another, for no one can willingly transfer his natural right of free reason and judgment, or be compelled so to do. For this reason government which attempts to control minds is accounted tyrannical, and it is considered an abuse of sovereignty and a usurpation of the rights of subjects, to seek to prescribe what shall be accepted as true, or rejected as false, or what opinions should actuate men in their worship of God. All these questions fall within a man's natural right, which he cannot abdicate even with consent (Spinoza, 1670[1951], p. 257).

But it was Francis Hutcheson, the predecessor of Adam Smith in the chair in moral philosophy in Glasgow and one of the leading moral philosophers of the Scottish Enlightenment, who arrived (independently?) at the same idea in the form that was to later enter the political lexicon through the American Declaration of Independence. Although intimated in earlier works, the inalienability argument is best developed in Hutcheson's influential *A System of Moral Philosophy*:

Our rights are either *alienable*, or *unalienable*. The former are known by these two characters jointly, that the translation of them to others can be made effectually, and that some interest of society, or individuals consistently with it, may frequently require such translations. Thus our right to our goods and labours is naturally alienable. But where either the translation cannot be made with any effect, or where no good in human life requires it, the right is unalienable, and cannot be justly claimed by any other but the person originally possessing it (Hutcheson, 1755, p. 261).

Hutcheson appeals to the inalienability argument in addition to utility. He contrasts *de facto* alienable goods where 'the translation of them to others can be made effectually' (like the aforementioned shovel) with factually inalienable faculties where 'the translation cannot be made with any effect'. This was not just some outpouring of moral emotions that one should not alienate this or that basic right. Hutcheson actually set forth a *theory* which could have

legs of its own far beyond Hutcheson's (not to mention Luther's) intent. He based the theory on what in fact could or could not be transferred or alienated from one person to another.

Hutcheson goes on to show how the 'right of private judgment' or (Luther's) 'liberty of conscience' is inalienable.

Thus no man can really change his sentiments, judgments, and inward affections, at the pleasure of another; nor can it tend to any good to make him profess what is contrary to his heart. The right of private judgment is therefore unalienable (Hutcheson, 1755, pp. 261-62).

Democratic theory carried over this theory from the inalienability of conscience to a critique of the Hobbesian *pactum subjectionis*, the contract to alienate and transfer the right of self-determination as if it were a property that could be transferred from a people to a sovereign. Few have seen these connections as clearly as Staughton Lynd in his *Intellectual Origins of American Radicalism*. When commenting on Hutcheson's theory, Lynd noted that when 'rights were termed "unalienable" in this sense, it did not mean that they could not be transferred without consent, but that their nature made them untransferrable' (Lynd, 1969, p. 45). The crucial link was to go from the *de facto* inalienable liberty of conscience to a *theory* of inalienable rights based on the same idea.

Like the mind's quest for religious truth from which it was derived, self-determination was not a claim to ownership which might be both acquired and surrendered, but an inextricable aspect of the activity of being human (Lynd, 1969, p. 56-57).

In the American Declaration of Independence, 'Jefferson took his division of rights into alienable and unalienable from Hutcheson, who made the distinction popular and important' (Wills, 1979, p. 213). But the theory behind the notion of inalienable rights was lost in the transition from the Scottish Enlightenment to the slave-holding society of ante-bellum America. The phraseology of 'inalienable rights' is a staple in American political culture, e.g., our 4th of July rhetoric, but the original theory of inalienability has been largely ignored or forgotten.

I have focused on the path from the Reformation through the Scottish Enlightenment. There is also a path directly through German philosophy that might be mentioned. Hegel gave the most explicit treatment that – like Hutcheson – juxtaposed the alienability of things (like a shovel) with the inalienability of the aspects of our personhood (decision-making and responsibility).

The reason I can alienate my property is that it is mine only in so far as I put my will into it. Hence I may abandon (*derelinquere*) as a *res nullius* anything that I have or yield it to the will of another and so into his possession, provided always that the thing in question is a thing external by nature (Hegel, 1821[1967], section 65).

But alienation clearly cannot be applied to one's own personality.

Therefore those goods, or rather substantive characteristics, which constitute my own private personality and the universal essence of my self-

consciousness are inalienable and my right to them is imprescriptible (Hegel, 1821[1967], section 66).

An individual cannot in fact vacate and transfer that responsible agency which makes one a person.

The right to what is in essence inalienable is imprescriptible, since the act whereby I take possession of my personality, of my substantive essence, and make myself a responsible being, capable of possessing rights and with a moral and religious life, takes away from these characteristics of mine just that externality which alone made them capable of passing into the possession of someone else. When I have thus annulled their externality, I cannot lose them through lapse of time or from any other reason drawn from my prior consent or willingness to alienate them (Hegel, 1821[1967], remark to section 66).

This theory of inalienability had legs of its own and reached beyond Hegel's intent, not to mention the sensitivities of the Prussian censors. The argument so clearly applied also to the master-servant contract that Hegel tried to 'walk it back' with some metaphysical mumbo-jumbo to differentiate the self-sale and self-rental contract.

Single products of my particular physical and mental skill and of my power to act I can alienate to someone else and I can give him the use of my abilities for a restricted period, because, on the strength of this restriction, my abilities acquire an external relation to the totality and universality of my being. By alienating the whole of my time, as crystallized in my work, and everything I produced, I would be making into another's property the substance of my being, my universal activity and actuality, my personality (Hegel, 1821[1967], section 67).

In case one missed the point of the mumbo-jumbo, the translator's note adds:

The distinction here explained is that between a slave and a modern domestic servant or day-labourer. The Athenian slave perhaps had an easier occupation and more intellectual work than is usually the case with our servants, but he was still a slave, because he had alienated to his master the whole range of his activity. [Trans. note to section 67]

But as we see from the hired criminal case, responsible human agency is not voluntarily de facto alienable regardless of the duration or extent of the purported alienation contract. A hired killer hardly has to legally alienate 'the substance of my being, my universal activity and actuality, my personality' just to commit a murder.

The remarkable thing is that Marx seems to have taken Hegel's little 'moonwalk' seriously and even *quotes* it as describing the de facto alienation involved in wage labour.

I may make over to another the use for a limited time, of my particular bodily and mental aptitudes and capabilities; because, in consequence of this restriction, they are impressed with a character of alienation with regard to me as a whole. But by the alienation of all my labour-time and the whole of

my work, I should be converting the substance itself, in other words, my general activity and reality, my person, into the property of another (Hegel, 'Philosophie des Rechts'. Berlin, 1840. p. 104 section 67) (quoted in Marx, 1967, Chap. VI, p. 168, fn. 2).

This interpretation is corroborated by Marx's treatment of the labour contract in the sphere of exchange. If responsible agency could not be *de facto* voluntarily transferred on even Hegel's restricted basis (e.g., just for killing one person), then the labour contract would be an impossible contract and an institutionalized fraud. Yet Marx insists that the sphere of exchange 'is in fact a very Eden of the innate rights of man' (Marx, 1967, Chap. VI, p. 176) so that he must descend into the 'hidden abode of production' in order for his labour theory of value to reveal exploitation. That was the path taken by the mature Marx – regardless of one's interpretations of the juvenile Marx – and that is the Marx who missed the (*de facto*) inalienability critique of the voluntary contract for the renting of persons.

Hegel's precedent was thus important in showing yet another opportunity missed by Marx. In summary, Marx was:

- wrong in accepting that rulership was blended with the ownership of capital goods,
- wrong in accepting the liberal framing of the question as consent-versus-coercion (while differing only on the factual question of the labour contract being 'really' coercive or not),
- wrong in accepting that the system should be analysed and criticised by a (labour) theory of value rather than a (labour) theory of property,
- wrong in missing the inalienability critique of the labour contract clearly spelled out before him by Hegel, and thus
- wrong in characterising the 'sphere of exchange' as 'a very Eden of the innate rights of man'.¹²

3.3 The Neo-Abolitionist Case Against the Employment Contract

Today the inalienability theory has to be retrieved from its roots in the critique of the contractarian arguments for slavery and autocracy. Once recovered, it is seen that the inalienability arguments apply as well to the individual self-rental contract and the collective *pactum subjectionis* of the workplace, the individual and collective versions of the employment contract. The mismatch of a person in a non-responsible 'thing' role and the non-transferability of decision-making and responsibility apply as well for eight hours a day as for a lifetime of labour.

The abolition of the employment relation is a radical conclusion that will be strongly resisted on every front.¹³ After the abolition of slavery and the acceptance of political democracy, liberal societies pride themselves on (supposedly) getting human rights right. Hence there is strong intellectual resistance to giving any sustained thought to the idea that there might be an inherent rights violation in a liberal economic system based on the voluntary renting of persons.

¹² For more intellectual history of inalienability theory, see: David Ellerman (1992). This book is out of print but the rights have reverted to the author so the full text can be downloaded at: www.ellerman.org. For more on Marxism as the quintessential 'useful foil' for capitalist apologetics, see: David Ellerman (2010a, pp. 696-700).

¹³ In Ancient Greece, abolitionist arguments would be opposed by the Athenians who had a system of private slavery and by the Spartans who had a system of public slavery. Similarly, the neo-abolitionist case against the renting of people will be opposed both by the 'capitalists' who favour the system of private employment and by the 'socialists' who favor a system of universal public employment.

Very little sustained thought is necessary to understand the arguments. Take, for example, the approach to the employment contract as the workplace *pactum subjectionis*. The key to the intellectual history of the pact of subjection was to understand the distinction between two opposite types of social contract.¹⁴

This dispute also reaches far back into the Middle Ages. It first took a strictly juristic form in the dispute ... as to the legal nature of the ancient 'translatio imperii' from the Roman people to the Princeps. One school explained this as a definitive and irrevocable alienation of power, the other as a mere concession of its use and exercise. ... On the one hand from the people's abdication the most absolute sovereignty of the prince might be deduced, ... On the other hand the assumption of a mere 'concessio imperii' led to the doctrine of popular sovereignty (Gierke, 1966, pp. 93-94).

On the one side was the social contract wherein a people would alienate and transfer their rights of self-determination to a sovereign. The sovereign was not a delegate, representative, or trustee for the people. The sovereign ruled in the sovereign's own name; the people were subjects. On the other side was the idea of a social contract as a democratic constitution erected to secure the inalienable rights rather than to alienate them. Those who wield political authority over the citizens do so as their delegates, representatives, or trustees; they govern in the name of the people.

It is quite noteworthy that the Nobel-prize-winning classical liberal political economist, James M. Buchanan, has explicitly recognized that only a contract of delegation is permissible.

The justificatory foundation for a liberal social order lies, in my understanding, in the normative premise that individuals are the ultimate *sovereigns* in matters of social organization, that individuals are the beings who are entitled to choose the organizational-institutional structures under which they will live. ... The central premise of *individuals as sovereigns* does allow for delegation of decision-making authority to agents, so long as it remains understood that individuals remain as *principals*. The premise denies legitimacy to all social-organizational arrangements that negate the role of individuals as either sovereigns or as principals (Buchanan, 1999, p. 288).

But as in the case of Jefferson's evocation of inalienable rights, it seems to be rather hard to apply Buchanan's avowed principle to deny legitimacy to the current social-organizational arrangement that negates 'the role of individuals as either sovereigns or as principals'. Yet does any contemporary political scientist or economist, no matter how intellectually servile or conformist, think that the employer is the delegate, representative, or trustee of the employees? Who thinks that the employer manages in the name of the employees?

Since the answers are so blindingly obvious, the usual response is to not think about it.¹⁵ 'Responsible' liberal thinkers, almost by definition, don't go there. There are not only glass ceilings but glass walls that define the accepted corridors of thought. Responsible thinkers are equipped with uncanny radar so they can roar down the glass corridors of orthodox thought

¹⁴ This distinction between alienation and delegation is the constant theme in a civic republican history of political theory: Quentin Skinner (1978) but is ignored or unknown in a comparable intellectual history from a liberal perspective: Jonathan Israel (2010).

¹⁵ Notable exceptions would be two past presidents of the American Political Science Association, Robert A. Dahl and Carole Pateman.

without ever getting close to the walls – all the while seeing themselves as brash free thinkers – even as social scientists – exploring the vast unknown. This radar-like instinct, inbred by the ambient society, constantly and almost unconsciously warns them away from the glass walls – away from irresponsible speculations (except perhaps in the pink of youth before ambient society has done its work) and down the corridors of safe, sound, and serious social science.

Responsible thinkers can fall back on the consent or coercion framework, a framing accepted even by their standard Marxist foils (who are hardly going to raise the basic distinction in democratic political theory between voluntary contracts of alienation versus delegation). Hence liberal thinkers can safely characterize political democracy as government by the consent of the governed, and the employees give their consent to the employment contract so where is the problem? Yesterday, there indeed were inherent human rights violations by institutions based on coercion but today we happily live in a liberal society where all the institutions are founded on consent. Yes, even today there probably are cases where workers are overworked, underpaid, and even treated coercively by their employers, and these abuses need to be corrected. But such acknowledged abuses do not amount to any inherent rights violation in the voluntary contract for the renting of persons. Such is the Happy Consciousness of today's responsible liberal thinkers.

The inalienability counterargument was that people cannot in fact transfer the employment of themselves to an employer as they can the employment of a tool like a shovel. Responsible agency is *de facto* inalienable. The employer cannot be solely *de facto* responsible for the results as if the employees were only non-responsible tools. This is again blindingly obvious and fully recognized by the law when the employer and employee commit a crime. Of course, a contract to commit a crime is invalid but the legality of a criminous contract is not the issue. Does anyone really think that employees morph into non-responsible instruments when their actions are not criminous? How can one avoid the conclusion that the employees and working employers are jointly *de facto* responsible for the results of their enterprise? Since the answer is as obvious as it is unacceptable, serious social scientists don't think about it at all.

3.4 The Coverture Marriage Contract

Another historical example of this sort of institutionalised fiction was the older and now legally invalid *coverture marriage contract* that 'identified' the legal personality of the wife with that of the husband.

By marriage, the husband and wife are one person in law: that is, the very being or legal existence of the woman is suspended during the marriage, or at least is incorporated and consolidated into that of the husband; under whose wing, protection, and cover, she performs everything; and is therefore called in our law-French, a *femme covert*, and is said to be under the protection and influence of her husband, her baron, or lord; and her condition during her marriage is called her *coverture*.¹⁶

The baron-femme relationship established by the *coverture marriage contract* exemplified the identity fiction in past domestic law. A female was to pass from the cover of her father to the cover of her husband (the origin of today's vestiges where the bride's father 'gives away' the bride to the groom and the bride takes the groom's family name) – always a 'femme covert' instead of the anomalous 'femme sole'. The identity fiction for the baron-femme relation was

¹⁶ Blackstone, *Ehrlich's Blackstone*, 83, section on 'Husband and Wife'.

that 'the husband and wife are one person in law' with the implicit or explicit rider, 'and that one person is the husband'. A wife could own property and make contracts, but only in the name of her husband. Again, obedience counted as 'fulfilling' the contract to have the wife's legal personality subsumed under and identified with that of the husband.¹⁷

Many modern feminist thinkers understand well the fiction and fraud involved in the old coverture contract where the husband had all the legal rights and obligations for the 'one person in law'. However, with the exception of Carole Pateman and perhaps a few others, there seems to be little recognition among feminist thinkers that the same type of fiction and fraud is involved in the employment contract where the employer takes all the legal ownership of the produced products and carries all the legal liabilities for the *de facto* jointly responsible activities of the people working in the enterprise.

4. Concluding Remarks

In spite of the abundance of legal precedent in the historical alienation contracts such as the self-sale contract, the *pactum subjectionis*, and the coverture marriage contract, legal theory has yet to focus on the general notion of an alienation contract.¹⁸

All these contracts have the same scheme. An adult person with full capacity voluntarily agrees for whatever reason and in return for whatever consideration to accepting a lesser legal role. But they do not in fact alienate their capacity as a person in order to fulfil that diminished legal role. Instead the law accepts their (non-criminous) obedience to the master as 'fulfilling' the contract. Then the rights and obligations follow the legal role – *as if* the person were not in fact a person of full capacity. The whole scheme amounts to a fiction and fraud on an institutional scale that nonetheless parades upon the historical stage as a valid contractual institution.

Liberalism exhibits a comfortable learned ignorance of the long history of contractarian defenses of slavery and non-democratic governments as being based on consent. And liberalism also has 'lost' the inalienability theory hammered out in the anti-slavery and democratic movements that descend from the Reformation and Enlightenment. Instead, the basic question is posed in liberalism as the juxtaposition of coercion versus consent. Since democracy is pictured as being 'government based on the consent of the governed' and since the employment firm is also based on consent, both are seen as part of the liberal progress from societies based on coercion to societies based on consent.

¹⁷ In Carole Pateman's analysis of this sort of a 'sexual contract' in a more general setting, she independently pointed out the connection to the employment contract and the *de facto* inalienability of labour. 'The contractarian argument is unassailable all the time it is accepted that abilities can "acquire" an external relation to an individual, and can be treated as if they were property. To treat abilities in this manner is also implicitly to accept that the "exchange" between employer and worker is like any other exchange of material property. ...The answer to the question of how property in the person can be contracted out is that no such procedure is possible. Labour power, capacities or services, cannot be separated from the person of the worker like pieces of property' Carole Pateman *The Sexual Contract* (1988, pp. 147-150). The book was written, in part, as a response to one 'J. Philmore' who argued along with Robert Nozick for allowing a civil slavery in addition to the usual renting of persons.

¹⁸ One reason is that progress by abolishing the slavery contract, the *pactum subjectionis*, and the coverture marriage contract tends to be accompanied by the historical revisionism of mapping the issue back into the consent-coercion framing. Once those contracts are moved to the other side of the legal ledger, it becomes a political incorrectness of the blaming-the-victim variety to think that there could ever have been voluntary slaves, voluntary subjects in an autocracy, or voluntary wives in a coverture marriage. One just selectively escalates one's standards of voluntariness so that the currently abolished practices are all *really* social coercion, and *that's* why those contracts were abolished. Hence there is no need for any *theory* of inalienability (which might have unintended consequences) and no reason to compare those coercive contracts of the past with today's voluntary employment contract. And Marxism obligingly reinforces that liberal framing of the issue by disagreeing only about the voluntariness of the labour contract by invoking still higher standards of consent. In this manner, the concept of 'coercion' on the Left has become a piece of conceptual silly putty to be molded to support one's pre-analytical judgment and political identity, rather than a serious analytical concept.

The 'consent of the governed' to a Hobbesian *pactum subjectionis* is not democracy, and the employment contract is the mini-Hobbesian contract for the workplace. Thus once the question is posed as consent-to-alienation versus consent-to-delegation, then the daunted affinity of 'liberal-capitalism' with democracy is demolished. The historical bedfellows of the employment contract are the other personal alienation contracts such as the *pactum subjectionis* and the self-sale contract. A true affinity to democracy would entail the abolition of the employment contract in favour of all firms being organized as workplace democracies.

A similar reversal occurs concerning property rights. A basic principle in jurisprudence is the responsibility principle that whenever possible legal responsibility should be assigned or imputed according to the *de facto* responsible party. For instance, in a trial the idea is to make an official decision on the factual question of whether or not the defendant is the *de facto* responsible party. If so, then legal responsibility is imputed accordingly. The more positive application of the responsibility principle is the old idea, often associated with John Locke, that people should appropriate the fruits of their labour.¹⁹ This labour theory of property is both positive and negative since new products are only produced by using up other things as inputs. Hence the question of assigning legal responsibility is two-sided, to assign the ownership of the product and the liability for the used-up inputs to the people who, by their *de facto* responsible actions, produced the outputs by using up the inputs.²⁰

Hence a private property system based on the basic principle of justice (imputing to people what they are responsible for) would have the legal members of each firm exactly the people who work in the firm. Thus a system based on justice in private property would also entail workplace democracy.

Far from the present employment system being based on democracy and private property, it is precisely the principles of democracy and justice in private property that call for the abolition of the renting of persons in the employment contract – in favor of workplace democracy.

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¹⁹ The question of whether or not the labour theory of property was Locke's theory is considered in Ellerman (1992) where I also analyse other radical writers such as Pierre-Joseph Proudhon and Thomas Hodgskin who focused on the labour theory of property. In contrast, Marx developed only the disastrous labour theory of value, not the labour theory of property, since as Marxists point out: 'None of this, by the way, implies that Marx intended the labour theory of value as a theory of property rights, *a la* Locke or even Proudhon' [Shaikh (1977, 106-139), 121].

²⁰ For more on the labour theory of property approach to analysing production, see: Ellerman (2014, pp. 601–24).

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Credit and Prices in Woodford's New Neoclassical Synthesis

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Abstract

Following recent debates on the New Neoclassical Synthesis, the theory of monetary policy has been renewed. The prevailing method, illustrated by Woodford's version of *Interest and Prices*, is a Dynamic Stochastic General Equilibrium Model in which the old LM curve is voluntarily substituted by an optimal monetary rule. Such a turning point requires a peculiar set of assumptions, especially regarding *monetary* prices. The recent debate pays attention to *de*-emphasis on the nominal monetary aggregate, which does not play any explicit role in monetary policy deliberations. Following Calvo's model, Woodford's neo-Wicksellian framework only considered *monetary* prices in equilibrium. This article demonstrates that even though the New Neoclassical Synthesis considers it essential to have a monetary theory for policymaking, the former offers the same answers as the traditional static macroeconomics. More precisely, it shows that the use of dynamic optimisation – such as the one developed by Woodford's approach – does not contribute in a decisive way to improving our understanding of the role that money prices play in monetary theory. Woodford's canvas is silent about the mechanisms whereby monetary policy induces agents to adjust *individual* money prices to the values that generate an *equilibrium* price level. Thus, if we want to close this gap, it may be useful to consider a 'forward guidance' strategy. By means of such a tool, central bankers are able to shape the public's expectations on economic outcomes by pre-announcing the time path of future policy actions.

Keywords: credit, prices, New Neoclassical Synthesis, history of macroeconomics, monetary equilibrium

JEL Codes: B22, E31, E42, E52, E58

1. Introduction

For more than 30 years, the Neoclassical Synthesis has been the dominant theoretical approach in macroeconomic theory. The expression 'Neoclassical Synthesis' was proposed by Paul Samuelson to describe the theory developed by Hicks (1937), Modigliani (1944), and Patinkin (1965). The 'Synthesis' adopts Hicks' macroeconomic IS-LM framework, which is of a Keynesian type, and which was later completed with equations derived from the behaviour of maximising agents, *i.e.* a Neoclassical microeconomic framework. This first Neoclassical Synthesis inaugurates a scientific project that seeks the microeconomic basis of macroeconomics. The Phillips curve offered the necessary 'bridge' between macroeconomics and microeconomics through the setting up of a relationship between employment, wages, and inflation concepts. The adoption of this curve involved, a few years later, the absorption of macroeconomics by microeconomics.

A clear demonstration of the success of this scientific and methodological project is the recent consolidation of a New Neoclassical Synthesis (hereafter NNS) or 'New Consensus' or 'New Keynesian Synthesis' (Lavoie and Seccareccia, 2004). This new approach brings together some works published in or just after the late 1990s, such as those pioneered by Goodfriend and King (1997; 2001), Clarida, Gali and Gertler (1999), Goodfriend (2002) and, particularly, Woodford (2003), who provides the most complete presentation of the NNS. These authors establish a consensus between two apparently opposing groups of economists: the RBC (Real Business Cycles) model is adopted as the basic framework, along with certain assumptions of the New Classicals, such as rational expectations, and is then complemented with certain assumptions from the New Keynesians, such as nominal rigidities on prices and wages. The resulting NNS appears as a set of models that show the link between prices and the rate of interest as monetary policy rules, but without stressing the monetary aggregate.

At the FED, Woodford (2003) saw monetary aggregates as mere statistics, whereas most policymakers – more or less Monetarist minded – saw these parameters as relevant information tools. However, Woodford's thinking went far beyond a mere divergence on the relevance of monetary aggregates as optimal tools for policymakers: his landmark contribution is an emphatic rejection of 'the implied path of the money supply or the determinants of money demand' (Woodford, 2003, p. 237) in the determination of the equilibrium of output and prices. In other words, Woodford made fashionable a *cashless* approach, which echoes the pioneering work of the Swedish economist, Knut Wicksell.

Wicksell's genuine 'pure credit' economic fiction quickly generated the association of Woodford's NNS framework with a 'Wicksellian flavour'. The result was that Woodford not only distanced himself from other members¹ of NNS, but also opened a new debate on the importance of considering *intertemporal* dimensions in the way policymakers establish their monetary policy decisions. In the aftermath of the Great Financial Crisis, the latter debate took the spotlight. In fact, the zero lower bound constraint has become a dominant element in considerations of policymakers with regard to the implementation of an *effective* monetary policy. Hence, consideration of the public's understanding of the future path of economic parameters has become an instrument in itself required for an optimal monetary policy. Eggertsson and Woodford (2003) were pioneers in this respect. They disseminated widely the fundamental idea that inflation targeting of the central banks cannot achieve their goal without being explicit about the future path of the leading economic data, *i.e.* the operating interest rate target. This 'forward guidance' principle stands out nowadays as an entire monetary policy tool *per se*.²

The aim of this article is to show that even though the NNS considers it essential to have a monetary theory for monetary policy, it offers the same answers as the traditional static macroeconomics. More precisely, this article shows that the use of dynamic optimisation – such as that developed by Woodford – does not contribute in a decisive way to improving our understanding of the role that money prices play in monetary theory. This paper supports the thesis that Woodford's canvas is silent about the mechanisms whereby monetary policy induces agents to adjust individual money prices to the values that generate an *equilibrium* price level. The article states that price level determination is only possible if

¹ Woodford describes his approach as follows: 'I call models of this kind "Neo-Wicksellian", in order to draw attention to the fundamental role in such models of a transmission mechanism in which interest rates affect intertemporal spending decisions, so that monetary policy needs not to be specified in terms of an implied path of the money supply; but the terminology "new Keynesian" for such models has become commonplace, following Clarida et al. (1999) among others' (2006b, p. 6, n. 8).

² Woodford: 'it will be necessary to take into account the consequences of the choice of [federal nominal rate] i_t for the expected values of all of the terms in (1.5), which will require a consideration at time t of how policy should be conducted later' (2013, p. 4).

the two representative agents are considered to know *a priori* the parameter θ , meaning that the relative price level must be known.³ As a consequence, prices are not necessarily monetary ones, a point that contains echoes of the debate opened by Rogers (2006) on the ‘inessential economy’ properties of Woodford’s framework. Thus, if we want to close this gap, it may be useful to consider a ‘forward guidance’ strategy. By means of such a tool, central bankers can link their policy actions to outcomes by influencing public expectations and hence behaviour by pre-announcing the time path of future policy actions.

This paper is divided into four sections. In the second, general Wicksellian principles are set out. In the third, the determination of the steady state in the dynamic general equilibrium model proposed by Woodford (2003), through a very synthetic framework, is specified. In the fourth section, it is pointed out that the monetary price is undetermined in Woodford’s model, meaning that the model implicitly implies that representative agents know the relative prices in advance. This section provides the opportunity to give an explanation of such an assumption by way of the ‘forward guidance’ principle. A credible central bank that committed itself to a credible target criterion – so as to determine the forward path of policy – should be able to shape the representative agent’s expectations, so that it can be assumed that the individual price index P_t is determined. Finally, the concluding comments are presented. It is important to notice that the model is sketched and not presented rigorously because the aim of the paper is to show its main features. For a rigorous presentation of the models the reader can turn directly to Woodford’s book.

2. Wicksell’s Model and the Price Disequilibrium Process

When Wicksell entered on the road of political economy at the late age of thirty-seven – having graduated in mathematics – it was for *practical* reasons. In fact, his aim was to explain the monetary disturbances in prices of the second half of the nineteenth century. Wicksell’s *Interest and Prices* (1898) has to be read in this context. In stating, ‘the function of money is here purely that of an intermediary; it comes to an end as soon as the exchange has been effected’ (Wicksell, 1936[1898], p. 23), Wicksell shows that his conception of money was in agreement with the classical doctrines of the time, according to which money was a *veil*.

For sure, Wicksell mainly considers money as a medium of exchange; however, he did not ignore its store of value function. In his seminal 1898 book, Wicksell revealed his reliance upon – not to say devotion to – the older theory of money, while at the same time underlining its weakness and inadequate correspondence with reality. As defined by Trautwein and Boianovsky, the Wicksellian approach is an attempt ‘to restate the Quantity Theory in credit-theoretical terms’ (Trautwein and Boianovsky, 2001, p. 500). Wicksell expanded the Quantity Theory by taking into account the development of credit tools in the modern economy. The new banking system that emerged in the late nineteenth century was characterised by the increasing use of credit tools, mainly bills of exchange and bank notes. He saw in this structural development a possible cause of the inflationary/deflationary process. Wicksell’s landmark contribution to monetary theory is to have endogenised the velocity of circulation of money within the Quantity Theory.

Wicksell’s idea was that the emergence of credit tools constituted a structural change in the economy to the extent that prices are disturbed. By increasing the capacity of the economy to adapt to whatever amount of money was needed, the emergence of credit tools had consequences on the inflationary/deflationary processes of the late nineteenth century. In

³ The parameter θ measures the constant elasticity of substitution among goods in the economy in a Dixit-Stiglitz fashioned framework.

fact, as soon as credit enters into the economy there is no longer any *technical* limit to the quantity of money in circulation, and this in turn disturbs money prices. For this reason, Wicksell introduced three, or, more exactly, two hypothetical types of economy in which the velocity of circulation is a *dependent* variable of the type of economy: first, a *pure cash system* and, second, its opposite, a *pure credit system*,⁴ with economic reality located between these two extreme benchmark cases.

The cash system

This hypothetical kind of economy is characterised by the total absence of credit, which is 'neither given nor received' (Wicksell, 1936[1898], p. 56), or of the lending of money. In short, transactions are exclusively paid by (gold) coins. In this case, the cash holding of each agent is mainly determined by conjuncture and the level of economic activity. People hold money for two reasons: first, for the payments of purchases at given points of time; and, second, for unforeseen disbursements. However, this ideal type does not play a major role in the issue in question. The most important reason for the demand for money in this type of economy lies in *definite payment purposes*, which allows Wicksell to state that 'the average velocity of circulation of money, is of almost constant magnitude. It would react immediately against accidental expansion or contraction' (Wicksell, 1936[1898], p. 59). Consequently, the level of prices depends exclusively on the quantity of money in circulation. The Quantity Theory is here totally relevant. However, this first case is purely *imaginary* and far from reality. Hence, the above conclusion does not fit a more realistic case.

The pure credit system

In this second type of economy, Wicksell establishes the opposite framework from the above case. In this kind of economy there is no place for money in its narrow sense; only credit prevails under different forms. He introduces two intermediary stages within the pure credit economy:

a) The case of a simple credit economy or unorganised credit system

The economy is dominated by credit instruments under the form of both simple merchandise credit, *i.e.* delay of payments, and lending of money between two people. However, money, under the form of cash, is no longer absent because the necessity for holding cash balances still persists in regard to precautionary reserves against unforeseen payments. Wicksell sees these primary forms of credit as a 'powerful pulley for accelerating the circulation of money' (Wicksell, 1936[1898], p. 59). The advantage brought by the credit instruments is a diminishing of the need for money 'to an unlimited extent' (Wicksell, 1898[1936], p. 59). In Wicksell's words: 'As soon as a sum of money, no matter how small, were brought into circulation in the market, it would zigzag rapidly backwards and forwards between buyers and sellers' (Wicksell, 1936[1898], p. 60).

However, there are limits that prevent credit from substituting for money: first, the individual lending system cannot be developed to an unlimited extent because it concerns only a minority of people, *i.e.* those who can provide guarantees for their debt; and second, obtaining credit or lending money requires precautionary measures for both debtors and creditors. So, an *unorganised* credit economy reduces the necessity for cash-holdings but it does not make it disappear. This imaginary case introduces us to an economy in which the

⁴ Instead of the term *pure credit system*, Woodford used *cashless economy* in his framework.

velocity of circulation is a 'somewhat elastic quantity' (Wicksell, 1898[1936], p. 61). The price level, with degrees of difference, is still a dependent factor of the quantity of money in circulation.

b) The case of an organised credit economy

This is a model of a banking economy with centralisation of money-lending banks and monetary institutions in which 'all domestic payments are effected by means of Giro system and bookkeeping transfers' (Wicksell, 1936[1898], p. 70). Contrary to the previous model, credit is now a perfect *substitute* for money. In this purely imaginary case: 'money does not actually circulate at all, neither in the form of coin (except perhaps as small change) nor in the form of notes' (Wicksell, 1936[1898], p. 70). It is only in this model that Wicksell integrates banks into his analysis. This new actor in the monetary system is not without consequence for the economy to the extent that they provide the most *powerful pulley* (Wicksell, 1898[1936], p. 59) in the circulation of money by means of bank credit.

In this case, the elasticity of money can adapt itself to whatever quantity of money is needed and it is possible to get rid of cash money. Within this framework, Wicksell specially focuses on bank notes, which he considers: 'a kind of deposit-receipt or cheque, which passes through a number of hands before it is presented to the bank either for redemption or as a deposit' (Wicksell, 1936[1898], p. 69). The status given to notes consists in providing a reserve-instrument instead of the gold coins rather than representing an entire substitute for money. We have to keep in mind that Wicksell's purpose is not to eradicate money; what he aims to provide is an accurate theory of the value of money in a modern framework.⁵

As soon as banks or monetary institutions enter the economy the situation changes; specifically, the size of the cash requirement is pushed to an 'infinitesimally small amount' (Trautwein and Boianovsky, 2001, p. 511). The important lesson is that credit – whatever the form considered – is a *powerful weapon* for accelerating the velocity of circulation of money, so that credit is responsible for changes in the level of prices. In this context, the Wicksellian thesis begins to emerge with an underlining of the full responsibility of the banks, *via* monetary creation, in the fluctuation of the level of prices. So that a proper regulation, in the form of a *specific* rule of behaviour for the banks, is needed in order to maintain the level of prices:⁶

'Is it a characteristic of the banks that their power is unlimited, so that in a pure credit economy they could bring about any desired rise or fall in prices by pursuing a uniform policy with regard to the rate of interest? Is it possible that we have here found the general cause of the price fluctuations which occur under present conditions, when it is becoming more and more usual for instruments of trade and credit to pass through the hands of the banks? Does it follow that the most powerful instrument for stabilising prices lies in appropriate regulation of banking policy?' (Wicksell, 1936[1898], p. 80).

⁵ Wicksell was entirely opposed to the gold standard system because of the two opposite functions of gold: gold as money and gold as raw material in the industry, which leads undoubtedly to fluctuation of its value with consequences for the value of money. Wicksell wrote as follows on this point: 'If notes of lower denominations were permissible, then for all internal requirements this reserve might without any risk be composed only of notes, i.e. of unused bank credit' (Wicksell, 1935[1906], p. 91). As a consequence, Wicksell's practical recommendation was to substitute the gold reserves by bank notes and to give up gold as bullion.

⁶ We need to mention that the Wicksellian program can be traced back before 1898. According to Trautwein and Boianovsky (2001), a manuscript from 1889 already contained these basic issues and Wicksell's core monetary message.

The quotation does not go further, but the regulation Wicksell had in mind has to be followed by the central bank. This argument is what enables Humphrey to rank Wicksell among the Quantity Theorists: 'a person essentially is a quantity theorist if he believes the monetary authority can stabilize the price level through control, direct or indirect, of the stock of money or nominal purchasing power. [...] Wicksell passes this test with flying colors' (Humphrey, 1997, p. 85). This is, however, a tricky and open question since Wicksell's framework can be seen as both a Quantity Theory approach (Humphrey, 1997; Laidler 2004) and an anti-Quantity Theory approach (Leijonhufvud, 1981; Uhr, 1962; Strom and Thalberg, 1979).⁷ In fact, Wicksell's original purpose was to raise the Quantity Theory to its due place in credit-theoretical terms. However, in light of his questioning of one of the pillars of the Quantity Theory, *i.e.* the assumption of a fixed velocity of circulation for money, the claim that Wicksell succeeded in saving the old monetary doctrines in a modern framework appears doubtful.

In this type of pure credit economy, as soon as prices start increasing/decreasing there is no mechanism that pushes them back since money, under the form of credit, is endlessly elastic. For this reason a *cumulative process* – in both cases of inflation and deflation – appears and destabilises the real economy (notably by forcing the economy to reallocate factors in specific industries or sectors). The best policy that Wicksell recommends is to put the interest rates charged by the banks – called the *monetary rate of interest* – at par with the *natural-normal* (exogenous) interest rate of the economy in order to prevent the appearance of disturbances in prices. Many recent central bankers have recognised their debt to this policy recommendation when deliberating on monetary policy (Clinton, 2006; Lavoie and Secarreccia, 2004).

Wicksell was a pioneer in monetary policymaking in two ways: first, he demonstrated to what extent the money prices disequilibrium process is rooted in the monetary structure of the economy (depending on the elasticity of the money supply); second, he underlined the key role played by monetary policy – under the supervision of a central institution – so as to constrain the monetary creation process, and thus, the general price level as well. The core element at the heart of the Wicksellian theory was a thorough study of the link between money prices adjustment and monetary policy. Wicksell claimed that the latter was an effective tool to regulate the former when they were in a disequilibrium process. Woodford took the opposite path, entering the debate by designing an *optimal* monetary policy in order to assure a perfect stability of prices.

3. Wicksell and Woodford on the Price (Dis)Equilibrium Process

Woodford (1999) portrayed the history of macroeconomics as an endless succession of *revolution* and *evolution*. Among the last of such developments, the emergence of the NNS prevails. The New Classical and New Keynesian economists disagree on the assumptions used to analyse the market in a theoretical framework. For the New Classical, such as Lucas (1981) and Ljungqvist and Sargent (2000), what matters is perfect competition with price and wage flexibility, where general equilibrium translates into the rational expectations hypothesis. For the New Keynesians, such as Mankiw (1990), Mankiw and Romer (1991) and Romer (1993), what matters is asymmetrical information, nominal rigidities on prices and wages, monopolies, and incomplete markets. Woodford's 2003 evolution of the macro family tree enables him to gather those two opposite views, notably regarding the price general equilibrium process.

⁷ For more details on this point see Barbaroux (2013, pp. 54-56).

The modern approach to price general equilibrium

The NNS reconciles two types of Neoclassical approach. The link granting coherence to these two analyses is the existence of a central bank that intervenes, through a monetary policy, on the variation of prices and the operating interest rate. On the other hand, the NNS allows coherence between the New Classical RBC approach, in which monetary policy is irrelevant, and the New Keynesian approach, where monetary policy is relevant. Consequently, the NNS is concerned with both theoretical analysis and economic policy; and this is the reason why Woodford (2003) adopts as the subtitle of his work the expression ‘*Foundations of a Theory of Monetary Policy*’.

The role of monetary prices refers to the definition of the steady state in the general equilibrium macromodel. The variations of prices are compatible with a certain rule of monetary policy that takes into account the variations of the nominal rate of interest. While it is not new to link base money with prices, the fundamental innovation that NNS introduced is to be found in the technical rigour of the method adopted. The latter uses dynamic optimisation in stochastic terms, which tool is adequate to make the analysis compatible with the study of business cycles. The NNS *à la Woodford* can be summarised under a three equations block that deals with the goods market, prices, and the rate of interest (Woodford, 2003, p. 246):

- An intertemporal IS equation: this equation links the aggregate demand for goods and services to the nominal rate of interest controlled by the central bank.⁸ The expected short-term real rate of return determines the incentive for intertemporal substitution between expenditures in t and $t+1$.

$$x_t = E_t x_{t+1} - \sigma(\hat{i}_t - E_t \pi_{t+1} - r_t^n) \quad (1)$$

where x_t is the actual output gap; E_t expresses the rational expectation process; σ is the intertemporal elasticity of substitution of aggregate expenditure (notably between private and public expenditure); \hat{i}_t is the operating instrument of the central bank (here the nominal interest rate); r_t^n is the exogenous parameter for variations in the natural rate of interest (due to real disturbances).⁹ The idea of equation (1) is that aggregate demand depends upon the expected value for the output gap and the short-term nominal interest rate.

- An AS equation (also called New Keynesian Phillips curve): this links the rate of inflation to the gap between aggregate demand and a number of long-term equilibrium levels of aggregate supply and to the expected value of the inflation rate. Each departure of aggregate output from its natural rate gives firms an incentive to choose a higher price than the one compatible with the zero inflation trend rate. A gap therefore results and creates an inflationary (deflationary) process.

$$\pi_t = \kappa x_t + \beta E_t \pi_{t+1} \quad (2)$$

where π_t is the inflation rate in time t , κ is a coefficient that depends on both the frequency of price adjustment and the elasticity of real marginal cost with respect to

⁸ The IS equation is obtained by log-linearizing the first order household equilibrium conditions.

⁹ This term r_t^n represents the deviation of the *natural rate* from the value consistent with a zero inflation steady state rate.

the level of real activity; β is the discount factor defined between 0 and 1; E_t is still the rational expectation process, and x_t is the output gap defined as the discrepancy between variation in actual output and the exogenous variation in the natural rate of output that results from several types of real disturbance. The log-linear AS relation is also called the New Keynesian Phillips curve because of the rational expectation process that supplements the *old* Phillips curve relationship.¹⁰

- A monetary Taylor's policy rule:

$$\hat{i}_t = i_t^* + \Phi_\pi (\pi_t - \pi^*) + \Phi_x (x_t - x^*) / 4 \quad (3)$$

where \hat{i}_t is the operating instrument of the central bank (here the nominal interest rate); i_t^* is an exogenous intercept that reflects variation in both the target rate π_t^* and an exogenous disturbance term (errors of measurement by the central bank); Φ represents the monetary policy coefficients that allow for a greater or lesser weight on either of these two policy goals (inflation and output); π^* is the target rate of inflation and x^* is the steady state value of output consistent with the inflation target.

The above three equations constitute a Dynamic Stochastic General Equilibrium Model (DSGE) in which the old LM curve is voluntarily substituted by an optimal monetary rule. The economy is considered under an IS-AS-monetary policy rule system in which the money aggregate does not appear explicitly.¹¹ The general steady state is defined like a 'rational-expectations equilibrium', in which there exists a path (or variation) of the general price level that ensures that aggregate demand is at its potential level (or desired gap) and that this path is consistent with the policy on the rate of interest imposed by Taylor's rule. As we saw in section two above, this general policy conclusion fits with Wicksell's *paleo*-theory.

The relevance – or not – of the Wicksellian connection to Woodford's 2003 publication has been widely discussed (Tamborini, 2006b; Trautwein and Boianovsky, 2010; Trautwein and Zouache, 2009; Fontana 2006; Hoover 2004), mainly because Woodford defined his approach with this marketing argument. Many commentators referred to the first lines of Woodford's book, which were quite explicit as to the Wicksellian inheritance:

'the present study considers the design of a rule to be used in determining a central bank's operating target for a short-term nominal interest-rate [...]. The present study seeks to revive the earlier approach of Knut Wicksell and considers the advantage of systematic monetary policies that are described in terms of rules for setting a nominal interest rate' (Woodford, 2003, pp. 24–25).

According to Tamborini (2006b, p. 4), there are two ways of addressing the Wicksellian connection in modern macroeconomics: first, the path of exegesis, in which the consistency between Paleo-Wicksellianism and Neo-Wicksellianism is analysed; second, the added value path, in which we determine to what extent macroeconomic theory can learn from Wicksell's

¹⁰ The New Keynesian Phillips curve is a response by Keynesian economists to both Friedman's 1968 sharp critique of the Keynesian Phillips curve and to the rational expectations school of thought in the 1970s (led by Lucas and Sargent). The principal response was an attempt to build models that incorporate rational expectations and that provide microeconomic foundations for monetary policy having at least short-run effects. The main microeconomic rationale has been the hypothesis: *sticky prices*, notably the staggered pricing model by Calvo (1983). According to the New Keynesian Phillips curve, the inflation rate can be expressed as a dynamic process with a forward looking flavour.

¹¹ In Woodford (2003, p. 24) '*Monetary Policy without Control of a Monetary Aggregate*'.

monetary insights. Both of these two paths have been taken by recent literature.¹²

At first sight, the general thesis supported by his book precludes contesting Woodford's Wicksellian connection. As demonstrated by the three equation blocks, Woodford established the endogenous roots of inflation, meaning that inflation emerges from interest rate gaps and can be eliminated by a feedback monetary policy rule. Such a position clearly refers back to Wicksell (1936[1898]). However, the question is trickier than it seems. Woodford himself reflects this doubt in his 2003 book because of the divergence of respective frameworks: a static framework in Wicksell's case and a dynamic one in his case.

Woodford and Wicksell on prices: reconstructed discussion

Woodford (2003, p. 53) considers himself as a 'neo-Wicksellian' due to the above system of equations. This Wicksellian inheritance in Woodford's approach is interesting because it offers clues as to the theoretical range of the NNS at large. Woodford is right in his analysis of Wicksell's (1936[1898]) theory because the definition of the Wicksellian equilibrium conditions is also given by three simultaneous settings: (1) gross investment is equal to savings, (2) the general price level does not change, and (3) the interest rate is equal to the natural rate of interest:

$$I = S \quad (1a)$$

$$\dot{P} = 0 \quad (2a)$$

$$i_m = i_n \quad (3a)$$

The first condition refers to the equilibrium condition in the market for goods, the second condition implies that the rate of inflation is zero, and the third indicates the level of the nominal rate of interest that is compatible with the stability of prices (Blaug, 1968, pp. 622-623). The consistency and simultaneity of these three equilibrium conditions are subject to debate. According to Laidler:

'in some places [Wicksell] defined the natural rate of interest as that which would bring about equilibrium between saving and investment in a frictionless barter economy, and in one place in particular [...] he defined it as the marginal product of capital; [...]. But would saving and investment be equal to one another at a rate of interest equal to the marginal product of capital [...] in a growing barter economy in which saving and investment were positive?' (Laidler, 1999, p. 30).

According to Leijonhufvud (1981), it is lack of consensus about the coherence of these three conditions that has impacted upon the monetary debates of the Stockholm School and the Austrian School – a point described by him as 'The Wicksell Connection'. These debates are distinct from those arising from Friedman's monetarism, which, in turn, were born from the interpretation of Fisher's Quantity Theory of Money. Now, what really does distinguish 'The Wicksell Connection' from Friedman's monetarism? The answer is that in 'The Wicksell Connection' savings and investment guarantee income fluctuations through a mechanism in which coordination failures¹³ exist, while in monetarism, perfect coordination is evident.

¹² To name a few: Trautwein and Zouache (2009), Trautwein and Boianovsky (2006a; 2006b), Tamborini (2006a; 2006b), Fontana (2006), Hoover (2004), and Laidler (2004).

¹³ This is about an important aspect of Wicksell's monetary theory being rescued and refined by Tamborini *et al* (2009, p. 9).

These three conditions constitute a simple rule of monetary policy of price level stabilisation, which intuitively coincides with the three equations in Woodford's model. However, Wicksell's monetary equilibrium is not a steady state; consequently, if we are interested in focusing on the business cycle, it is necessary to refer to the *disequilibrium* situation that is explicit in Wicksell's model but absent in Woodford's. This is a key point in illuminating the limits of Woodford's framework.

According to Wicksell, when the monetary interest rate *is not equal* to the natural interest rate, investment is higher than saving – which remains at its full employment level – and all prices increase. The disequilibrium situation is then perceived as a cumulative process of prices or inflation.¹⁴ However, as explained previously in the second section, the disequilibrium situation depends on the monetary regime: cash system (gold standard) and pure credit system (or cashless model in Woodford's terms). Thus, we can divide the economy into two types of monetary regime.

First, for the cash system, if the nominal interest rate is lower than the natural rate, a disequilibrium situation emerges: the agents demand money and all prices increase until the moment the central bank is likely to lose the totality of its gold reserves. At this moment, the central bank stops credit and, consequently, the cumulative process also stops and an equilibrium situation is obtained with zero inflation. In short, the rate of inflation is determined by the central bank. Second, in a pure credit system, if the nominal interest rate is lower than the natural rate a disequilibrium situation arises: the agents demand credit and all prices increase, but since money does not have a metallic support, the central bank satisfies all the demand for money, and so the *market for money is always in equilibrium*. The moment at which the central bank stops offering money is arbitrary, so the equilibrium situation (stopping the cumulative process of prices) is determined by the central bank.

Woodford proposes a monetary policy framework in a pure credit fashion economy, in which it is assumed that there are:

'no transactions frictions that can be reduced through the use of money balances, and that accordingly provide a reason for holding such balances even when they earn a rate of return' (Woodford, 2003, p. 61).

Thus, money is defined as 'a claim to a certain quantity of a liability of the central bank, which may or may not have any physical existence' (Woodford, 2003, p. 63); money, then, is only *base money*. However, equations (1), (2) and (3) do not contain the quantity of money, whatever its definition (cash or pure credit). It should be mentioned that Woodford reacted to the rough criticism he received concerning the *cashless* hypothesis of his framework. By *cashless*, he refers to a frictionless economy without considering that actual economies are moneyless. The cashless metaphor is just:

'... a useful simplification, one which allows a simpler and more transparent development of basic insights that are believed also to be relevant to more complex models incorporating empirically realistic monetary frictions' (Woodford, 2006a, p. 190).

¹⁴ According to Laidler, Wicksell: 'developed his cumulative process analysis not with a view to understanding the cycle, but mainly as an aid to understanding the problems raised by secular price-level movements, particularly as they occurred in a monetary system dominated by commercial banks but nevertheless anchored by adherence to the gold standard. His aim was thus to extend the quantity theory of money, as he had inherited it from classical theory' (Laidler, 1999, p. 28).

We observed for Wicksell that if money is defined as pure credit then the money market is always in equilibrium; so Woodford's decision to analyse a pure credit system is convenient since this economy is always at the steady state. Disagreement is to be found in the status given to money by each of them.

The nature of money in Wicksell is also subject to discussion. Indeed, Wicksell used the word 'money' as synonymous with 'currency', thus making the distance between his analysis and any based on the Quantity Theory of Money appear greater than perhaps it really is. According to Patinkin:

'Wicksell is assuming money to be an abstract unit of account; hence the "price ratios" he is referring to are – in our terminology – the ratios of accounting, and not money prices. Thus his statements are completely unobjectionable. A little later in this chapter Wicksell does, however, refer to the case of a money which has concrete existence and which can therefore act as a "store of value". But even here he leaves his position uncomfortably obscure' (Patinkin, 1965, pp. 586-587, Note E).

Nevertheless, the inflation rate verified in the disequilibrium situation in Wicksell's theory is foreseen by the Quantity Theory of Money, *i.e.* all prices increase in the same proportion as the quantity of money (in a cash system or pure credit system). In order to verify the Quantity Theory of Money, it is necessary to adopt the assumption that agents cannot know in advance any price variation (the rate of inflation). Wicksell must then suppose that expectations on prices are static (Laidler, 1999, p. 28). Myrdal (1939) and other Wicksellians – such as Lindahl – introduced dynamic expectations on the variation of prices into Wicksell's theory, but simultaneously rejected the Quantity Theory (Tobon, 2006). This point fits with the demonstration of Trautwein and Boianovsky (2006a; 2006b) that Woodford's approach is closer to Lindahl's work when discussing the real effects of monetary policy.

Wicksell's theory is thus enriched: in the disequilibrium situation it is now possible for agents to expect the variation of prices and to be mistaken in their forecasts, whereas their equilibrium situation expectations are perfect. This part of Wicksell's model cannot be introduced into Woodford's approach because expectations are rational, *i.e.* there is no place for the disequilibrium situation because the agents do not make mistakes in their forecasts of price variations.¹⁵ Woodford stands off on the most important contribution of Wicksellianism: the study of prices in disequilibrium. In this context, we can ask if this lacuna in Woodford's theory is acceptable in a supposedly 'neo-Wicksellian framework'.

Tamborini *et al* (2009) present a macromodel, named by them the 'Wicksell-Keynes Triangle', according to which the importance of Wicksell's disequilibrium process prevails. The macromodel establishes a relationship between three interconnected equations: intertemporal coordination, imperfect capital market, and wrong interest rate settings (Tamborini *et al* 2009, p. 22). This model contrasts with the traditional NNS – which they name the 'NNS triangle' – in which the links among equations are related to: intertemporal optimisation, imperfect competition, and sticky prices. The 'NNS triangle' corresponds to the IS-AS-MP framework, which we have made explicit here in equations (1), (2) and (3). Being in a steady-state scenario, the intertemporal disequilibrium appears through a misalignment of interest rates, which means that:

¹⁵ According to Tamborini *et al* (2009, p. 9), the NNS is '*not contemplated*' and the disequilibrium phenomenon '*cannot be captured*'.

'(i) excess investment or saving is accommodated at the "wrong" real interest rate, (ii) the goods market clears at the 'wrong' levels of output and inflation, and (iii) the expected rate of inflation is "wrong" with respect to actual inflation' (Tamborini et al, 2009, p. 16).

Under the assumption of price flexibility, the disequilibrium phenomenon is a good basis for a theory of business cycles.

4. Monetary Prices in Woodford's Approach

The determination of the price level

In the NNS the aggregate magnitudes are derived from agents' behaviour using a dynamic general equilibrium model. Consequently, prices must play a role in the allocation of resources and the determination of their employment level. Indeed, the IS curve and the Phillips curve are obtained starting from an intertemporal process of maximisation of the consumer's utility and the entrepreneur's profit. Thus, monetary prices intervene explicitly in the evaluation of their decisions. Woodford (2003, p. 143) presents these processes of maximisation through a basic model of rigid prices under a monopolistic competition setting. Let us analyse a theoretical approach of this model; this will enable us to show the proper role of monetary prices.

Let us assume an economy composed by a list of n different consumer goods, which are imperfect substitutes (there can be good substitutes and bad substitutes). The group of goods is associated with a probability density function. Each z good has a probability $(1/n)$ to be chosen by the consumer and this probability multiplied by n goods is equal to 1 or 100%. In short, the group of goods conforms to a unitary mass. Thus, there exists a continuum of goods that goes from 0 to 1, which corresponds to a monetary price list. The total monetary expenditure of the representative consumer is given by the sum in value of the consumer goods that he wishes to buy. The latter is represented by an integral function in continuous time.

$$P_t C_t = \int_0^1 p_t(z) c_t(z) dz \quad (4)$$

The total monetary expenditure is composed of two elements: the sum of the quantities of consumer goods C_t and the sum of the prices or the general price level, P_t . Let us examine these two elements in detail. First, the quantity of consumer goods C_t is, by definition, a constant-elasticity-of-substitution aggregator, adopting a CES-type utility function, such as is presented by Dixit and Stiglitz (1977).

$$C_t \equiv \left[\int_0^1 c_t(z)^{(\theta-1)/\theta} dz \right]^{\frac{\theta}{\theta-1}} \quad (5)$$

$c_t(z)$ is the distribution of consumption on a continuum of goods. If all goods are substitutes, the parameter θ measures the constant elasticity of substitution between them, with $\theta > 1$. The larger is θ , the larger will be the possibility of substitution among these goods. Now, in order to add up $c_t(z)$, it must be correctly measured. We are trying to add up all the different

quantities of goods into a single physical measurement. In the end, it becomes clear that C_t is not a pure number but rather a physical magnitude.

Second, monetary prices – which are used to evaluate the expenditure devoted to the consumption of goods – are summarised in the general price level index. Considering expression (5), the *corresponding* price level is:

$$P_t \equiv \left[\int_0^1 p_t(z)^{1-\theta} dz \right]^{\frac{1}{1-\theta}} \quad (6)$$

P_t is the sum of the individual monetary prices given a priori and consequently it is a magnitude measured in monetary terms. According to Woodford P_t :

‘defines the minimum cost of a unit of the aggregate defined by [C_t], given the individual goods prices { $P_t(z)$ }. Since a household cares only about the number of units of this aggregate that it can purchase, deflation by P_t is an appropriate measure of the purchasing power of nominal money balance M_t ’ Woodford (2003, p. 146).

The quotient $(1/P_t)$ represents the purchasing power of a monetary unit, or simply the value of money, as expressed by the old Quantity Theory.¹⁶ Equation (6) *corresponds to* or is compatible with equation (5) because it is obtained by minimising equation (4) subject to (5), while assuming that C_t is given or fixed.¹⁷ Now as C_t is measured in physical terms and P_t is measured in monetary terms, therefore $P_t C_t$ from (4) is a monetary quantity.¹⁸

Individual prices considered in P_t are given *a priori* to the representative consumer because prices are fixed by the entrepreneur herself under the presence of a monopolistic competition. In this framework, prices are set according to a strategy or rule *in the spirit of* Calvo’s (1983) price staggered model. Let us intuitively see the implications of this strategy for monetary policymaking.

The problem facing each entrepreneur is to maximize at each period the present value of issued stock, *i.e.* to guarantee equilibrium. For this purpose, he must fix the equilibrium monetary price of the consumption good to be produced, which allows him to obtain the profits (dividends) to be distributed among the stockholders. We suppose that each entrepreneur knows the equilibrium price that was set in the previous period. To fix the new equilibrium price, the entrepreneur’s strategy is to interpret the market signals about the *evolution* of the economic variables, which inform him if modification of the equilibrium price is required. Each entrepreneur’s strategy is to modify this price when he receives a signal that indicates he should do so. This signal arrives with a probability of $(1 - \theta)$ whereas the probability of receiving a signal that indicates he should not modify this price is θ . According to Woodford:

‘As each supplier that chooses a new price for its good in period t faces exactly the same decision problem, the optimal price p_t^* is the same for all of

¹⁶ Tamborini *et al* (2009, p. 9) also determine the value of money in this way.

¹⁷ In Appendix 1 we show how to obtain (6), beginning with the expenditure minimisation.

¹⁸ It is also possible to consider C_t as a monetary aggregate when the sum of physical quantities of goods is multiplied by their prices on a base year. This is called the constant price method. In this case, the index P_t is a pure number computed using a weighted sum of the physical quantities of the goods (e. g., the Laspyres’ index). Thus, $P_t C_t$ is a monetary magnitude.

them, and so in equilibrium, all prices that are chosen in period t have the common value p_t^* (Woodford, 2003, p. 178).

We thus arrive at the central problem of prices. The entrepreneur's strategy to determine prices must be compatible with the general price level of goods used by the representative consumer. We can rewrite the general price level using the entrepreneur's strategy; by taking the $1/(1 - \theta)$ root on both sides of (6) we obtain:

$$P_t^{1-\theta} \equiv \int_0^1 p_t(z)^{1-\theta} dz \quad (6a)$$

Including in (6a) the entrepreneur's strategy, we have:

$$P_t^{1-\theta} = \int_0^1 \left[(1-\phi) p_t^{*1-\theta} + \phi p_{t-1}(z)^{1-\theta} \right] dz \quad (7)$$

After simplifying:¹⁹

$$P_t = \left[(1-\phi) p_t^{*1-\theta} + \phi P_{t-1}^{1-\theta} \right]^{\frac{1}{1-\theta}} \quad (7a)$$

To easily interpret this price relation and the probability of its variation in time according to ϕ , we log-linearise equation (7a) using a first order Taylor's expansion around the steady state, which is defined by price stability in time (zero inflation rate), i.e. $P_{t-1} = P_t = p_t^*$. Thus we obtain (7b):²⁰

$$\text{Ln}P_t \approx (1-\phi)\text{Ln}p_t^* + \phi\text{Ln}P_{t-1} \quad (7b)$$

Which can be defined by the following expression:

$$\tilde{P}_t \approx (1-\phi)\tilde{p}_t^* + \phi\tilde{P}_{t-1} \quad (7c)$$

If the representative entrepreneur receives a signal $\phi = 1$, then the general price level (expressed in natural logs) of the *current* period remains constant with regard to the previous period, $\tilde{P}_t \approx \tilde{P}_{t-1}$. These are also the prices that the representative consumer takes into

¹⁹ Simplifying (7) we obtain:

$$P_t^{1-\theta} = \int_0^1 (1-\phi) p_t^{*1-\theta} dz + \int_0^1 \phi p_{t-1}(z)^{1-\theta} dz .$$

Since the first term is not indexed in Z , we get:

$$P_t^{1-\theta} = (1-\phi) p_t^{*1-\theta} + \phi \int_0^1 p_{t-1}(z)^{1-\theta} dz .$$

The second term of this last expression is equivalent to (6a) but evaluated at period $t-1$, so we obtain $P_t^{1-\theta} = (1-\phi) p_t^{*1-\theta} + \phi P_{t-1}^{1-\theta}$. Taking the $1/(1-\theta)$ power on both sides of this last equation, we obtain (7a).

²⁰ Appendix 2 shows the log-linearisation process of (7a).

account when he assesses his expenditure. By contrast, if the representative entrepreneur receives a signal $\emptyset = 0$, the general price level of the current period will be fixed according to the market equilibrium reference price for this (current) period, $\tilde{P}_t \approx \tilde{p}_t^*$. But if $0 < \theta < 1$ the general price level is then proportionally fixed according to the market equilibrium reference price for this (current) period and the price level fixed during the previous period.

Now the key role played by price determination in the NNS has been presented, we can ask about its theoretical implications. Moving from the microeconomic approach to the macroeconomic approach – by way of the representative agent hypothesis – is controversial. This hypothesis implies an economy composed of two representative agents, whose production and consumption decisions relate to only one composite good and only one monetary price, *i.e.* the general price level.

From the consumer's point of view, the composite good is obtained through the sum of the different quantities of the goods brought to a unique and even physical measuring unit, for example kilograms of corn. Now, this is only possible because the consumer knows *a priori* the parameter θ , which means that relative prices are known; such prices are not necessarily monetary ones. We are in the presence of the standard Neoclassic Theory of Value characterised by a moneyless – not necessarily monetary – theory. Further, we will see that Rogers (2006) shares this same opinion regarding Woodford's model, even though he used a different concept, inherited from Hahn (1973), which he labelled 'inessential economies'.

From the entrepreneur's point of view the general price level is considered as given while, following a particular strategy, compatible with consumption decisions. Indeed, according to (7c), determination of the general price level requires, beforehand, three major pieces of information: the probability \emptyset , the general equilibrium price level of the previous period P_{t-1} and the general equilibrium price level of reference in t , p_t^* . These three components show that the general price level is determined by knowing *a priori* other monetary prices. But it is not easy to justify how the latter are determined. First, P_{t-1} depends on the price determined during the previous period $t-2$, and so on. But, how is the *first* price determined? Such information is a mystery. One way to solve the problem is to suppose that we use a mark-up on marginal cost in the following way: $P_t = \mu$ (marginal cost). However, this implies that we know the mark-up value in advance, when actually this was what we sought to determine in the equilibrium.

Second, the existence of p_t^* is also a mystery. How does the representative entrepreneur imagine this price? A clue concerns the parameter θ , which can be interpreted as a social convention or as an institution that appears in an anonymous way on the market. It is on this parameter that the general price level formation mechanism can be based in period t ; however there cannot be an explanation *per se* because this parameter is exogenous. The lack of a price formation mechanism limits the range of a monetary theory since it is the existence of such a mechanism that must precisely explain the monetary structure of the economy. Equation (7c) only determines the intertemporal *variation* of the given *a priori* monetary prices that ensure the steady state in imperfect competition.

Our review is consistent with Rogers' (2006) thesis. Indeed, this author believes that monetary prices are undetermined in Woodford's model because the numeraire used to measure prices is arbitrary. This last conclusion is disappointing, because in a monetary economy prices cannot be underdetermined. According to Rogers, Woodford is a victim of the same well-known criticism as that concerning the models of integration of money into the Neoclassical Walrasian General Equilibrium Theory of the Arrow-Debreu type.²¹ In particular, the criticism of Hahn (1973) is enlightening, showing as it does that, through this integration

²¹ See Patinkin (1965) and Clower (1967).

method, a monetary economy *is the same* as an economy without money (or a barter economy). According to Hahn (1973), this is called 'inessential economies' (Rogers, 2006, p. 295). Applying Hahn's criticism allows Rogers (2006) to reach the following conclusions:

- i. Woodford's neo-Wicksellian monetary theory is an example of an 'inessential economy'. Indeed, money is considered as a *friction* (or distortion), which is removed (Rogers, 2006, p. 296) through a cash-in-advance constraint, with a distinction between formal credit and informal credit (forms of payments).
- ii. Then: 'Formal credit is extinguished in the cashless limit, leaving only informal credit', thus having actually a cash-in-arrears constraint *à la* Hoover (1996) (Rogers, 2006, pp. 296-297).
- iii. Informal credit is a code for what MacCallum (1985; 2003) calls an 'accounting system of exchange – a non-monetary model – in which the unit of account function is represented by an arbitrarily selected numeraire' (Rogers, 2006, p. 297).
- iv. According to Woodford, 'there exists a monetary unit of account in terms of which prices (of both goods and financial assets) are quoted (2003, p. 63)', but 'the unit of account in a purely fiat system is defined in terms of the liabilities of the central bank' (2003, p. 35) 'which may or may not have any physical existence' (2003, p. 63). Since the unit of account is an arbitrary numeraire, we thus have an 'inessential economy', *i.e.* the economy with money in Woodford is the same as an economy without money (barter). A true monetary economy is one in which the choice of numeraire *cannot* be arbitrary, that is, the numeraire is an 'essential property' (Rogers, 2006, p. 302, n.1).²²
- v. By conceiving an economy with an arbitrary numeraire, Woodford sows a '*confusion*' (Rogers, 2006, p. 296) or '*conceptual error*' (Rogers, 2006, pp. 303-304): prices of goods are relative and correspond to those determined in a Theory of Value (the Neoclassical General Equilibrium Theory of Arrow-Debreu type), which explains why the price of money is indeterminate as well as monetary prices of goods.
- vi. Thus, Woodford confuses: 'the existence of an Arrow-Debreu auction that has computing power to determine all commodity inter-temporal relative prices, with the computing power required to run an electronic money system' (Rogers, 2006, p. 296).
- vii. If the price level is indeterminate then 'Woodford's model cannot provide the basis for sensible advice about the process of inflation or price level targeting undertaken by central bankers' (Rogers, 2006, p. 303), and the central bank has no role in the economy; and monetary policy disappears.

Rogers' thesis (2006) is then implemented in Rogers (2013) in order to criticise the NNS (or New Keynesian Monetary Theory) as a whole. The emphasis is thus placed upon the fragility of the microfoundations of the theory. Rogers (2013) states that Hahn's conclusion remains: the existence of a classic monetary-real dichotomy, which prevents the theory serving as a guide to inflation targeting policy from the interest rate.²³ For Rogers (2006, p. 303),

²² This is the same conclusion reached in the analysis of Patinkin (1965) about prices of account. See also Arrow (1981) and Rebeyrol (1999, pp.108-121).

²³ Rogers (2011) rejects another aspect of Woodford's work: the channel system in the cashless economy, which is also considered a '*conceptual error*'.

Woodford's Wicksellian inheritance is a caricature and his notion of money is comparable to 'phlogiston – the mythical substance once thought to cause combustion' (Rogers, 2006, n.1, p. 304). We fully share this view.

Interestingly, these reviews seem also to be applied to the alternative proposal from Tamborini et al (2009). Indeed, there is no evidence in their article of a discussion of the monetary nature of the economy; in fact they seem to evade the issue by including an exogenous quantitative equation (e.g. the Cambridge equation) to determine the price level and the general-equilibrium output level, without a consistent theoretical explanation on the lines of the old neoclassical monetary theory (Tamborini et al, 2009, p. 11). In summary, the authors state:

'we begin with a simplified monetary system that consists of a central bank, representing the system of bank loans and deposits as a whole [...] the central bank is ready to create or retire base money' (Tamborini et al, 2009, p. 12).

In the absence of a justification of the endogenous character in the selection of the numeraire in which the bank loans and deposits are measured, it can be argued that the economy of Tamborini *et al* (2009) is also an 'inessential economy'. One way to see the monetary foundation of such a system more clearly is to look at the way public expectations concerning the (*forward*) monetary indicators influence, in turn, monetary policy implementation.

The forward guidance mechanism as a tool to bridge the relevancy of Woodford's model on price determination

In the aftermath of the Great Financial Crisis, central bankers and academics discovered a new interest in the way monetary policy can shape the public's expectations of future economic outcomes. When monetary policy faces a zero lower bound constraint and a liquidity trap situation, central bankers have no choice but to reach a new channel of transmission. In this respect, the work done by Eggertsson and Woodford (2003) is interesting. Mostly known under the name of 'forward guidance', this policy strategy refers to the belief that the public's understanding of the future path of leading economic data is an effective policy instrument. In fact, monetary policy has something to do with the issue of communication rather than with interest rate settings *per se*. In summary, the term "forward guidance" has mostly been applied to the specific influencing of expectations of the policy rate. Previous attempts to influence expectations through central bank communications have tended to be addressed more to expectations about variables such as the rate of inflation (as in the Bank of England fan charts, for example, which show the path by which inflation is expected to approach its target rate), with only indirect implications for policy rate expectations.

This way of thinking and speaking about monetary policy is a rediscovery of the Wicksellian school. The fact that central bankers and academics consider that monetary policy is first and foremost a useful tool to manage expectations has a Wicksellian flavour. In the 1920s and 1930s, Stockholm school members²⁴ – Myrdal and Lindahl to name a couple – pioneered different approaches that shared a willingness to study economic change – meaning dynamic processes – in common. The Swedish wanted to substitute the prevailing timeless static equilibrium approach – used by Wicksell himself – with a new one allowing

²⁴ By definition, the Stockholm School refers 'to the scientific work of Alf Johansson, Dag Hammarskjöld, Erik Lindahl, Erik Lundberg, Gunnar Myrdal and himself that was published between 1927 and 1937' (Myhrman, 1991, p. 267).

anticipation, risk, and uncertainty as disequilibrium elements. The Swedish School won international recognition only with Ohlin's 1937 contribution to the *Economic Journal*, which presented the Stockholm School's work as an alternative to Keynes' *General Theory* analysis.

Among the lessons learned over the last two decades, central banks with explicit inflation targets have understood that it is not reasonable to expect a central bank to be able to keep the measured rate of inflation exactly equal to the target rate *at all times*. Indeed, in his 2013 article prepared for the conference '*Two Decades of Inflation Targeting: Main Lessons and Remaining Challenges*' at the Sveriges Riksbank, Woodford argued that a shift in monetary policy, even a relatively drastic one, cannot greatly affect the rate of inflation over the short term. Central bankers have accordingly admitted that the goal of policy should rather be to ensure that the central bank *can be expected to return* to the target rate fairly soon, even when it currently differs from that targeted rate. Monetary policy decisions in period t depend on the public's expectations of the operating target rate in period $t+1$. As a consequence, policy decisions and communication with the public about monetary policy decisions have come to focus on *projections for the future path* of the economy (and, in particular, projections for one or more measures of inflation) and the extent to which these are consistent with the bank's official target. This new way of thinking about monetary policymaking is gathered under the 'forward guidance' concept.

In the previous section, it was concluded that Woodford's model failed to establish a monetary economy framework due to the impossibility of explaining how monetary prices are set under a DSGE framework. The latter does not bring something new to the old static neoclassical approach. Indeed, Woodford's approach implicitly implied that representative agents knew in advance not only the relative prices (under the probability parameter θ , but also the general equilibrium price level of the previous period P_{t-1} and the general equilibrium price level of reference in t , p_t^* . Without the last conditions, the determination of the price index P_t in the model is also a missing piece of the puzzle.

The best way to cope with this problem involves recalling some recent elements of the 'forward guidance' philosophy. A credible central bank that committed itself to a credible target criterion – so as to determine the forward path of policy – should be able to shape the representative agent's expectations on monetary data. So that, we can assume that the individual price index P_t in equation (6) or in equation (7c) is perfectly determined since the current and past level of prices are known.

In fact, we demonstrated that most of the monetary price determination mystery turns upon the θ parameter enigma as expressed in equation (7c). By applying the 'forward guidance' concept to our ontological problem, we can try to see with crystal clarity. If $0 < \theta < 1$, the general price level is then fixed proportionally according to the market equilibrium reference price for this (current) period and the price level fixed during the previous period. As part of the central bank's projections, these two items of information are broadcast to representative agents by way of a forward looking monetary policy strategy. If we consider – or assume – that the Central Bank is sufficiently credible, we can expect that the representative agent knows the relative prices of the past and those of the current period since those prices are the same as broadcasted by central bankers' publications. The same can be assumed regarding the representative entrepreneur, who should fix the monetary price of the consumption good to be produced at the same level as the one required by the equilibrium level. As representative agents receive the same information in the economy we can expect that the agents' expectations on the future path of the economic indicators are those that central bankers anticipate *to be expected* by representative agents. In this way, it is not surprising that Woodford implicitly considered that relative prices – from past and current periods – were known in advance by representative agents. To some extent, it was *as if* the

θ parameter captured the degree to which the central bank perfectly shapes the representative agent's economic foresight. It plays the same role as a social convention between the central bank and the representative agent.

However, all of this opens a new and tricky monetary policy debate on the conditions according to which a 'forward guidance' policy is effective and optimal. This issue is debated in Woodford's 2013 paper on '*Forward Guidance by Inflation Targeting Central Banks*'. In other words, central bankers – and academics – should face the well-known problem of both internal and intertemporal inconsistency, such as demonstrated by the 2004 Nobel Prize winners Kydland and Prescott in their 1977 works. They have to consider whether the forecasting strategy they implemented is optimal or not. More precisely, they should determine the requirements on the public's forecasts. Are those forecasts based on market expectations or on a projected path with a constrained interest rates assumption? The answer to this ontological monetary issue could not be solved without considering the help of auxiliary sciences, such as cognitive science or even neuroeconomics.

5. Concluding Remarks

The NNS is undoubted proof of the power of General Equilibrium Theory methodology when academics and central bankers turn their attention to monetary policymaking. Indeed, this theory is able to reconcile two opposed analyses, eliminating the debates within the same Neoclassic Theory. This consensus between the New Classicals and New Keynesians is symptomatic of a current trend in the economic scene according to which purely theoretical problems are regarded as of secondary importance in relation to pragmatic support of economic policy. Even if the NNS uses an extremely interesting mathematical tool, it is applied to the old static theory.

It is difficult to believe that the NNS can be regarded as a satisfactory *foundation* for monetary *policy* – as claimed by Woodford – because the monetary *theory* which is used is limited by the lack of a monetary price determination mechanism. Indeed, the general price level is a *unique* monetary price computed by a representative agent based on the strategy according to which it is necessary to have knowledge *a priori* of other monetary prices. This strategy is arbitrary and it is only valid in an *imperfect* competition framework. The NNS would have been more interesting if it had adopted some *endogenous* mechanisms of formation of monetary prices, such as those developed by some Non-Cooperative Game Theory models for instance.

We have developed the idea that recent work on 'forward guidance' concepts could be one candidate for the missing piece of this puzzle. Considering that a credible central bank committed itself to a credible target criterion – so as to determine the forward path of policy – enables Woodford's model to explain the price determination process. Under a forward guidance principle, a central bank is able to shape the representative agent's expectations on the future path of the monetary data, including the relative prices of the differentiated composite goods in the economy.

The adoption of the Wicksellian theory is undoubtedly one of the most positive aspects of the NNS. However, this theoretical inheritance is not worth considering when thinking about how monetary policy should be made. Other Wicksellians could have been better candidates for such a marriage, as demonstrated by the works of Trautwein and Boianovsky. It is not only the monetary theory of the Stockholm School but also the Austrian Theory of Capital that can offer new intuitions about the role of monetary prices in dynamic macroeconomics.

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Appendix 1

The minimization expenditure programme of the representative consumer subject to a given level of consumption allows us to show that (6) *corresponds* to the equilibrium level of consumption, which is obtained from (5).

$$\text{Min. } P_t C_t = \int_0^1 p_t(z) c_t(z) dz \quad \text{subject to } \bar{C}_t \equiv \left[\int_0^1 c_t(z)^{(\theta-1)/\theta} dz \right]^{\frac{\theta}{\theta-1}}$$

Lagrange's method:

$$L = \int_0^1 p_t(z) c_t(z) dz - \lambda \left\{ \left[\int_0^1 c_t(z)^{(\theta-1)/\theta} dz \right]^{\frac{\theta}{\theta-1}} - \bar{C}_t \right\}$$

The first order conditions are:

$$\frac{\partial L}{\partial c_t(z)} = p_t(z) - \lambda \left\{ \frac{\theta}{(\theta-1)} \frac{(\theta-1)}{\theta} c_t(z)^{-\left(\frac{1}{\theta}\right)} \left[\int_0^1 c_t(z)^{(\theta-1)/\theta} dz \right]^{\frac{1}{\theta-1}} - 0 \right\} = 0 \quad (\text{I})$$

$$\frac{\partial L}{\partial \lambda} = - \left\{ \left[\int_0^1 c_t(z)^{(\theta-1)/\theta} dz \right]^{\frac{\theta}{\theta-1}} - \bar{C}_t \right\} = 0 \quad (\text{II})$$

We deduce \bar{C}_t from (II),

$$\bar{C}_t = \left[\int_0^1 c_t(z)^{(\theta-1)/\theta} dz \right]^{\frac{\theta}{\theta-1}} \quad (\text{IIa})$$

Simplifying (I),

$$p_t(z) - \lambda c_t(z)^{-\left(\frac{1}{\theta}\right)} \left[\int_0^1 c_t(z)^{(\theta-1)/\theta} dz \right]^{\frac{1}{\theta-1}} = 0$$

By substituting (IIa) in the previous equation, we have:

$$p_t(z) - \lambda c_t(z)^{-\left(\frac{1}{\theta}\right)} \bar{C}_t^{\left(\frac{1}{\theta}\right)} = 0$$

We deduce $c_t(z)$,

$$c_t(z) = \left(\frac{1}{\lambda}\right)^{-\theta} \bar{C}_t p_t(z)^{-\theta} \quad (\text{Ia})$$

By substituting (Ia) in (IIa)

$$\bar{C}_t = \left[\int_0^1 \left\{ \left(\frac{1}{\lambda}\right)^{-(\theta-1)} \bar{C}_t^{\frac{(\theta-1)}{\theta}} p_t(z)^{-(\theta-1)} \right\} dz \right]^{\frac{\theta}{(\theta-1)}}$$

We deduce λ ,

$$\lambda = \left[\int_0^1 p_t(z)^{-(\theta-1)} dz \right]^{-\left(\frac{1}{(\theta-1)}\right)} \quad (\text{III})$$

By substituting (III) in (Ia),

$$c_t(z) = \frac{p_t(z)^{-\theta}}{\left\{ \left[\int_0^1 p_t(z)^{1-\theta} dz \right]^{1/(1-\theta)} \right\}^{-\theta}} \bar{C}_t$$

We can write the previous equation as:

$$c_t(z) = \bar{C}_t \left(\frac{p_t(z)}{\left[\int_0^1 p_t(z)^{1-\theta} dz \right]^{1/(1-\theta)}} \right)^{-\theta}$$

We can also write
$$\left[\int_0^1 p_t(z)^{1-\theta} dz \right]^{1/(1-\theta)} = P_t$$

if we want to deduce the optimum level of consumption:

$$c_t(z) = \bar{C}_t \left(\frac{p_t(z)}{P_t} \right)^{-\theta}$$

Appendix 2

We can log-linearize (7a) to obtain (7c) using a first order Taylor expansion around the steady state, which is defined by the price stability in time.

$$P_t = \left[(1-\phi)p_t^{*1-\theta} + \phi P_{t-1}^{1-\theta} \right]^{\frac{1}{1-\theta}} \quad (7a)$$

We take natural logs to both sides:

$$\text{Ln}P_t = \frac{1}{(1-\theta)} \text{Ln} \left[(1-\phi)p_t^{*1-\theta} + \phi P_{t-1}^{1-\theta} \right]$$

We write : $p_t^{*1-\theta} = e^{(1-\theta)\text{Ln}p_t^*}$ and $P_{t-1}^{1-\theta} = e^{(1-\theta)\text{Ln}P_{t-1}}$,

$$\text{Ln}P_t = \frac{1}{(1-\theta)} \text{Ln} \left[(1-\phi)e^{(1-\theta)\text{Ln}p_t^*} + \phi e^{(1-\theta)\text{Ln}P_{t-1}} \right]$$

To get Taylor's expansion we need the partial derivatives.

$$\frac{\partial \text{Ln}P_t}{\partial \text{Ln}p_t^*} = \frac{1}{(1-\theta)} \frac{1}{(1-\phi)e^{(1-\theta)\text{Ln}p_t^*} + \phi e^{(1-\theta)\text{Ln}P_{t-1}}} (1-\theta)(1-\phi)e^{(1-\theta)\text{Ln}p_t^*} \quad (I)$$

$$\frac{\partial \text{Ln}P_t}{\partial \text{Ln}P_{t-1}} = \frac{1}{(1-\theta)} \frac{1}{(1-\phi)e^{(1-\theta)\text{Ln}p_t^*} + \phi e^{(1-\theta)\text{Ln}P_{t-1}}} \theta(1-\phi)e^{(1-\theta)\text{Ln}P_{t-1}} \quad (II)$$

Evaluating these derivatives around the steady state and by taking into account that $P_t^{*1-\theta} = e^{(1-\theta)Lnp_t^*}$ and $P_{t-1}^{1-\theta} = e^{(1-\theta)LnP_{t-1}}$, we get :

$$\left. \frac{\partial \text{Ln}P_t}{\partial \text{Ln}P_t^*} \right|_{P_{t-1}=P_t=P_t^*} = \frac{(1-\phi)P_t^{1-\theta}}{(1-\phi)P_t^{1-\theta} + \phi P_t^{1-\theta}} = \frac{(1-\phi)P_t^{1-\theta}}{P_t^{1-\theta}} = (1-\phi) \quad (Ia)$$

$$\left. \frac{\partial \text{Ln}P_t}{\partial \text{Ln}P_{t-1}} \right|_{P_{t-1}=P_t=P_t^*} = \frac{\phi P_t^{1-\theta}}{(1-\phi)P_t^{1-\theta} + \phi P_t^{1-\theta}} = \phi \quad (IIa)$$

Using (Ia) and (IIa), the first order of Taylor's expansion is:

$$\text{Ln}P_t \approx \text{Ln}P_t + (1-\phi)(\text{Ln}P_t^* - \text{Ln}P_t) + \phi(\text{Ln}P_{t-1} - \text{Ln}P_t)$$

Simplifying

$$\begin{aligned} \text{Ln}P_t &\approx \text{Ln}P_t + (1-\phi)\text{Ln}P_t^* + \phi\text{Ln}P_{t-1} - (1-\phi)\text{Ln}P_t - \phi\text{Ln}P_t \\ \text{Ln}P_t &\approx (1-\phi)\text{Ln}P_t^* + \phi\text{Ln}P_{t-1} \end{aligned} \quad (7b)$$

We get:

$$\tilde{P}_t \approx (1-\phi)\tilde{p}_t^* + \phi\tilde{P}_{t-1} \quad (7c)$$

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Political Economy in the Eighteenth Century: Popular or Despotic? The Physiocrats Against the Right to Existence

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Abstract

Control over food supply was advanced in the kingdom of France in the Eighteenth century by Physiocrat economists under the seemingly advantageous label of 'freedom of grain trade'. In 1764 these reforms brought about a rise in grain prices and generated an artificial dearth that ruined the poor, some of whom died from malnutrition. The King halted the reform and re-established the old regime of regulated prices; in order to maintain the delicate balance between prices and wages, the monarchy tried to limit speculation in subsistence goods and achieved some success in regulating the provisioning of public markets. Le Mercier de la Rivière concluded that executing these reforms required more effective political control. After 1774 the new king gave the Physiocratic reforms a second chance, reforming property rights and establishing an aristocracy of the landed rich. Again, this led to price hikes and as a result so-called 'popular emotions' erupted. Turgot ordered military intervention to dispel the protesters, marking a first rupture between the monarchy and the people over speculation on subsistence. Turgot's experiment failed and he was dismissed, but the Physiocracy had discovered that the market in subsistence offered new opportunities for economic power under the misleading legitimacy of 'economic laws'. Turgot's followers, Dupont de Nemours and Condorcet, continued to develop this 'theory' that was later translated into a 'scientific language' that ultimately asserted the autonomy of the economic sphere and its alleged independence from ethics and politics. The paper examines the continuity of events through the six great *jacqueries* and the French Revolution, including the all-important agrarian reform that ensued after 1792. Robespierre's concept of 'popular political economy' is analysed and compared with the notion of unfettered private property rights that lies at the heart of neoliberalism.

Keywords: Physiocracy, political economy as natural laws in the XVIIIth Century, subsistence markets, Turgot, Quesnay, provisioning weapon

1. Introduction

'But in the sixteenth century, the idea of profit as more important than human life, so familiar to us that we have lost our sense of moral indignation, was very new and very shocking' (Hill, 1940, p. 23).

Among the important works of Edward Palmer Thompson 'The Moral Economy of the English Crowd in the Eighteenth Century', published in 1971, occupies an especially important place. He severely criticised the historiography of his era, because it no longer viewed the 'common people' as agents of history in the period before the French Revolution – a period constituting the quasi totality of human history! He emphasised the gap that separated the nuanced work

of anthropologists that ‘allowed us to know all about the delicate tissue of social norms and reciprocities which regulates the life of Trobriand islanders’ from the gross reductionism of the historiography that he qualified as ‘the spasmodic school’ characterised by the ‘eighteenth-century English collier who claps his hand spasmodically upon his stomach, and who responds to elementary economic stimuli’ (Thompson, 1971, p.78).

One of the core features of this ‘spasmodic school’ was the assumption that another sort of economic thinking existed before – or outside of – ‘classical’ economics. Against this, E. P. Thompson identified a ‘moral economy’ of eighteenth-century English common people – he sought to identify their social relations, politics, and notions of rights – and he restored their place as historical actors. Marc Bloch had already shed similar light on the medieval period with his description of the struggle between the *seigneurie* (manor) and the village community:

‘In the eyes of the historian who only has to observe and explain the links between phenomena, the agrarian revolt appears as inseparable from the *seigneurial regime* as, for example, the great capitalist enterprise does from the strike’ (Bloch, 1931[1964], V, 2, p.175).

By bringing these perceptions by E. P. Thompson and M. Bloch together, I would like to propose the following thesis: to the historian who only has to note and explain the links between these two phenomena, the food riot appears as inseparable from the unlimited freedom of commerce in basic subsistence as, for example, the agrarian revolt was to the *seigneurial regime*, or strike was to the large capitalist enterprise. In the modern era, we have seen the culmination of the effects of these three processes.

Among those who influenced his work, Thompson acknowledged historian George Rudé’s work on the *Guerre des farines* (Flour War) of 1775 and its frequent reprisals during the French Revolution, which helped to remodel the definition of the rights of man and the citizen, and political economy during the years 1792-4 (Rudé, 1956; 1961; 1964; and Rose, 1956-1957; 1959). Thompson’s publication on the ‘popular moral economy’ in 1971 opened minds, encouraged a rereading of earlier historical work, such as that of Jean Meuvret (1971; 1977 and 1988)¹, and generated a debate that continues today. As one could have predicted, these reflections have revived polemics among partisans of the ‘evidence’ for ‘the natural laws of the economy’, too often identified as ‘liberal’.

In 1988, Guy-Robert Ikni and I published a collection of essays in homage to Thompson’s ‘moral economy of the crowd’ on the themes of the ‘war over grain’ in the eighteenth century, and the popular and philosophical criticisms of the experiments with the free trade in grain – both before and during the French Revolution.² We were both pleased to offer the first translation into French of Thompson’s work, and were surprised to learn that it had taken so long to get translated.

The notion of a ‘popular moral economy’ had helped Ikni and me to clarify our own reflections on what we understood as a collusion between the ‘liberal’ and ‘orthodox Marxists’, who refused to see the people as constructive actors in history, and who characterised the

¹ Jean Meuvret offers a careful study of crises of subsistence in France from the seventeenth to the eighteenth centuries. His work allows us to identify the chronology of the shift from real dearths with natural causes to artificial dearths with human causes such as speculation with the worst casualties among the most disadvantaged.

² Gauthier, F. and Ikni, G. R. eds. (1988) - with contributions by E.P. Thompson, Valérie Bertrand, Cynthia A. Bouton, David Hunt, Guy Ikni and myself. Jean-Pierre Miniou, who founded this publishing house, carefully translated Thompson’s text. Cynthia Bouton (1993) had just defended her Ph.D. dissertation in the United States on the Flour War of 1775 and published it shortly thereafter. David Hunt offered an in-depth reflection on the place of peasant movements in revolutionary politics. Valérie Bertrand had just finished an M.A. thesis on the critiques of economic liberalism in the revolutionary Jacques Hébert’s journal, *Le Père Duchesne*. This enthusiastic team could thus offer an homage to Thompson while he was still alive!

French Revolution as 'bourgeois'. In our Introduction to *La Guerre du blé au XVIIIe siècle*, we emphasised this collusion in these terms:

'The neoliberals of today share this notion of History and commune over the stalinist version of economism, the conception of progress, and the myth of development' (Gauthier and Ikni, 1988, p.11).

One could not overlook the fact that this collusion found particular expression in France in the person of François Furet, who passed from the Communist to the neoliberal party, and who had easily transferred his understanding of a 'bourgeois revolution' into a 'revolution of liberal elites'. We noted that Furet shared with certain neoliberals the idea that in its democratic phase (which he labelled with the ambiguous term 'jacobinism'³) the French Revolution became a 'matrix of twentieth-century totalitarianisms'.

From his own angle, the serious neoliberal Florin Aftalion reduced the right to liberty to the Physiocratic notion of 'the right to exclusive property' and characterised as 'totalitarian' the defense of the right to existence, to work, to assistance, and education:

'To deny a merchant the right to fix as he sees fit the price of the goods which belong to him, and which he wishes to sell, is both to prevent him from exercising one of the essential prerogatives of his property rights over these goods... , [and] from acting rationally.... (I)t therefore leads him either to abandon (voluntarily or because of bankruptcy) an activity which has ceased to be lucrative, or to defraud, or to engage in black-market activities in order to release the necessary profit margins' (Aftalion, 1990, pp. 189-190).

This interpretation had the merit of driving us back to the fundamental debate of the end of the eighteenth century, between two concepts of the rights of man: the Physiocrats' individualist notion of 'absolute private property' on the one hand, and the notion of the 'universal right to existence as the first right of man and the citizen', on the other. Here is what Aftalion wrote on this second concept:

'Their [the sans-culottes] preoccupation each day was simply to find sufficient food to stave off starvation. They also believed that the fundamental rights of man were those of life, work, welfare, and education' (Aftalion, 1990, pp. 126-7).

He went on to characterise the democratic politics of the French Revolution as 'totalitarian':

'Yet, in practice, the kind of wholly controlled society which emerged under the Terror left as little freedom to individuals as if it had been in the hands of genuine collectivists...and one can date the birth of totalitarianism from the French Revolution, even if, subsequently, it was to be given a number of different ideological packagings' (Aftalion, 1990, p. 191).

³ The term 'jacobinism' is ambiguous because between 1789 and 1794 it designated a revolutionary party/faction and was influenced by contradictory currents: supportive of the Constitution at the time of the meeting of the Estates General in 1789, it passed under the influence of Barnave and the 'monarchists' from 1790-1791, the Brissotins/Girondins in 1792, and finally the Montagnards from 1793-94. If we include later historiographical interpretations, we can conclude that the term lacks precision!

The 'orthodox Marxist' (and neoliberal) versions added to their common materialist economism⁴ a version of history built upon their respective prejudice about the 'end' of history. According to the first group, the Russian Revolution invested *a posteriori* the French Revolution with a meaning that made it the necessary preface; according to the second group, the French Revolution informed all so-called 'Marxist' revolutions and social politics of the twentieth century with their matrices for 'totalitarianism'. This collusion between the two interpretations locked the bicentenary of the French Revolution in a double impasse.

So, where are we in 2015? And can we imagine that the subprime crisis might bring a weakening of the neoliberal doctrine and its partisans? I propose a rapid overview of the current state of the history of the freedom of commerce in grains and its critics both before and after the French Revolution, from the point of view of the rights of man and the citizen.

2. Experiments with the Unlimited Freedom of Commerce in Grain from 1764 to 1789

In the 1750s, Francois Quesnay seduced the King of France with his reform projects by arguing that they could quickly remedy the current crisis. Quesnay and his friends proposed an audacious programme that tied the reform of agriculture and commerce in grain, to the reform of municipal government.

These reforms sought to reinforce landed property by privatising communal lands in the interests of seigneurs, and to extend the great grain-producing holdings. They sought to release commerce in grain from all regulation – that had previously protected consumers and had limited speculation that raised prices on basic subsistence – but which they considered too constraining. The resulting price rise, Quesnay claimed, would benefit large-scale producers of grain, seigniorial *rentiers*, and the treasury – everyone, in accordance with their notion of 'general interest'.

These economic reforms were accompanied by an audacious reorganisation of municipal government that allowed a veritable seizure of power by the *rich*. This reorganisation aimed to bring noble and commoner interests together through the introduction of property-based elective institutions that restricted the right to vote to the richer members of the *community*.

3. The Regulation of Commerce in Grain and its 'Tipping Point'

In 1764, Minister Laverdy provoked disaster when he began to apply these reforms, beginning with the policy of 'unlimited freedom of commerce in grain'. In effect, the subsequent rise in prices of basic subsistence produced an extensive 'artificial dearth' that ruined the poor, some of whom died of malnutrition. Ultimately, the king halted all reform in 1768 and reestablished the '*ancien regime*' of regulation of prices that protected consumers.⁵

What had happened? Let me briefly offer some context. First, some 'intendants' (the direct agents of the monarchy in the provinces) had already opposed these reforms because they knew that such unregulated commerce in grain would bring disastrous consequences. They knew that the delicate balance between the price of subsistence and low wages involved a critical 'tipping point'. This needs explanation.

⁴ The confusion between the materialism attributed to Marx and that associated with Benthamite utilitarianism or 'liberalism' has wasted considerable intellectual energy and merits a systematic clarification.

⁵ Marc Bloch (1930) was the first to study the history of Physiocratic reforms in his *L'individualisme agraire dans la France du XVIII^e siècle*. See also Jean Meuvret (1971); Maurice Bordes (1968; 1972); and Gauthier and Ikni (1988).

Studies of prices and wages have shown that a family of five people consumed approximately three kilograms of bread a day. The wage of a day-laborer working in construction in Paris at this time was 20 *sous* a day. When the price of bread was 4 *sous* per kilo, the family 'ate' 60% of this wage; when the price rose to 6 *sous* per kilo, they consumed 90%! If the price of bread rose again, food demanded the family's entire income and beyond, and produced a subsistence crisis that made it impossible to buy other necessities such as vegetables, drink, clothing, rent, etc. The 'tipping point' was thus reached and often resulted in what contemporaries called *émotions populaires* (popular emotions) (Labrousse, 1944, t. 1).⁶

In the eighteenth century, these *émotions populaires* erupted at the marketplace as soon as prices rose. People assembled and demanded the intervention of public authority to lower prices. Contemporaries called these interventions *taxations populaires*. People were surely 'moved' emotionally, but they were also acting politically. For example, if the authorities did not respond, the people did not literally pillage merchant stalls, but rather bought grain or flour at a popularly fixed and reduced price. The mounted police often did not turn against the people, but rather supported efforts to force merchants to lower prices. Until the era of Physiocratic reforms, public authorities did not seek to repress families who tried to provision themselves. The phrase *émotion populaire* reflected respect for the fears and suffering of the people. Repression was directed not against the price fixers, but against merchants, who were responsible for raising prices (Rudé, 1956; 1961; 1964; Bouton, 1988; 1993).⁷

Widespread poverty (from the expropriation of peasant lands and competition for wages among urban artisans and the poor peasantry) and depressed wages had shaped the development of the market in France (Bloch, 1931[1999]; Baulant, 1971).⁸ In order to maintain the perilous balance between prices and wages and avoid the tipping point, the monarchy had tried to limit speculation in the price of subsistence and had achieved some success by regulating the supply to public markets and prices. E.P. Thompson called this policy 'royal paternalism'.⁹

After 1764, when the monarchy reversed its position on the economy, numerous 'intendants' who had supported this policy of 'royal paternalism' found themselves confronting the disastrous consequences of the unlimited free trade in grain. Here are some examples of the ways that prices rose in the Paris Basin. In the generality of Champagne, the price of one *setier*¹⁰ of grain that was 12 *livres* had risen in 1768 to 21 *livres*; in Soissons prices rose from 12 to 17; in Orléans from 12 to 24; in Rouen from 14 to 30; and in Paris from 13 to 27 (Labrousse, 1933; Baulant, 1968).

In 1768 the King finally responded to this situation by halting this experiment in free trade.

4. Social Physics and 'Legal Despotism' According to the Physiocrats

After having observed the serious difficulties that the Physiocratic reformers had confronted during the experiments after 1764, the great theoretician of Physiocracy, Le Mercier de la Rivière, concluded that executing these reforms effectively required more political control.

⁶ See also Meuvret (1971, n. 6) on prices and wages.

⁷ Maurice Bordes (1988) studied reserves and the criticisms that the royal intendants levelled against free trade in 1764-65.

⁸ On rural domestic manufacturing, see Pierre Goubert (1969).

⁹ See E. P. Thompson (1971, p. 83) who defines English royal paternalism as a system of regulating public markets, codified not only by Parliament but also by common and customary law. The same type of royal regulation can be found in France. Cynthia Bouton (1988, p. 95) uses the expression 'royal paternalism'.

¹⁰ The *setier* in Paris weighed 130 kilos.

Since he believed that ‘natural laws’ governing the economy should control ‘the natural and essential order of political societies’, he concluded that the solution lay in making the government itself conform to these laws.

In order to understand what he meant, we must clarify that Le Mercier drew his model not from the *sciences humaines* (social sciences) but from the natural sciences and social physics – as he vehemently asserted:

‘If someone has difficulty recognising the natural and essential order of society as a branch of physics, I regard him as a willing blind person, and I will take great care not to cure him’ (Le Mercier de la Rivière, 1767[2001], chap. 6, p. 49).¹¹

For Le Mercier, conformity to *physical* or *divine* laws, as he defined them, lay in the *natural* order. Thus, his anthropology derived neither from notions of human liberty nor free will, but from laws of nature, which he expressed in the following terms:

‘Who doesn’t see, who doesn’t sense that man is made for being governed by a despotic authority? Who has not experienced that as soon as the evidence is made clear, [despotic authority’s] intuitive and determining powers keep us from all deliberation. This power is a despotic authority. *In order to despotically command our actions, it must also despotically command our will.* This natural despotism of facts leads to social despotism’ (Mercier de la Rivière, 1767[2001], chap. 22, p. 280, italics from the original).

From this we can see that, according to Le Mercier, knowledge of the natural laws governing the political order prevents all debate and all possibility of doubt. Indeed, Le Mercier found a particularly inspired expression for this thought.

One of the foundations of this natural order of political societies was the ‘right to absolute private property’ that the Physiocrats wanted to impose on a society that they did not understand¹². Quesnay defined this as the touchstone of the Physiocratic system:

‘Let landed property and movable riches be assured to those who are the Possessors of them. FOR THE SECURITY OF PROPERTY IS THE SUBSTRUCTURE UPON WHICH THE ECONOMIC ORDER OF SOCIETY RESTS’ (Quesnay, 1915, pp. 393-394, capital letters from the original).

The Physiocrats hoped to turn the management of the natural order of society over to the land owners. Le Mercier explained that:

‘One will observe, no doubt, that the physical necessity of landed property...was that to which all other institutions is subordinated. It results obviously from this that the distribution of harvests must be instituted in such

¹¹ See also Markovits (1988); Citton (2000); Gauthier (2002; 2004).

¹² In effect, the most widespread form of property in the kingdom until 1793 was the seigneurie, which involved an exchange of obligations between *seigneurs* and their tenants. The *seigneur* exercised the right of eminent domain, collected rents from tenants, and exercised justice in order to have these obligations observed; the tenants controlled the organization of agricultural production and also retained some rights. For example, their tenure was saleable, exchangeable, and heritable, and the *seigneur* could not expropriate the rights of the tenant. The *seigneur’s* right of eminent domain most resembled private property, but it was embedded in the structure of the seigneurie. The *seigneur* sought to expand his land holdings by claiming new land through the usurpation of the common lands and by buying land from his tenants, which he could then detach from the system that limited property rights. Another widespread form of property was communal lands which carried collective usage rights, which were indispensable for the equilibrium of the communal agrarian system. See for example, Bloch (1966).

a way that the status of landed proprietor be the *highest state socially possible*' (Le Mercier de la Rivière, (1767[2001]), chap. 2, p. 25, italics from the original).

This meant that a right to private property became a power to dominate in the service of 'legal despotism'. This last concept was, for Le Mercier, the logical consequence of his 'physical, divine, and natural laws' governing the economy that determined the right of private property and the order of political societies. Thus *sciences humaines* founded on debate and reflective choice emanating from society itself had no meaning for Le Mercier. The political order must conform to physical laws – 'legal despotism' – especially after the failure of the reforms of 1764 and what Le Mercier interpreted as the failure of the monarchy to follow the programme correctly. He used the word 'despotism' because divine laws required compliance and the word 'legal' because they subjected society to these laws.

After the Physiocrats' fall in 1768, Turgot turned to martial law in order to assure the application of divine law.

5. The Flour War and Turgot's Martial Law in 1775

The fall of the Physiocrats in the late 1760s correlated with a debate which made the name Physiocrat a bad word. But after the death of Louis XV in 1774, the young Louis XVI decided to give their reforms, now proposed by Turgot, a second chance. Turgot had been one of Laverdy's counsellors, but in the wake of the previous criticism, he renounced the label *Physiocracy*, cleansed the aggressive dogmatism and corrected it with his personal observations.¹³ He nonetheless retained the same objectives aimed at reforming property rights and municipal authority by establishing an aristocracy of the landed rich that aimed to extend grain-producing arable land by favoring, this time, those he called '*les fermiers capitalistes entrepreneurs de cultures*' ('the entrepreneurs of capitalist agriculture') (Turgot, (1770 [1970] p. 328).

He agreed that raising the price of grain could achieve this goal, but Turgot also believed that this rise had a 'natural' limit, which correlated with that of grain sold in the North Sea market. This 'good' or 'proper' price (*bon prix*), as he called it would result in doubling the current price in France! Turgot published his edict on the unlimited freedom of commerce in grains after he became Controller General in September 1774, and by March 1775 prices had already exceeded even this 'good price'. As a result, 'popular emotions' erupted in unprecedented numbers. Grain merchants stopped supplying markets to avoid becoming targets of popular price fixing. This forced protesters to take other forms of action. Since the markets were empty, they turned instead directly to the producers themselves or the warehouses, including those where the Church stored tithes it had collected in kind and bought grain at prices they fixed themselves (Bouton, 1993, chaps 4 and 5).

Contemporaries called this new catastrophe the '*Guerre des Farines*' – Flour War. On 1 May 1775 an *arrêt* of the *Parlement* of Paris demanded that the king stop the rise of prices, and price-fixing protestors converged on Versailles to persuade the King to intervene on their behalf. Moved by this spectacle, Louis XVI was on the verge of conceding when Turgot ordered the military to disperse the crowd: the first time that the Crown turned to the military to repress subsistence protests. The people interpreted this move by the King as

¹³ On the Flour War see the work of George Rudé (1956 and 1961); Vladimir S. Ljubinski (1979); Guy Ikni (1980) and Cynthia Bouton (1993).

abandonment. The next day, Turgot proclaimed martial law, which punished by death those who opposed the free pricing with price fixing. Condorcet wrote about the events:

'M. Turgot ran to Versailles, woke up the King and his ministers, proposed his plan, and had it accepted. The notices of the [Parlement's] *arrêt* were covered over with placards that prohibited all assemblies under penalty of death, in the name of the King. Parlement, ordered to appear at Versailles that morning, learned in a lit de justice that the King had revoked the *arrêt* and handed jurisdiction over all sedition to the 'Prévôts de maréchaussée' and excused [Parlement] for a response that could have had fatal consequences.

From that moment everything became tranquil; the scattered rioters, who were almost always arrested and ultimately punished, disappeared promptly. A small number of victims were sacrificed for public tranquility. The people witnessed for the first time a government, untouched by all fear, consistently pursue its principles. It oversaw the preservation of subsistence, the security of merchants. It deployed all its energy and all its force against disorder; it lavished assistance, but resisted succumbing to prejudice, to popular opinion, to any sacrifice contrary to justice. Soon, confidence returned and replaced anxiety and complaints' (Condorcet, (1786[1849]) t. 5, p. 102-103).

This event marked the first split between King and people over speculation on subsistence. The people held the government responsible for limiting speculation, by fixing prices if necessary, and objected to being abandoned to the manoeuvres of grain merchants who had become the masters of prices!

Mably also interpreted the events:

'I would also say that the riots that you have just witnessed are nothing; but they could announce and prepare even more important events. The rioters, it is true, had barely finished pillaging than they had become fearful and repentant. Some restituted what they had taken, others fled and hid in the woods. This is behaviour that comes naturally to men accustomed to trembling before a cavalier of the *maréchaussée* and upon hearing the name of Monsieur the *Intendant* (Turgot); but be sure that a second time they will be less timid and more enterprising. If resources lack, if despair takes over, they will burn farms and chateaux and the government—who will not have foreseen these disorders, will not be able to remedy them' (Mably, 1775[1790], an III, t. 13, p. 276).

Turgot's experiment failed. However, he had, at least temporarily, managed 'to seize power' in the sense that the young Louis XVI, who admired him, had let his minister carry out his reforms and even ordered his '*intendants*' to stop intervening. The cause of this failure lay in the nature of the reform itself, which took the form of a veritable war against those most vulnerable to high prices. Moreover, the 'good price' was not respected for two reasons: the French market was not integrated with the Baltic and North Sea market¹⁴, and merchants,

¹⁴ The cereal importations from the North Sea market had developed as peasant agriculture in England declined, when the monopolistic production of the large-scale farms proved increasingly insufficient for domestic consumption. The government imported grain from the Baltic and the North Sea areas, where markets developed in response. However, the kingdom of France, which retained its dominant peasant agriculture, only imported grain during crises.

who had no reason to limit their speculation to some imaginary maximum price, priced their grain higher and higher. In response, protestors resisted with general recourse to prices at 12 *livres per setier* (Bouton, 1993, pp. 81-97) a price they thought appropriate to feed themselves.

After this failure, Turgot was discretely dismissed the next year and the King returned to a policy of 'royal paternalism' that limited grain merchant speculation before it reached the 'tipping point'.

In fact, neither the Physiocrats nor Turgot favored such speculative practices, which they vehemently criticised. But, in reality, a large distance separated their theory from its practice. We have only recently become aware of this gap, however, because the first 'rediscoverers' of the Physiocrats, such as Georges Weulersse at the beginning of the twentieth century, admired the theory and ignored its application. The history of the reforms Physiocracy informed has only gradually revealed this gap and led to a better understanding as we consider contemporary criticisms. Indeed, contemporaries of the Physiocrats, such as Galiani and Mably, had clearly perceived this distance, and published their observations in order to enlighten the reformers who had visibly failed to understand the market mechanisms they had put in place. The new expansion of popular protest (*émotions populaires*) should have brought the gravity of their errors to the reformers' attention but, as we know, not only did the Physiocrats refuse to acknowledge their mistakes, but Turgot actually turned to military repression!

I would like to draw attention to two points. First, although the reformers had thought that high prices would benefit landowners (in 1764) and then the *fermiers* (in 1774) who held long-term leases on land, this was not, in fact, the case. Instead, grain merchants benefited disproportionately when they took advantage of this 'unlimited freedom of commerce in grain' to speculate without restraint in order to raise prices. One wonders why the reformers – who had failed to anticipate this response – did not try to stop it once they recognised what was happening? They made a second, similar error with regard to wages and fixed incomes. The reformers sought price rises – up to what they considered the 'good price' – a rise they predicted would result in increased wages and incomes not related to this trade itself. But they neither explained how this would happen nor foresaw it not happening.

We must therefore recognise that this 'unlimited freedom of trade in grain' had become, in the hands of the merchant-speculators, a 'provisioning weapon' and produced a *dîsette factice* (a market-generated shortage) carrying deadly consequences and igniting popular subsistence protests. The reforms inspired by the Physiocrats and then by Turgot were transformed, in practice, into pure speculation on high prices. One can easily understand why these experiences left their contemporaries with a profoundly negative memory, which explains why the name Physiocracy fell out of favour for over a century! In contrast, public authorities learned from these mistakes and opted to regulate the price of bread sold in France (except during war and serious political crisis) right up to... 1975.

6. Unlimited Freedom of Trade in Grains as a 'Provisioning Weapon'

When Quesnay advocated 'unlimited freedom of trade in grain', he had worked out that the specific character of the market in subsistence could offer a new opportunity for a certain type of economic power: in effect, there was nothing 'elastic' about the market in basic subsistence. If bread became inaccessible because of high prices, nothing could replace it. In

This 'king's grain' came from the Ottoman Empire across the Mediterranean. Therefore, no market integration occurred to link France with the North Sea markets, as Turgot had imagined.

his essay on the grain trade, Mably explained to those economists who had yet to understand clearly this fact:

'Basic reason tells me that none of my needs are as pressing, as constant, or as daily as my need to eat. If my suit, my shirts, etc...need replacing, I can wait. But I cannot wait a day without bread without the specter of death before my eyes. And thus peoples' spirits are driven to the last extremities' (Mably, 1775[1794], p. 263).¹⁵

At the time of the Flour War and the news of subsistence disorders, the following anecdote was attributed to the royal court: 'There is no bread? Well, then, let them eat brioche!' This formula expressed the idea of an elastic market, capable of replacing one item with another. However, in the case of the substitution of bread with brioche, one finds an element of compassion mixed with ignorance of the causes of inaccessible bread. In contrast, when at around the same time, the Paris *intendant*, Bertier de Sauvigny (Lefebvre, 1963, p. 143) responded to the pressing need of hungry families with 'There is no bread? Then eat grass!' he expressed a cynicism authorised by the Physiocrats' system and reflected the simple greed of the grain merchants. To speculate on luxury products or non-basic foods did not carry the same consequences as on basic subsistence foods! Thus, these reforms reveal a turning point in the history of commerce.

Was Turgot unaware of the 'tipping point'? To this question, he responded that economic mechanisms must follow their course and eventually wages would rise. But what would happen in the meantime? Again, we turn to Mably, who, having clearly understood the distance between Turgot's theory and its application, responded with an address to greedy speculators:

'Sirs, I would add, take care that you do not take advantage of the opportunity to raise prices of grain. You are hard and unjust enough to not adjust wages of workers to the prices of their food which your avarice set. But you flatter yourselves that this happy time will last forever? In order to disabuse you of this notion, try to visualize the necessary consequences of this liberty you demand so loudly. If you do not change your behavior and the government that supports you, soon the poor will refuse to have children and fathers and mothers will let children die of hunger from lack of bread. Before he [the King] reaches the age of twenty, the Kingdom will have lost a third of its inhabitants. Consumption will decline and the price of bread will decline as a result. Public misery will rule, the way you rule today' (Mably, 1775[1794], p. 276).

Mably proposed solutions to this menace by explaining that not all merchandise had the same economic and social function:

'I would like...it if one would research carefully if the commerce in grain should not be submitted to all the same rules as the trade in other commodities. From my perspective, I believe that it is because they confused these that the economists filled their writings with sophisms and faulty reasoning. Simple reason tells me that none of my needs are as pressing, as

¹⁵ Mably wrote this text in 1775 as part of his criticism of the era's political economy and circulated it in manuscript format among his friends. It was published posthumously in 1790. See also Gauthier and Ikni (1988, pp. 113-121).

constant, as the need to eat... Our daily subsistence is too precious, too important, to leave it to business, to speculation, to the hopes and greed of merchants. The more we need basic and urgent necessities, the more men greedy for gain will subject us to a harsh and imperious law.... Hunger is impatient and I will be dead before grain arrives from Danzig or the Barbary' (Mably, 1775[1794], p. 262).¹⁶

He argued that it was the responsibility of public authority to free itself from such illusory theories and establish a policy that regulated the provisioning of the markets and prices for basic necessities proportionate to the income of society:

'If the poor are citizens like the rich, if there is too much wealth at one extreme and too much poverty at the other, social vices will multiply and society will find itself plunged into the greatest tragedy. Who is the man reasonable enough to claim that a healthy policy cannot prescribe how the rich can enjoy their wealth and prevent them from oppressing the poor?' (Mably, 1775[1794], p. 274).

Speculation on basic necessities was a lived experience for those on low wages and Mably's analysis identified it as a deadly power in political economics. Physiocrats and Turgot's followers embraced it and thus gave it an implacable legitimacy by presenting it as an 'economic law' – a fact of nature.

After Turgot's downfall, his followers – such as Dupont de Nemours or Condorcet – continued to polish his theory, and after his death, celebrated him as a reforming genius. The dogmatic sectarianism of this theory, no matter how severely ravaged by its critics, survived, but was further translated into a 'scientific' language that ultimately became the *autonomy of the economic sphere*.

Autonomy in relation to what? One could understand this expression as a desire to erect economics as an independent discipline or, perhaps, to conceive of it as a self-regulated market. But here it meant the way that this autonomy was thought of and criticised in the eighteenth century, *from a political point of view*. We should remember that the conceptualisation of the economy was not a Physiocratic invention, but had existed long before. Simone Meyssonier's work on the *économistes* at the turn of the eighteenth century, (Meyssonier, 1989) or E.P. Thompson's work on the 'moral economy of the poor', testify to this longer history. Nor should we forget that, since the Middle Ages, the monarchy had adhered to just such a popular conception of the economy, one that demanded that public authority protect society against speculative practices. The monarchy had subjected the economy to its political will and thus applied a political economy that conformed to the social ethics of the era. During the time of the Physiocrats, and then Turgot's reforms, the victims of the politics of unlimited freedom in grain commerce declared it a crime against the right to existence and injurious to liberty and the life of the social body.

Moreover, during the earlier era, the autonomy of the economy had emerged from an ethical principle – the right to existence, the right to subsistence – and function of a social right. However, the Physiocrats, and Turgot in their wake, believed they had discovered the physical laws governing the economy and thus refused to subject their economy to a political ethic that protected society. To achieve their objective, they relocated the economic sphere within the laws of physics and declared it part of the 'natural and essential order of political societies'. Their contemporary, Mably, observed this development as a split within the

¹⁶ Dantzig meant grain from the North Sea markets, and Barbary, grain from the Ottoman Empire.

humanist anthropology of enlightenment and simultaneously demonstrated its impasses and dangers. We have seen that the Physiocrats and Turgot sought to establish the preeminence of the exclusive right to property over the human rights to existence, to subsistence, and to participation in the political life of society. Even if the Physiocrats failed in their time, they opened the way to the major conflict that remains both unresolved today and very much part of current politics.

The question of the 'autonomy of the economic' – in its current neoliberal version – has the same significance as it did in the time of the Physiocrats. In order to remain independent from humanist ethics that protect society, the *economic* must impose itself on the *political* and sustain the dominance of its ethic of the exclusive right to property. We therefore confront an ethical and political struggle to impose the 'physical laws of the economy' (Polyani, 1944[1957], p. 115; p. 135).

But how else to impose such a mode of thought if not by affirming it first dogmatically and then by force? That was, and remains, the dilemma.

7. Reprisal of the *Guerre du blé* during the Revolution

On 19 August 1789, the Constituent Assembly voted, yet again, for freedom of commerce in grain. And, again, the application of free trade in grain provoked popular resistance. Then, on 21 October, the Assembly voted for martial law, which punished price fixers with death. Little by little, this experiment gestated the 'programme of the maximum' – just as new as the politics of the Physiocrats – that came into being by stages from July 1789 to the fall of 'Mountain' (the political group whose members were called *Montagnards*) on 27 July 1794. As I cannot describe the developments in full here, I will limit myself to a chronological overview and point out the stakes as seen in the parliamentary debates.

Six great *jacqueries* (peasant revolts) and two new revolutions punctuated the revolutionary period from July 1789 to the May 1793 declaration of the 'programme of the maximum'. The peasant *jacqueries* accompanied protests against high prices, strikes by harvesters, seizures of control of municipalities, and the creation of a national guard to protect against martial law. In effect, wherever *jacqueries* erupted, martial law was not applied.¹⁷

From the first *jacquerie* of July 1789, the peasantry initiated what became the economic and social politics of the Mountain by proposing a contract of sharing the *seigneurie*: the seigniorial domain would remain in the hands of the seigneur while the domain of the *censives* (peasant holdings) would pass fully as *alleu* (unencumbered property)¹⁸ to the peasants who worked the land. Feudal law and seigniorial justices would be abolished without indemnity and common lands would become the collective property of the communes.

The Revolution of 19 August 1792 – the fruit of the most important *jacquerie* of the revolutionary period¹⁹ – founded the Republic and permitted a vote (25-28 August 1792) on agrarian reform, which revisited the peasant propositions. The Convention, elected by universal suffrage in September 1792, was also a new constitutional assembly, but the fear of a popular victory allowed the Girondin party to retain control. Property owners rallied to the Gironde, who refused to implement the agrarian reforms and sought a diversion by declaring a war of 'liberation' in Europe. The people did not approve of this *pseudo* liberation brought by

¹⁷ On the peasant movement see Henry Doniol (1876[1978]), which offers a comparative history of the abolition of feudalism; Anatoli Ado (1970) provides a chronology of *jacqueries* and a description of the peasant movement. For a helpful synthesis see Gauthier (2004a, pp. 252-283).

¹⁸ The *alleu* (allod) is land held as property free from any rents and obligations. Peasant *alleux* were under assault by feudal law, from which the phrase 'no land with a seigneur' derived. Peasant law derived its counterposition, 'no seigneur without a title' (Bloch, 1939, chap. 2, p. 355ff).

¹⁹ On these episodes see Mathiez (1927[2012], II, p. 213ff).

foreign armies and, in April 1793, Girondin politics turned into a *fiasco*. The Republic was under siege.

Between 10 August 1792 and the Revolution of 31 May to 2 June 1793, debates intensified over what would become the 'popular political economy'.

8. Popular Political Economy against Despotic Political Economy

The popular movement gradually constructed its 'programme of the maximum', which rested on agrarian reform in order to liberate land from parasitical *rentes*, limit the size of large agricultural holdings, control commerce and the price of grain, and re-equilibrate prices, wages, and profits.

During the important debates that took place in the Convention between September and December 1792 on the unlimited freedom of commerce in subsistence and martial law, a petition from the Department of the Seine-et-Oise (*Archives Parlementaires*, 1857) specified the nature of the offensive against the people:

'Citizens, the first principle that we must expose to you is this: *Freedom of commerce in grains is incompatible with our Republic*. In what does our republic consist? A small number of capitalists and a large number of poor. Who conducts the commerce in grain? The small number of capitalists. Why? To enrich themselves. How? By raising the price of grain through resale to the consumer. But you should also notice that this same class of capitalists and proprietors—masters of the price of grain—is the one that fixes the wages for a day of work...and of basic subsistence....

But if this class who lives by working with its hands is the largest, called by the equality of laws from the beginning, it is also the only force of the State, how can one suppose that it could suffer such a state of affairs that hurts it, that crushes it and takes away its substance and its life?'

However, on 8 December 1792, the Gironde maintained this system, while the popular movement continued to build, by communal democracy, its programme that prevented the Girondins from fully applying their plan. In Lyon, the *sans-culottes* expressed themselves in March 1793 through their elected representative, Marie-Joseph Châlier:

'The existence of the people is a sacred property,... grain being a part of human existence, the cultivator is only the farmer for all and everything that exceeds his property—that is the subsistence that assures existence—is a sacred deposit that belongs to all individuals, who accord him a just and primary indemnity for the price of his labors' (Koi, 1975).

On 5 September 1792, the *sans-culottes* of Paris proposed to the Convention a general programme:

'Let all items of primary necessity be fixed without variation. Let primary materials be fixed in such a way that industry, wages of work, and profits from commerce, which will be moderated by the law, can make man industrious and can put the cultivator and merchant in a position to procure not only

things indispensable to their preservation, but also all that can add to their enjoyment. Let a maximum on fortunes be fixed. Let no individual possess more than the maximum' (Soboul, 1979, p. 163).

Robespierre, deputy from Paris to the Convention, synthesised these criticisms of the right to property when he proposed a reformulation of the rights of man and the citizen to the Convention on 2 December 1792. He argued that vital necessities should not be considered private property, but rather 'all society's *common property*'. According to Robespierre, a right to property that did not take into consideration these sorts of distinctions authorised *murder*:

'I defy the most scrupulous defender of property to contest these principles, at least to declare openly that he means by this word the right to skin and assassinate his fellow men. How can one claim that all types of hindrances, or rather all regulations on the sale of grain be an attack on property and disguise this barbarous system under the special name of freedom of commerce?' (Soboul, 1979, p. 113).

Here we are at the heart of the problem of the right to property, posed during the Revolution. In his '*Project de déclaration des droits de l'homme et du citoyen*', presented to the Convention on 24 April 1793, Robespierre presented his definition of the rights of man, and made the right to existence and to the means to preserve existence, the first among these rights:

'The aim of all political association is the maintenance of the natural and imprescriptible rights of man and the development of all his faculties. The principal rights of man are those that provide for the conservation of his existence and his liberty.'

In contrast, the right of property was not a natural right, but rather a convention and thus modifiable by the law and framed in these terms:

'The right of property is limited like all the others by the obligation to respect the rights of others. It cannot prejudice the security, the liberty, the existence, or the property of others. All possession, all trafficking that violates this principle is illicit and immoral' (Robespierre, 1793[2000], p. 234).

Robespierre not only proposed a limitation on the exercise of the right of property and a redistribution of wealth (progressive taxation and social rights), but he also left to the legislative authority the possibility of intervening in all situations where economic power contradicted the 'principle rights of man'. He thus refused the autonomy of the economic sphere and offered concrete means to identify its operation and combat it.

While commenting on the project for a declaration of rights and the constitution before the Convention on 10 May 1793, Robespierre employed the expression 'popular political economy' to designate the programme of a democratic and social Republic's rights of man and the citizen (Robespierre, 1793[2000], p. 256; and Gauthier, 1992[2014], p. 73ff).

A new Revolution, from 31 May to 2 June 1793, gave way to the vote on the Constitution on 24 June. This Constitution remained ambiguous in declaring simultaneously an unlimited right to property and social rights, but abolishing martial law. The Mountain directed the Republic through its period of great danger, which included civil and foreign war.

Within a year, France had re-established peace, while conducting a policy that, from the agrarian reform to the maximum, restabilised prices and wages and also raised the lowest salaries. The agrarian reform restored 50% of arable land to those who worked it, recognised communal lands as communal collective property, broke the monopoly on the land in France by making smaller parcels available to peasants, eradicated feudalism, and reinforced the power of village communities.²⁰

But the most important contribution remained the experiment with the 'popular political economy' – a concrete manifestation of the 'moral economy' identified by E.P. Thompson in popular practice – as a tangible and rational awareness of the 'urgency of necessity' for a society that did not want to die and so needed to protect itself against the aggression of the economists' destructive political economy. In this, this 'popular political economy' speaks to us today.

9. Conclusion – Recent Globalisation Shifts Understanding of the History of Physiocracy

The beginning of the twentieth century experienced a fad for theories of capitalism from the eighteenth century and, in France, Georges Weulersse dedicated several impressive studies to the Physiocrats, which nonetheless revealed that he failed to understand the concrete history of their politics and presented them as amiable 'liberals'. This revival gave birth to a wave of interpretations of economic thought, that, in the 1950s and 70s, became focussed on Turgot and the Flour War (Weulersse, 1910; 1950a; 1950b; 1985; Faure, 1961; Kaplan, 1976; 1982). After several decades, marked by a dominant interpretation of Physiocracy as liberalism, the debate reopened in the more menacing context of the 1980s, which saw the first damage caused by the offensive called the 'market economy' and the fissuring of the 'liberal' dream.

Thus Jean Cartelier a historian of economic theory and editor of the work of the Physiocrats, published a self-criticism that merits attention. A quarter of a century earlier, he had defended an interpretation of Physiocracy that reproached 'Marxism' for its so-called materialism, a position he currently disavows:

'The thesis according to which Quesnay, with his materialist angle, anticipated Marx (advanced by Meek, 1962, Cartelier, 1976, and others) rests on a misinterpretation, if it is true, as I suggest here, that a political design is the true foundation for the system' (Cartelier, 1991, p. 56).

In fact, this 'Marxism' had little to do with Marx's thought. Marx never mistook the Physiocrats for 'liberals', and even less as his inspiration! Cartelier also challenges the notion that Physiocracy belonged to the liberal movement and comes to characterise it as 'totalitarian thought':

'As totalitarian thought *avant la lettre*, Physiocracy does not belong to the liberal and individualist movement, as one has sometimes wished to locate it because of its defense of freedom of trade' (Cartelier, 1991, p. 56).

²⁰ On the political and social economy of the Mountain, see the careful study by Jean-Pierre Gross, (2000 trans.1997).

In the twentieth century, Physiocracy was thus identified successively as liberal, Marxist, totalitarian – the three political colours that dominated the century: one might say that confusion reigned! However, describing Physiocracy does not require calling forth the theory of the totalitarian state, elaborated by Mussolini, who expressed his typically fascist rejection of the Enlightenment.²¹ Why not restore to it its specific character since it represented itself, without make-up or mask, as a theology, a new cult of natural and divine law of the economy, whose physical determinism and denial of humanity was revealed by experience?

Contemporaries have noted the sectarian character of Physiocracy. Galiani associated Physiocratic theory with a pertinent neologism, 'economystification' (Galiani, 1979, p. 75); Linguet used a precise term, 'economism' (Linguet, 1788); Mably who sparkled in dialogue, nicknamed one of his protagonists Eudoxe (Eudoxus), the 'Good-doctrine':

'...I am going to tell you about an exchange I had with Eudoxus. You know him, it is with the best faith in the world that he is an economist, because he has neither an inch of land nor a grain of wheat to sell. He watches with joy the rising price of bread because he imagines that it is for the greatest good of the state. He doesn't realize that the people are silly enough to want to live thriftily and, [since he is] made for his legal despotism, he wants only freedom of trade, and especially in the grain trade' (Mably, 1775[1794] p. 242).

During the same period, Adam Smith evoked the Physiocratic 'sect' and its 'doctrine':

'This sect, in their works, which are very numerous, and which treat not only of what is properly called Political Œconomy, or of the nature and causes of the wealth of nations, but of every other branch of the system of civil government, all follow implicitly and without any sensible variation, the doctrine of Mr. Quesnay. There is upon this account little variety in the greater part of their works. The most distinct and best connected account of this doctrine is to be found in a little book written by Mr. Mercier de la Rivière, some time Intendant of [Martinique], entitled, *The natural and essential Order of Political Societies*' (Smith (1776[1904], vol. 2, bk. 4, chap. 9, p. 38).

In a posthumous work, Karl Polanyi observed that the Physiocrats embraced 'the new phenomenon, never witnessed before, that there was an interdependence of fluctuating prices which directly affected multitudes of men'. As foreign commerce penetrated local markets – wages, food prices and rent became subject to 'price-making markets'. This 'new field of activity', he observed, 'was the economy', which proved 'a revelation for the Physiocrats' and 'transformed them into a philosophical sect' (Polanyi, 1977, pp. 6-7).²²

In his work, Polanyi shed light on the economism that had recently appeared:

²¹ The theory of the 'totalitarian state' installs *the personal power* of the leader, who becomes the source of morality, right, and law, which he has stripped from society because he, *el duce*, concentrates in his person fascist knowledge and power. See Faye (1982).

²² This author's works were translated into French very late (for example: *La subsistance de l'homme. La place de l'économie dans l'histoire et la société*, Paris, Flammarion, 2011) and remained marginalised by economic scholars because they remained committed to 'economism' (*économisme*). However, the translation and publication of this work was ultimately the work of an economist, Bernard Chavance, a fact that announces a happy shift in perspectives! In addition, the marginalisation of the work of Karl Polanyi may also help to explain another fact. In his *Great Transformation* (1944), in which Polanyi studied the English 'Speenhamland system' of 1795 as an experiment in 'social self-protection'. E. P. Thompson saw in this same phenomenon an expression of the 'popular moral economy', but he never referred to Polanyi, despite the fact that the two authors demonstrate an interesting convergence in point of view.

'The nineteenth century, which universalized the market, would naturally experience economic determinism in its daily life and inclined to assume that such determinism was timeless and general. Its materialistic dogmatism in regard to men and society simply mirrored the institutions that happened to shape the environment' (Polanyi, 1977, pp. xlvi-xlvii).

This dogmatism has, according to its own logic, refused all concrete studies which were not a *priori* self-referential or which discussed these assumptions based on the mechanisms of 'prices'. This 'economic solipsism' is expressed by the assumption that, according to the author, 'the market makes prices' (Polanyi, 1977, pp. 14-17). How can one struggle against such prejudices that result in the negation of historical realities 'in the name of a dogmatic conception of progress?' Polanyi rightly responds: with a return to history and to the study of the place of the economy in societies, as he has shown in his research, his teaching, and his publications.

As I proposed in my introduction, given our current situation, this analysis of the history of the freedom of the grain trade at the end of the eighteenth century, from the perspective of the rights of man and the citizen, calls for further analysis of the Physiocrats and their followers. Their doctrine was founded on an understanding of the economy, not as a human activity, but as emanating from natural or physical laws. They very explicitly demanded the subordination of all human faculties to these natural laws of the economy. Turgot softened the dogmatic character of this claim to subordinate despotically the social to the physical laws of the economy, by asserting the *autonomy of the economic sphere*: an autonomy in regard to human rights.

Still, it does not suffice to simply assert that the Physiocrats' social physics contradict the rights of humanity; we must precisely identify these rights. First, human rights do not belong to the realm of natural or physical laws, but rather to a humanist anthropology. This means that these rights concern all humans and are necessarily reciprocal, beginning with the right to existence and to the means to sustain it. This right to existence must be restored to the centre of the economic as a human social activity. The economy would thus be directed to reassuring the right to existence in society, a right to which the economy must submit itself.

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Adam Smith's Use of the 'Gravitation' Metaphor

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Abstract

Adam Smith, in *Wealth of Nations*, used gravitation as a rhetorical metaphor and not in a formal philosophical sense, as used by Newton, Aristotle or Empedocles. Physical gravitational attraction is predictable, accurate and rule-bound; metaphoric gravity, as in relationships between natural and market prices, are neither strictly rule-based nor predictable. Market exchange relationships between independent people are subject to the vagaries of imperfect rhetorical persuasion.

Keywords: invisible-hand, metaphors, rhetoric, gravitation, natural prices, market prices

1. Introduction

David Andrews presents an interesting philosophical view that Adam Smith's use of the gravitation metaphor expresses the embodied ideas of Aristotle and Empedocles, rather than those of Newton (Andrews, 2014) and supports this view by analysing how Smith used 'gravity' in the context of his discussion of 'natural' and 'market' prices. This paper offers a view that Smith used metaphoric figures of speech that are consistent with his teachings on rhetoric (1748-64), as evidenced in his *Lectures on Rhetoric and Belles Lettres* (LRBL, 1762-3), and as he demonstrated by frequent use of metaphors in his published works. I am not here engaging with the established discussion of Smith's debt to Newton (Smith, 1795; Schliesser, 2005; Montes, 2008), rather I focus on the particular claim by David Andrews that Smith's use of gravity in the context of the discussion of natural and market prices is non-Newtonian.

Smith, in my view, did not offer a deeper philosophical meaning to the gravitation metaphor, whether based on Aristotle, Empedocles or Newton. Such interpretations are not relevant to Smith's purely pedagogic purposes. His rhetorical use of gravitation as a metaphor is also consistent with his long explanations of the dynamic relationships between natural and market prices in *An Inquiry into the Nature and Causes of the Wealth of Nations* (WN) (I.vii-xi.p, pp.72-267; Howell, 1975; Wightman, 1975).

First, I shall briefly examine Adam Smith's teaching on language and grammar, secondly, comment on where he considered that rhetoric contributes in its general and specific roles, thirdly, look at his use of metaphors as figures of speech, fourthly comment on and apply Smith's arguments on his metaphoric use of gravitation to the relationships of natural and market prices (WN I.ii.vii-xip). I shall not comment on modern treatments of rhetoric or metaphors because the focus of this debate is on what Adam Smith understood about rhetoric and metaphoric speech when he taught and wrote his Works, for which purposes it is my view that 20th-century theory is not relevant (Alonso-Cortes, 2006; Bazerman, 1993; Dascal, 2006; McKenna, 2006; Wightman, 1975).

2. Smith on Language and Rhetoric

Smith's interest in the origins of language in human societies led him to publish a version of his '*Considerations Concerning the First Formation of Languages and the Different Genius of original and compounded Languages*', in the short-lived *Philological Miscellany* (1761). He also included his ideas on the evolution of language and grammar in his lectures on rhetoric (LRBL, v. 53-61, pp. 23-25). When he travelled in France in 1764-6 with the young Duke of Buccleuch, he probably found that his ideas on the origins and evolution of language were not as widely known among scholars there as he might have expected – given that these matters were already of wide interest among 18th-century French scholars (Rameau, 1722; Condillac, 1746; Diderot et D'Alembert, 1751-77; Rousseau, 1755; Smith, 1761, 1767; cf. Otteson, 2002).

On his return to London he instructed his printer to add his '*Considerations*' paper to the 3rd edition of *The Theory of Moral Sentiments* (TMS, 1767) which he was preparing (Smith, Corr. Letter No. 100, to William Strahan). His '*Considerations*' paper was also included in subsequent re-printings of TMS throughout the 19th century. In the event, not much attention was paid to his thoughts on rhetoric, though once '*Considerations*' circulated more widely in print, he had at least advertised any claims he believed he merited for his scholarship on rhetoric. Following discovery of 'Dr Smith's Rhetorick Lectures' among papers in Tolquhoun Castle (Aberdeen) in 1958, and published in 1963 (Lothian, 1963; Smith, LRBL, 1983), some modern economists took a closer interest and made significant contributions (Skinner, 1966; 1972; Berry, 1975),.

Adam Smith's comprehensive thoughts on English rhetoric derived from his nine years attending Moral Philosophy and Rhetoric courses and private readings (Glasgow, 1737-40 and Oxford, 1740-46), followed by 15 years of teaching rhetoric – first in Edinburgh in his public lectures, sponsored by Lord Kames, (1748-51), and secondly, at Glasgow University in his professorial lectures on rhetoric (Howell, 1975, pp.10-43). A near-verbatim set of student notes reporting on Smith's rhetoric lectures in his Glasgow University private class of November–February 1762-3 was published in the '*Glasgow Edition of The Works and Correspondence of Adam Smith*' (Smith, LRBL, 1983). Smith wrote:

'After language had made some progress it was natural to imagine that men would form some rules according to which they should regulate their language. These rules are what we call grammar' (LRBL, p. 25).

Smith's laid great stress on 'perspicuity' favouring a 'plain style' which set out clearly the proper composition of an author's meaning that could be understood clearly:

'When the sentiment of the speaker is expressed in a neat, clear, plain and clever manner, and the passion or affection he is possessed of and intends, by sympathy, to communicate to his hearer, is plainly and cleverly hit off, then and then only the expression has all the force and beauty that language can give it' (LRBL, pp. 25-6).

In contrast, Smith regarded classical styles of rhetoric unfavourably – especially in their teachings on 'figures of speech' and their lack of substance in flowery language. He demonstrated what he regarded as the modern role of figures of speech in the English language throughout his Works and Correspondence. His teaching on metaphors conforms to the reforms to rhetoric theory then underway in the 18th century (Howell, 1975). He was firmly

of the opinion that English rhetoric was a 'communicative' device supported by a 'plainness of style', as shown by Jonathan Swift, in contrast to what Smith described as the 'outworn stylistic conventions of such as Lord Shaftesbury' who, because of his lack of 'depth of reasoning' was glad to 'set off by the ornament of language what was deficient in matter' in his 'pompous, grand, and ornate style' (Howell, 1975, pp. 23-25, quoting Smith, LRBL, i.143-148. pp. 58-61). Smith focussed his ire on Lord Shaftesbury for obscuring his relative ignorance by misusing allegorical and metaphorical 'flowers of speech' that led to 'a dungeon of metaphorical obscurity' to the detriment of perspicuity (LRBL, i.13: p. 8). Practitioners who were taught classical rhetoric were bound by the five-part division for a classical oration that rigidly incorporated the sequence of: 'beginning, narrative, confirmation, refutation, and peroration' at the expense of perspicuity. This style of oratory was common in courts of law where it was practised by eloquent prosecutors and defenders at the risk of avoidable injustice.

Smith identified two styles of discourse in rhetoric, specifically the 'Didactick' and the 'Rhetoricall'. A didactic discourse identifies those arguments that present 'both sides' of a question in a 'true light' with a view to persuade on the merits of their arguments, but no further. The rhetorical discourse attempts, primarily, to persuade by magnifying 'all the arguments on the one side and diminishes or conceals those that might be brought on the side contrary to that which it is designed that we should favour' (LRBL i.149. p 149; Compare with LRBL, ii.13-17. p 89-90). It was in this context that Smith reacted negatively to overblown contemporary classical forms of metaphoric discourse, adding that:

'It matters not the least whether the figures of speech are introduced or not. When your Language expresses perspicuously and neatly your meaning and what you would express, together with the Sentiment or affection this matter inspired you with, and when this Sentiment is nobler or more beautifull than such as are commonly met with, then your Language has all the beauty it can have, and the figures of speech contribute or can contribute towards it only so far as they happen to be the just and naturall forms of Expressing that Sentiment. They neither add to nor take from the beauty of expression. When they are more proper than the common forms of speaking then they are to be used but not otherwise. They have no intrinsick worth of their own. That which they are often supposed to have is entirely derived from the expression they are placed in' (LRBL, i.v.56–57. pp. 25-6).

David Andrews, in his paper on gravity, creates an opportunity for his readers to review Smith's teachings on the appropriate role of metaphors in modern English rhetoric – which was at this time undergoing a major revision as 17th- and 18th-century scholars questioned the classical norms of advocacy. Absent such reading of LRBL, it is risky to be confident about what Smith supposedly meant when he used, for example, the 'invisible hand' metaphor, or, as David Andrews argues, what Smith really meant by using 'gravity' as a metaphor in *Wealth of Nations* (Chapters I.vii-I.xip: pp. 72-275) when discussing natural and market prices.

The potential consequences of misreading the role of metaphors can be demonstrated by the impact of Paul Samuelson's best-selling textbook, *Economics: an analytical introduction* (1948), with approximately five million copies sold in 19 editions to 2010 (Kennedy, 2010). Samuelson arguably misled several generations of economists and public commentators by conflating Adam Smith's 'self-interest' with 'selfishness' in reference to the 'invisible hand' metaphor (Samuelson, 1948, p. 36). This – what is now widely regarded as a mis-reading – had a huge post-1948 impact on both scholarly and popular treatment of

metaphors that can be seen in populist misunderstandings of the ‘invisible-hand metaphor’ (Kennedy, 2009; 2012; 2014). Similarly, for example, when Nobel Prize-winner George Stigler brought greetings, metaphorically, of an ‘Adam Smith’, supposedly ‘alive and well and living in Chicago’, who by implication endorsed Chicago’s interpretation of modern economic policies, the metaphoric allusion did not work well because the views of the Chicago ‘Adam Smith’ were controversial assertions about the views of the Adam Smith born in Kirkcaldy, Scotland in 1723 (Fry, 1992).

In welcome contrast there was some excitement among a meeting of Smithian scholars in 2009, when news spread that Warren Samuels was near to completing his research into the history of Smith’s use of the ‘invisible hand’ metaphor, which he had begun in 1983. I was among that happy audience when we heard the news. Warren Samuels, arguably the most diligent and thoughtful Smithian scholar since the 1940s, wrote extensively and authoritatively on Smith’s scholarship and teaching. Unfortunately, Warren Samuels was unable to complete his book on Smith’s teachings on the rhetorical use of metaphors in his time and ours, due to his serious illness while completing his powerful testament to his diligent and thorough research: *Erasing the Invisible Hand: Essays on an Illusive and Misused Concept on Economics*, (Samuels, 2011). Thankfully, Samuels’s close academic colleagues, Marianne F. Johnstone and William H. Perry, assisted in preparing his final manuscript for publication, in which Samuels discusses in depth the role of metaphors, from Samuel Johnson’s dictionary (1755), and later authorities, through to the early 21st century (Samuels, 2010, pp. 151-63).

Fortunately for posterity, Smith was very clear and specific on the role of metaphors in English rhetoric and in perspicuous writing, making his teaching on metaphors highly relevant in discussions on Smith’s use of gravity as a metaphor. He defined metaphors as giving ‘due strength of expression to the object described and at the same time does this in a more striking and interesting manner’ (LRBL, p. 29; Kennedy, 2014).

Both *Moral Sentiments* (1759) and *Wealth of Nations* (1776) are ‘tinctured strongly’ with metaphors. Here are three examples from WN (II.ii.86, p. 321):

- Metaphor 1: ‘the great wheel of circulation’ — Object: ‘the annual circulation of metal pieces ...that distribute to every man [his] revenue’;
- Metaphor 2: ‘waggon way through the air’ — Object: ‘the effect of the circulation of gold and silver, creating good pastures and fields’;
- Metaphor 3: ‘Daedalian wings’ — Object: ‘the insecurity of paper money versus the security of the “solidity” of gold and silver’.

In these examples, the metaphor is taken only figuratively, not literally: there is no ‘invisible great wheel’, there are no ‘waggon’ flying through the air, and nor were there a pair of actual feathered wings fixed by Daedalus onto his son’s (Icarus’s), arms with wax, to enable him to escape the Minotaur – his flight did not take place in reality – it was an imaginative myth, brilliantly transposed by Smith into a metaphor for less reliable paper money compared to solid gold.

Likewise, Smith’s use of gravity as a metaphor did not imply Newton’s nor Aristotle’s/Empedocles’s theories of gravity. Metaphors do not exist in reality; they are figures of speech used to ‘describe’ some object to readers familiar with classical mythology in the case of ‘Daedalian wings’ – ‘in a more striking and interesting manner’ (Smith, LRBL, p. 29). Of course, if Smith’s readers had never heard of Daedalus, Icarus, or the Minotaur, the metaphor would remain obscure and they would miss Smith’s brilliant metaphoric allusion.

The only guide we need to understand Smith's intended meanings when he uses metaphors is the certainty that they conform to his sense of perspicuous writing, which his well-chosen metaphors invariably demonstrated (though he admits, apologetically, that his 'waggon way' example was a 'violent' metaphor, WN II.ii.86: p. 321). Therefore, careless use of metaphors does not add to the important qualities of perspicuity that Smith admired and encouraged his students to develop and follow (LRBL, i.9.10: 6). He also made his intended meanings clear to readers by way of introducing some of his more tedious and notoriously difficult passages in *Wealth Of Nations* (WN. I.v: 47- I.xi.p: 267), including the unstable relationships of market and natural prices:

'I shall endeavour to explain, as fully and distinctly as I can, those three subjects in the three following chapters, for which I must very earnestly entreat both the patience and attention of the reader: his patience, in order to examine a detail which may, perhaps, in some places, appear unnecessarily tedious; and his attention, in order to understand what may perhaps, after the fullest explication which I am capable of giving it, appear still in some degree obscure. I am always willing to run some hazard of being tedious, in order to be sure that I am perspicuous; and, after taking the utmost pains that I can to be perspicuous, some obscurity may still appear to remain upon a subject, in its own nature extremely abstracted' (WN I.iv.18: p. 46).

We also have an example of the appropriate use and meaning of metaphors in relation to their objects from Smith's close, contemporary social friend, Hugh Blair – a popular, moderate Presbyterian preacher and Enlightenment colleague who, after Smith moved to Glasgow, in 1751, eventually took over his successful public subscription course of rhetoric lectures in Edinburgh (Ross, 1976, p. 96; 2011, p. 92). Smith also showed Blair some sheets of his lecture notes (Blair, 1812, ii.22 n.). Blair's and Smith's expositions of the appropriate role of metaphors were also consistent with modern English language usage (Simpson and Weiner, 2nd ed. vol. IX, p. 676). Up to the early 18th century, English had been dominated by ancient classical styles of rhetoric that Smith, Blair and other contemporaries rejected.

'When I say of some great minister that he upholds the state, like a Pillar which supports the weight of a whole edifice. I fairly make a comparison; but when I say of such a minister that, he is the Pillar of the state, it is now become a Metaphor. The comparison betwixt the Minister and a Pillar is made in the mind, but is expressed without any of the words that denote comparison. The comparison is only insinuated, not expressed: the one object is supposed to be so like the other, that, without formally drawing the comparison, the name of the one may be put in place of the other: "The minister is the Pillar of the state." This therefore, is a more lively and animated manner of expressing the resemblances which imagination traces among objects. There is nothing which delights the fancy more, than this act of comparing things together, discovering resemblances between them, and describing them by their likeness. The mind, thus employed, is exercised without being fatigued; and is gratified with the consciousness of its own ingenuity. We need not be surprised, therefore, at finding all Language tintured strongly with Metaphor' (Blair, 1787, vol. 3. pp. 372-3).

3. Gravity as a Metaphor

The metaphoric meaning of gravity in the context described in *Wealth of Nations* is not bound by Newton's nor Empedocles' philosophical ideas of gravity. It was sufficient for perspicuity that readers of WN had some general idea of gravity as a mutually-related, analogous metaphoric description of the behaviours of people setting natural and market prices, as people on both sides of such transactions reacted to changes in their related and linked variables. Smith wrote of Newtonian mechanics as if it was the 'gold standard' for 18th-century science – see Smith's 'History of Astronomy', written during 1744-c.58; and published posthumously in 1795 (EPS, 1795. pp. 104–05). His private library also contained some of Newton's major works, including 'Opticks', 'Philosophie naturalis principia mathematica', and 'Fluxions and Infinite series' (calculus, etc.), none of which were essential pre-reading for readers of WN (Bonar, 1894. pp. 122-3). Smith, of course, was fluent in Latin – a prerequisite for his entry to a university as a student, and, later, for his professorial duties requiring him to teach classes in Latin, a practice that was gradually abandoned through to the mid-19th century (though I am informed that grace before meals is still recited in Latin in some Oxford and Cambridge colleges). He also understood Greek from his Kirkcaldy school days and he was familiar with the philosophical ideas of Aristotle and Empedocles.

Newtonian gravity was 'a system whose parts are all more strictly connected together, that those of any other philosophical hypothesis ... that it decreases as the squares of the distance increase' (compare with the Sydney University Student newspaper, '*Honi Soit*', which often carried in the 1950s a definition of gravity in a boxed paragraph on its frontpage as: 'the mutual attraction of two bodies is inversely proportional to the square of the distance between them').

All bodies with mass exert gravitational pull on all others, but not all of them have the same mass or exert the same degree of mutual attraction that draws them physically towards each other or holds them in regular orbits. It does not follow that Smith's use of gravity as a metaphor described an observed or plausible relationship between market and natural prices, either of which were sometimes above or sometimes below the other's prices, as described in WN.

Smith's metaphoric use of gravity was not intended as a scientific statement about the physics of a gravitational attraction embodied in prices. He expresses his reservations twice, first writing: 'the natural price, therefore, *is as it were*, the central price, to which the prices of all commodities are continually gravitating' (WN I.vii.15: p.75, emphasis added) and then repeats it two pages later: 'the market price of every particular commodity is in this manner continually gravitating, *if one may say so*, towards the natural price' (WN I.vii.20: 77, emphasis added). Ultimately, production costs (as defined) must tend to be met by market prices, inclusive of the participants' profits, if economic production is to commence and continue. Natural and market prices do not exhibit the definable physics of 'mass', nor do they operate in a definable or predictable order. If Smith's metaphoric references were scientific statements, Newtonian or Empedoclean, Smith would have left out his semi-apologetic qualifiers because they would have been inappropriate, bearing in mind also that not all of his readers were expected to have studied classical or philosophical history.

Smith generalises, quite heavily, his metaphoric assertions about natural and market prices. Indeed he goes into detail about metaphorical gravity relationships: 'yet sometimes particular accidents, sometimes natural causes, and sometimes particular regulations of police, may, in many commodities, keep up the market price, for a long time together, a good deal above the natural price'.

Smith's reference to 'Police' in the 18th century referred to the regulations of governments to ensure:

'the attention paid by the public to the cleanliness of the roads, streets etc; and prevent the bad effects of corrupting and putrifying substances. 2nd, security; and thirdly, cheapness or plenty, which is the constant source of it. ... The security of the people is the object of the second branch of police, that is the preventing all crimes and disturbances which may interrupt the intercourse or destroy the peace of the society by any violent attacks...' best brought about by '...the rigorous, severe, and exemplary execution of the laws properly formd (sic) for the prevention of crimes and establishing the peace of the state' (LJ p.331).

Smith's application of the gravitation metaphor captures the essence of his thoughts on the changing relationships bound into his concepts of natural and market prices in 'every society and neighbourhood', and for all commodities in them, over time. What affects the rent, labour and profits of stock for any commodity may affect their natural and market prices, as will changes in 'effectual demand', operating on them both in different degrees and circumstances, and for different time periods, from various sources. These forces motivate various chosen actions of individuals affected by them; their actions affect the forces and the consequential actions of other players, as they in turn are also affected by them.

Changing prices have no gravity-like mass, nor are they bound by the mathematical laws of physics. The human agents affected by changing prices are very much alive and can and do react with subjectively-motivated – not necessarily consistent – intent. Some react by doing without the goods on sale, others adjust the spread of their purchases; some producers withdraw from supplying goods that consistently do not earn their outlays, after, perhaps, selling their already produced goods at a loss, and others produce more output to gain additional sales at anticipated higher prices, or take their goods to neighbouring markets unaffected by localised trends in market prices. Markets are alive with conscious people whose considered actions may affect each other in numerous inconsistent ways, causing further actions and re-actions among people. Markets, if you like, are alive with people acting according to stimuli and are unlike physical objects that are bound together as planets with mass in fixed orbits, consistent with the laws of gravitational attraction.

Moreover, the relationships between natural and market prices uniquely consists of a feature not found in the physics of gravitational attraction between two bodies with mass. The market price of a product contains within it the natural price of that same product and, for that reason, the gravity metaphor does not transcribe into a purely physical gravitational relationship in the same way that two bodies with independent mass behave under the influence of the mutual attraction of their separate mass.

In the 18th century, Smith observed, society consisted of numerous local neighbourhoods, with numerous commodities entering and leaving these neighbourhoods under different conditions of local effectual demand and supply within chains of production and assembly under varying local conditions. Whatever else this analysis represents, it is not an image of single commodities from a single supplier and a single customer in a basic, permanent bilateral relationship – as represented in the standard, single-period, supply-and-demand diagram. Smith tackles the evident complexities in real-world markets head on to show the reality that natural and market prices are not always identically fixed, but change as they vary separately and reactively from various changing stimuli.

Natural and market prices are subject to changes determined at any one moment in complex interactions among people in many ways, that Smith describes as multiple, complementary, interactive and variable ways, over a total of 135 pages in WN (I. vii-xi: pp. 72-267). He addresses definitions of 'Natural and Market prices', variations in the 'wages of Labour'; variations in 'Profits of Stock'; differences in 'Wages and Profits in Different Employments of Labour and Stock', 'Inequalities from the Nature of Employments themselves', and 'Inequalities occasioned by policy in Europe', all of which – separately or together – make for an exhaustive treatment of the complexities implied in the metaphorical gravitating relationships between natural and market prices.

These very detailed chapters in WN (known to weary, impatient readers) are followed by long chapters covering variations in 'Land Rents' (WN I.xi), 'digressions on variations in value of silver over last four centuries, and the progress of Improvement'. Together they constitute substantial evidence that the initial analysis of natural and market prices is not a simple statement of a singular concept suitable for a diagram or an equation. It is an attempt to describe and explain complex, changing phenomena in words. Trying to describe these many interactions is a much harder task for the clearest of thinkers who pay attention to Smith's analytical descriptions throughout WN (I.ii - xi.p: 72-267). I remind readers to consult Smith's advice (WN I.iv.18: p. 46) to those who weary of the details in his writings on what he regarded as important relationships between natural and market prices.

The sparse, modern S-D cross simplifies the reality of individual people, perhaps acting in concert, but not in tune, which can deprive readers of an appreciation of supply and demand in real life, as observable in the common, old-style street markets that abounded in Smith's times. Reading these chapters in WN we may appreciate the relevance of Smith's use of the gravitation metaphor to describe his observed relationships between what he called natural and market prices in the simplest of cases. Markets in Smith's time were dispersed, as he would have observed from his intimate knowledge of local markets in Kirkcaldy's long High Street, where he lived with his mother, and on his excursions from his mother's house along the shoreline to the nearby busy Kirkcaldy harbour in the Firth of Forth (where his father had been a customs officer).

Smith, as a youth, was familiar with Scotland's sea-going trade and even more so in later years when he was a Commissioner of Customs in Edinburgh (1778-90). From his office, high on the Royal Mile close to Edinburgh Castle, he and his subordinates could observe ships entering or leaving their anchorages at 'Leith Roads' in the Firth of Forth. He also lived in Panmure House (1778-90), just off the High Street/Royal Mile, further down the hill towards Holyrood Palace, along which he walked, or was carried by chair porters, each working day, passing directly through the bustling street markets of Scotland's capital city. In London too, busy street markets were located close to Suffolk Place (the 'Scotch quarter'), where he lodged for weeks at a time on his official visits to London. His practical experiences of noisy local markets and their mental images, gave him vivid ideas of how natural and market prices, and supply and demand, interacted in the real world, which he addressed in WN I.ii.vii.

The natural price was a commodity's 'central' price of the moment, so to speak, not least because it reflects a commodity's supply or cost-price from producers, which, when earned, repaid the producer's costs, plus his expected profit. That price was 'precisely' what the product was worth, or what it really cost the person who brought it to potential sellers in markets where prices were determined by 'effectual demand' and not by their product costs. That price was likely to be very much to the fore in producers' minds, which was therefore likely to animate their actions ('His profit, besides, is his revenue, the proper fund of his subsistence'). But what was sufficient in one period and circumstance to meet a producer's costs and profit may be insufficient or more than sufficient in other periods because costs may

change. (Product inputs could change without the producer's control as landlords' rents, labourers' wages, and other costs changed unilaterally, not necessarily influenced by effectual demand at existing market prices.) If for any reason a period's natural prices were not matched by their market prices, the seller's income could fall below his expectations and not repay him 'what they may very properly be said to have really cost him' (WN I.vii.6, pp. 72-3). These falls provoked conscious, consequential actions by sellers. Actual market prices could fall below a producer's total costs and, should that situation last for 'any considerable time', the producer may 'change his trade', with the caveat that such a consequence would obtain where there was 'perfect liberty' to do so (WN I.vii.6: 73).

Smith summarises the meaning of market prices:

'The market price of every particular commodity is regulated by the proportion between the quantity which is actually brought to market, and the demand of those who are willing to pay the natural price of the commodity, or the whole value of the rent, labour, and profit, which must be paid in order to bring it thither' (WN I.vii. 8, p. 73).

Those buyers willing to pay market prices constitute the effectual demand, which was the reference point for the producers to plan their activities. When producers bring to market insufficient products to meet the effectual demand at existing prices, then some (not all) buyers, rather than do without the product, could offer to sellers higher prices and thereby bid market prices upwards 'according as either the greatness of the deficiency, or the wealth and wanton luxury of the competitors happens to animate more or less the eagerness of the competition' (WN I.vii.9, p. 74). Similarly, when the quantity brought to market exceeds effectual demand:

'it cannot be all sold to those who are willing to pay the whole value of the rent, wages and profit, which must be paid in order to bring it thither. Some part must be sold to those who are willing to pay less, and the low price ... must reduce the price of the whole. The Market price will sink more or less below their natural price according as the greatness of the excess increases more or less the competition of the sellers, or according as it happens to be more or less important to them to get immediately rid of the commodity' (WN I.vii.10, p. 74).

In short, market prices respond to effectual demand, tending to rise in times of shortages in supply and to fall in times of surplus supply. Perfect coincidences in effectual demand and actual supply are not guaranteed, and the necessary adjustments to actual demand and actual supply may take time to settle. All these explanations of shifts in supply and demand, offers and counter-offers, relate to the relationship of effectual demand to actual supply in adjusting selling and buying prices. All parties to these transactions, such as: landlords – who adjust the amount of land they rent; labourers – who adjust their hours of labour from the stock of labour involved in production; and employers – who adjust their capital stock involved in production to raise or lower the natural prices of the product, combine to satisfy net effectual demand. Of course, there are inevitable time-lags as the factors of production, land, labour and capital, complete their inevitable readjustments in the real world.

Crucially, writes Smith, introducing the gravitation metaphor: 'the market price of every particular commodity is in this manner continually gravitating, if one may say so, towards the natural price, yet sometimes particular accidents, sometimes natural causes, and

sometimes particular regulations of police, may, in many commodities, keep up the market price, for a long time together, a good deal above the natural price' (WN I.vii. 20, p. 77). Smith's choice of the 'gravitation' metaphor certainly 'describes in more striking and interesting manner' its object, namely the way in which changing market and natural prices seem to oscillate about each other because, while they are separate elements in a continuous and changing process of price determination, they are also related to each other – depending on which phase in their relationship we observe. The component prices upon which potential suppliers of marketable goods sluggishly base their decisions to supply products to markets and market sellers react to changes in the effectual demand of final consumers, both are influenced by changes in the demand for their products at existing prices (WN I.vii.1-21, pp. 72-77). Final buyers may buy more or fewer of the goods in the market, but sellers adjusting to the prevailing effectual demand may take longer to adjust to the sources of their supply. Moreover, in the following chapters, Smith discusses the many circumstances that can affect the reconciliation of 'sellers' and 'buyers' changing offer-prices (WN I.vii to I.xi, p. 267).

Markets are more messy than instantaneous adjustments summarised by S-D cross diagrams. The players are 'naturally prompted' by changes in 'effectual demand' to adjust their behaviours to produce profitable 'natural prices' for producers and profitable 'market prices' for market sellers. But seamless or tidy it is not; messy may be the norm. Smith was concerned with outlining the mechanism by which natural and market prices may be reconciled – broadly by suppliers acting individually, ideally to bring about 'that precise quantity' which 'may be sufficient to supply, and no more than supply, that demand' (WN I.vii. 16, p. 75). From this point he paints in the real-world complications as buyers and sellers imperfectly try to co-ordinate their actions. He discusses variations in the quantities produced in different years (WN I.vii.17m p. 75) and their 'fluctuating' effects on 'natural prices', especially that part of the influences on 'wages and profits' and such fluctuations as affect both the values and net rates of wages – 'raising' hours of labour when 'understocked' or falling when 'overstocked' with labour, or 'sinking' as wages change 'prices' (WN I.vii.18, p. 76).

Market-day prices could change according to the composition of buyers during any particular market day or season and changes in the scarcity or abundance in the supply of products for various and multiple reasons. If a producer earned more than the natural price, she earned extra profits over her initial natural costs of the products she brought to market for sale. Market prices are decided by reconciling fluctuations in price offers and their acceptability to players seeking to buy products through bargaining processes. Such bargaining processes are dominated by subjective behaviours that are not, in any sense, as predictable as planetary and other moving inter-planetary objects, such as meteors, comets, and space debris, with mass, that move in their orbits and in velocities that can be predicted years in advance, like eclipses of the Moon or Sun. In markets, changes in the effectual demands of buyers can cause changes in market selling prices, and changes in producers' costs can also cause changes in producers' selling prices – or more correctly, *perceived* changes in the variables affecting prices may provoke changes in buyers' and sellers' perceptions of their prospects of settling their transactions at earlier expected prices and how likely changing current prices might affect their chances of finding partners willing to settle their transactions on mutually favourable, or least damaging, terms. Sellers depend, as do buyers, on their skills at bargaining and persuasion, as outlined in WN (I.ii, pp. 26-7) and in TMS, where Smith discusses discords and concords between humans in their exchange relationships and conversations: (cf. TMS, 16; 19; 21; 23; 25; 42) to obtain what they want by 'addressing the self-love' of those with whom they higgie and haggle.

Clearly, unlike astronomical data, price changes are less predictable; they are more like unpredictable tsunamis, volcanic eruptions and earthquakes. Self-interested sellers and buyers are not immune to the specific, often local, market conditions prevailing at any one moment, and rumours circulating of varying reliability. Self-interested participants in markets are in mutually-influenced transactional, human relationships. To argue that self-interested sellers and/or buyers, who act in markets in pursuit of their narrowly focussed self-interests, are somehow immune to the self-interests of those with whom they attempt to bargain, is a severely over-simplified assertion by those economists who narrowly interpret Smith's writings on conditional bargaining (WN I.ii. 2-3, pp. 26-7). It is also contrary to the experience of anybody who has negotiated to buy or sell anything in markets that operate in the real world, or, as I have often observed, who heatedly argue over their budgets in every university department and business school that I taught in during 1971-2005 (see Kennedy, 1997).

Smith's literary descriptions necessarily are more than a trifle verbose when he discusses the complex interactions from ever-changing market prices that may not clear instantly or quickly. Smith attempts to describe the resulting interacting changes from 'different accidents', when market prices are sometimes 'suspended a good deal above' and sometimes they are forced 'even somewhat below' natural prices. By using gravitation as a metaphor, Smith was able to describe 'whatever may be the obstacles which hinder them from settling in this center of repose and continuance, they are constantly tending towards it' (WN I.vii.15, p. 75). But that 'centre of repose' may itself be constantly shifting about in the real world.

Therefore, Smith uses the gravitation metaphor to describe the connected relationship of the variables in natural and market prices. He was, as his friend and colleague, Hugh Blair, put it, using a metaphor in 'a more lively and animated manner' to express 'the resemblances which imagination traces among objects.' (Blair, 1787, pp. 372-3).

Interestingly, Cantillon (1755) used a different gravity metaphor to describe the resemblances between, what amounts to, the natural and market price relationship, by referring to gravity as a 'perpetual ebb and flow in market prices' and their 'invariant intrinsic values', around what Smith called their natural price (see Cantillon, R. 1734, 1964, p. 31). The motion of the tides is, of course, indirectly related to the physical *gravitational* attraction of the Moon as it orbits under the actual gravitational pull of the Earth. Both Cantillon and Smith expected their readers to appreciate the metaphor's applicability in purely rhetorical terms and not as strictly determined or bound by the eternal and determinate laws of physics.

Exchanges between suppliers-to-markets and buyers-in-markets are neither strictly rule-based nor predictable. They are speech-laden, not silent, and what is said affects the participants and often leads to subsequent actions by them, and these actions have both intended and unintended consequences, affecting their experiences and their exchange behaviours in future markets. Markets are not silent, mechanical affairs under unchanging physical laws. Market prices rise and fall as do natural prices. Both market and natural prices influence each other, as do conversations and consequential actions between sellers and buyers.

Smith's metaphorical gravitation, such as it was, focussed on debate and rhetoric which did not embrace philosophical distinctions.

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'Animal Behavioural Economics': Lessons Learnt From Primate Research

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Abstract

The paper gives an overview of primate research and the economic-ethical 'lessons'² we can derive from it. In particular, it examines the complex, multi-faceted and partially conflicting nature of (non-) human primates. Our closest living relatives, the chimpanzees and bonobos, apparently walk on two legs: a selfish and a groupish leg. Given evolutionary continuity and gradualism between monkeys, apes and humans, human primates seem to be bipolar apes as well. They, too, tend to display a dual structure: there seems to be a pro-social and a self-interested side to our species and a bipolar tension seems to exist between competition and cooperation respectively between self-interest and the common good. We are apparently at the same time *Homines oeconomici* and *Homines culturali*. Our inner ape tries to combine self-interested and common good motives. Based on de Waal's *Russian doll model*, the essay investigates the evolutionary origins of morality and 'eusociality'. With the help of selected case studies stemming from behavioural sciences/economics, the paper illustrates examples of empathy, altruism, reciprocal fairness, pro-social and other-regarding preferences, inequity aversion and altruistic punishment in (non-)human primates. Beside this selfless and groupish side, the paper also reflects on the self-interest and egoistic nature of (non-)human primates and the behavioural and cognitive differences between monkeys, apes and humans.

Keywords: primate research, mirror neurons, empathy, theory of mind, token economy, multi-level natural selection/group selection, dual motive theory, triune brain

1. Introduction

Nowadays, two ideas of man apparently face each other in economics and economic ethics: the *Homo oeconomicus* idea of man present in most standard economic textbooks and the *Homo culturalis* (or *Homo moralis*, *reciprocans-cooperativus*) idea of man within some strands of economic ethics as well as behavioural economics, neuroeconomics, economic psychology and happiness economics.

The *Homo oeconomicus* model is based on the self-interest axiom and the complete rationality assumption. Following the self-interest calculus or economic principle, people aim at personal utility maximisation. Given their individual preferences, rational actors choose those alternatives that are 'purposive-rational' (*zweckrational*), that is, they chose those options which maximise personal utility (those decisions are made under certain restrictions

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² The term 'lesson' refers to the insights we can gain about economic ethics from primate research. It thus refers (mainly) to the empirical-descriptive level; yet it does not (necessarily) imply normative ('ought') conclusions derived from animal research.

such as time constraints or goods scarcities). Individual decision-making is thus based on a rational cost-benefit analysis. The model assumes stable, constant and consistent preferences. The *Homo oeconomicus* idea of man functions as a heuristic or abstract ideal type. It is closely linked to Samuelson's *revealed preference theory* (i.e., preferences of consumers are revealed by their actual decision-making and purchasing habits (Samuelson 1938; 1948)) and (rational choice-like) *methodological individualism* (i.e., social phenomena and outcomes are best explained by viewing them as a result of the (disinterested and unemotional) choices and actions of (rational) individual agents) (Kirchgässner, 1991).

In recent years, the *Homo oeconomicus* model has come under fire from different quarters: economic ethics, behavioural economics, neuroeconomics, economic psychology and happiness economics, to name a few. The main points of criticism refer to the following keywords: *bounded rationality* and *satisficing* (instead of maximising or optimising) man (Simon, 1957; 1959; 1990; 1991); *brain bugs* (Buonomano, 2011) and cognitive biases such as framing effect, endowment effect, status quo bias, loss aversion and overconfidence (Kahneman, 2011; Thaler and Sunstein, 2008[2009]); the importance of automatic processes ('the automatic brain') and moral intuition (Haidt, 2001; Damasio, 1994[2006]) as well as the interplay of cognition/reason and emotion; the special role of empathy and in particular *mirror neurons*; *animal spirits* (Keynes, 1936[1973]) and herd behaviour; and last but not least, the existence of other-regarding preferences and pro-social behaviour such as reciprocal altruism, altruistic punishment, inequity aversion and fairness norms (see the indicated works of Fehr et al.). These points of criticism – among others – have led to the development of a more realistic and down-to-earth idea of man – at least within heterodox economics – the so called *Homo culturalis* idea of man (Davis, 2003; Akerlof and Kranton, 2010).

A similar debate mirroring the one within economics and economic ethics – the *Homo oeconomicus* versus the *Homo culturalis* debate – takes place within primate research. Apparently, our closest living relatives, the chimpanzees and bonobos, walk on two legs: a selfish leg and a pro-social leg. Given evolutionary continuity and gradualism between monkeys, apes and humans, human primates seem to be bipolar apes as well. They, too, display a dual structure: there is a social and a selfish side to our species and a bipolar tension apparently exists between competition and cooperation: We are at the same time *Homines oeconomici* and *Homines culturali* (depending on the particular context of interaction). Our inner ape apparently aims at combining self-interested and common-good motives, pointing to the complex and multi-faceted nature of apes and humans. This heterogeneous motivation structure resembles Adam Smith's work which combines self-interest (not necessarily egoistic) motives with considerations of empathy/sympathy and the ideal of an impartial spectator.

The following paper gives an overview of primate research and the economic-ethical insights we can gain from it. In particular, it examines the complex, multi-faceted and partially conflicting nature of (non-)human primates. Based on de Waal's *Russian doll model* the essay investigates the evolutionary origins of morality and 'eusociality'.³ With the help of selected case studies, the paper illustrates examples of empathy/sympathy, altruism, reciprocal fairness, other-regarding preferences and pro-social behaviour, inequity aversion as well as altruistic punishment in non-human primates. Beside these selfless and groupish sides of (non-)humans, the paper also reflects on the selfish (and sometimes egoistic) nature of (non-)human primates and the behavioural and cognitive differences between monkeys, apes and humans.

³ The term 'eusociality' stems from the Greek word 'eu' (=good) and the Latin word 'socialis' (of companionship/of allies) and refers to the pro-social behaviour of animals (Batra, 1968; Wilson, 1971).

The paper combines behavioural science, experimental economics and cognitive neuroscience. The advantage of primate research is that non-invasive techniques which are commonly used in humans such as brain scans or brain imaging technology (e.g., EEG, PET, fMRI and TMS) can be combined with invasive techniques used in non-human primates. Together, these two methodologies allow for the study of brain processes in a better and more comprehensive way. Moreover, neuroscience and primate research are combined with the theoretical framework of behavioural economics and experimental (evolutionary) game theory. This cross-disciplinary approach aims at enriching economics and economic ethics by integrating the knowledge gained in primate research and cognitive neuroscience into (behavioural) economics and economic ethics.

The remainder of the paper is structured as follows: the second section gives an overview of recent neuroscientific and primate research on empathy, theory of mind and mirror neurons. The third section deals with the evolutionary origins of morality and eusociality as well as de Waal's thesis of gradualism and continuity. The fourth section introduces the 'token experiments' conducted by de Waal, Tomasello and others. In the fifth section, the essay analyses the dual nature of (non-)human primates (i.e., 'animal *oeconomicus*' versus 'animal *culturalis*'). Here the debates between the de Waal and the Tomasello research groups are (re) examined. In the sixth section, the theory of reciprocal altruism is critically analysed from a primate research perspective. The paper ends with some concluding remarks (i.e., 'lessons' learnt from primate research).

2. 'Mirror Neurons', Empathy and 'Theory of Mind'

2.1 Mirror Neurons

Mirror neurons were first discovered in the 1990s by Rizzolatti, Di Pellegrino, Fadiga, Fogassi and Gallese at Parma University. The Italian neuroscientists found out that mirror neurons fire not only when an animal or a human being actively performs an act, but also when they observe the same action performed by another animal or human being. In particular, they detected that a specific set of neurons of macaque monkeys is active both when the monkey makes active movements itself (*action execution*) and when it observes or 'mirrors' specific purposeful and intended actions performed by the experimenter (*action observation and simulation*); hence the name mirror neurons (Gallese et al., 1996). In order to be triggered by visual stimuli, mirror neurons require an observation of a 'meaningful, goal-related hand-object interaction' (Gallese, 2001, p. 35).

Furthermore, Rizzolatti, Gallese et al. found that mirror neurons as a particular class of visuomotor neurons are mainly located in an area of the ventral premotor cortex called F5 (inferior frontal gyrus), an area directly related to goal-directed hand and mouth movements. Other cortical areas with mirror-like properties include the posterior parietal cortex, namely area 7b or PF of Von Economo.⁴ This area forms the rostral part of the inferior parietal lobule which receives input from the superior temporal sulcus and sends output to the ventral premotor cortex including area F5.

Mirror neurons have been directly observed in (non-)human primates and other species. So far, *direct* evidence about the existence of mirror neurons in humans is lacking (due to the fact that invasive techniques as in non-human primates are less often used). *Indirect* evidence, however, suggests the presence of a human 'mirror matching system'

⁴ For more information on Von Economo neurons/VEN-cells or spindle neurons see Economo and Koskinas 1925; Fajardo et al., 2008; Butti et al. 2009; Hakeem et al., 2009; de Waal, 2009, p. 138ff.

similar to that in apes (Keysers, 2011, chapter 3). Evidence comes from brain imaging studies as well as neuro-physiological experiments (Gallese et al., 1996, p. 606ff.; Gallese, 2001, p. 37; Rizzolatti and Craighero, 2004, p. 174ff.; Iacoboni, 2009; Iacoboni and Mazziotta, 2007). It is widely believed that the mirror neuron system in humans is much more pronounced compared to the one in non-human primates. Furthermore, humans have much stronger connections to emotion-related areas of the brain (Haidt, 2012, p. 272ff.). This might be one of the reasons why humans are more likely to mirror and empathise with others and are more willing to collaborate – compared with monkeys and apes.

The functional role of mirror neurons is also disputed (Singer, 2009, p. 256ff.): mirror neurons seem to mediate *imitation learning*: imitation and learning processes are based on action observation, simulation and execution similar to that of the mirror neuron system. Furthermore, the activity of the mirror neuron system seems to correlate with *action understanding* ('understanding of motor events' (Gallese et al., 1996, p. 606) and *gestural communication* (e.g., understanding of facial expressions). Since speech mostly evolved from gestural communication, the mirror neuron system might also be responsible for *language evolution*. Interestingly, Broca's area, the hypothesised language region of the brain, is closely related to mirror neuron brain areas. A mirror neuron theory of language and speech evolution has been proposed by Rizzolatti and Craighero (2004, p. 18ff.) among others (Keysers, 2011, chapter 5).

Finally and most importantly for the purpose of this paper, mirror neurons are regarded as the neural basis of *empathy* and *theory of mind* (hereafter, ToM) (Premack and Woodruff, 1978): Mirror neuron systems are believed to play a general role in understanding other people's actions, goals and emotions. They are supposed to be the basis of human self-awareness (i.e., introspection and personal identity formation) as well as other-awareness (i.e., self-other distinction and inter-subjectivity). As such, they allow sharing and understanding others' feelings and emotions (i.e., empathising with other persons' behaviour). They enable us to read other people's minds and mental states, beliefs, desires, intentions and feelings. In summary, mirror neurons play a crucial role in emotional and social cognition. It has been proposed that a deficient and dysfunctional mirror neuron system underlies cognitive disorders such as autism (Santos et al., 2006; Keysers, 2011, chapter 9). Damage to this part of the brain can have serious consequences. A malfunctioning mirror neuron system ('broken mirrors'), potentially leads to disabilities in social skills, e.g., a loss of empathy and cognitive perspective-taking (de Waal, 2009, p. 138ff.). A lack of empathy and ToM in most autistic children might explain their failure in interpersonal communication and social interactions as well as their apparent egocentric bias, their propensity to understand other individual's states in terms of their own (the same holds true for non-human primates and explains the differences between humans, apes and monkeys) (Singer, 2009, p. 255). Studies of patients with specific psycho-pathologies also show deficits in emotional and social cognition. Empirical research further suggests that individual as well as gender differences in the human mirror system – and the level of oxytocin (Kosfeld et al., 2005; Haidt, 2012, p. 270ff.) – exist. That might be one of the reasons why people are not equally empathetic and why women are more empathetic than men.

2.2 Empathy and 'Theory of Mind'

The English word empathy stems from the Greek *empathēia* as well as the German word *Einfühlung* ('feeling into'), first introduced by Lipps (1903; 1913). Originally it denotes the relationship between a painting and an observer, who imaginatively projects herself into the contemplated artwork. Later on, Lipps transferred the concept of empathy to intersubjectivity

and the inner imitation of the perceived behaviour of others. Common experiences of actions and the observation of other's behaviours lead to a state where a person is perceived 'as another being like oneself through an appreciation of *similarity*' (Gallese, 2001, p. 43). Mirror neurons, being part of our social mind, allow for cognitive and emotional perspective-taking (i.e., to put oneself into the shoes of others; adopt the other's perspective). They offer a direct access to the other self and create a link between different individuals (de Waal, 2009, p. 65ff.).

While empathy refers to *emotional* perspective-taking and sharing other's feelings, the concept of ToM, first introduced by Premack and Woodruff in 1978, refers to *cognitive* perspective-taking, mind-reading or mentalising (Singer, 2009, p. 253) as well as the capacity to represent other's intentions, beliefs, desires and thoughts. Empathy and ToM are two distinct abilities and rely on distinct neuronal circuitries. Brain areas typically involved in ToM are the medial prefrontal cortex, temporal poles, superior temporal sulcus and temporo-parietal junction. Brain networks typically involved in empathy are the anterior cingulate cortex, anterior insula and secondary somato-sensory cortex (Singer, 2009, p. 253).

Empathy and ToM abilities – i.e., social reasoning or socio-cognitive skills to represent the mental or psychological states of others – are interdependently linked with each other; they are both required in order to fully understand other people: what is needed is first the ability to understand other people's motor intentions and action goals. Second, we need to understand their emotions and feelings (i.e., empathy or emotional perspective-taking). Third, ToM is required to understand their thoughts and beliefs (i.e., mind-reading and cognitive perspective-taking).

ToM or mentalising includes the person's ability to cognitively understand the mental states of others, including their affective states, without becoming emotionally affected. Empathy, on the other hand, refers to the capacity to share other people's emotions and feelings.

2.3 Empathy versus Sympathy

Empathy, though, is not identical with compassion or sympathy: when we *empathise* with others, a pro-social motivation to enhance the psychological well-being of the other person does not necessarily exist. However, when we *sympathise* with others, a pro-social motivation is necessarily attached to our behaviour (Singer, 2009, p. 254). Sympathy, therefore, differs from empathy in that it is proactive: sympathy reflects an actual concern for the other, an attempt to understand what happened as well as the desire to improve the other's situation (de Waal, 2009, p. 88ff.). Thus sympathy exceeds empathy. Nevertheless, empathy has an important motivational and societal role to fulfil. It is closely related to morality, (reciprocal) altruism, a sense of fairness and justice, as well as other-regarding preferences and cooperative behaviour. Empathy enables people to share others' emotions and feelings, which can help in motivating pro-social behaviour. As such, it is mainly involved in rendering people less selfish. It is a first and essential step in a chain that starts with affect or emotion sharing, an understanding of another person's feelings, which then motivates other-related or pro-social concern and finally direct engagement in helping others. Interestingly enough, Adam Smith, the father of modern economics, seems to have been aware of the distinction between empathy and sympathy; his major concern was sympathy, not empathy (Smith, 1976b).

2.4 Empirical Evidence from Primate Research I: Empathy

What is essential for the argument of this paper is the question of whether the capacity to empathise or mentalise (ToM) is uniquely human. Do non-human primates also have a capacity for emotional and cognitive perspective-taking?

Empathy (and to a much lesser degree sympathy) are common in both humans and other animals. Of all the great apes (i.e., chimpanzees, bonobos, gorillas and orang-utans), bonobos seem to have the highest level of empathy – and even some sense of sympathy (de Waal, 2009; 2012). Empathetic tendencies in apes (which might translate into altruistic behaviour) include emotional contagion, state-matching and sympathetic concern for others, e.g., being affected by the loss of close companions (mourning), consolation (Romero et al., 2010; de Waal, 2000), wound cleaning, grooming/social scratch (Maestripiere, 2012, p. 209ff.) and other forms of comforting body contact.

Empathetic compassion is of particular importance when it comes to bridging the gap between egoism and altruism. It promotes other-regarding and pro-social preferences, motivates altruistic behaviour and helps in overcoming purely selfish concerns. Empathy can be described as a natural instinct, meaning that (most) primates are born with it. The *feeling or social brain* (MacLean, 1990) starts with birth and parental care (i.e., close bonds and social ties between offspring, parents and family). Evolutionary attachment then paves the way for family life, friendship, other-caring and pro-social behaviour. Natural selection has designed primates' brains in such a way that they are in tune with their fellow beings: they feel distress at their distress and pleasure at their pleasure; many animals react to the pain of others. Especially monkeys (and apes) are extremely sensitive to one another's body language; e.g., rhesus monkeys refused to pull a chain which delivered food to themselves if it shocked their companion (de Waal, 2009). Shared laughter and yawn contagion are primary examples of primates' sensitivity to others. Most of the mood transfer happens via body language in general and facial expressions in particular. According to de Waal (2009), the face is the 'emotion highway': it offers the fastest connection to other individuals. It is known that chimpanzees pay particular attention to the orientation of the face. With impoverished facial expressions and body language comes impoverished empathetic understanding. Emotional or mood contagion implies matching of another's emotional state, body mapping or imitation ('to ape'). Embodied cognition and being in sync has a bonding effect. Emotional linkage between individuals has the same natural-biological basis in humans and other animals.

Unfortunately, up to today we know very little about animal empathy due to the fact that empathy research is mainly human-centred. Empathy is most often presented as a process requiring role-taking and higher cognition, sometimes even language; as such, it is allegedly limited to human primates. Primate research, however, has shown that animal empathy exists. Moreover, it has shown the automaticity of empathy and the subconscious nature of the empathetic process which requires identification, self-other distinction (i.e., erasing the line between self and other) and cognitive perspective-taking.

2.5 Empirical Evidence from Primate Research II: Theory of Mind

Empirical results suggest that monkeys do not have (the same) ToM capacities as apes, not to speak of humans (Santos et al., 2006; Rosati et al., 2010). However, ToM abilities seem to exist in a *limited form* in apes and other species like elephants, dolphins and whales – therefore, they are not uniquely human, although humans' ToM abilities exceed those of other land mammals and cetaceans by far (Call and Tomasello, 2008; de Waal, 2008; 2009; Rosati

et al., 2010; Troxler, 2011). Examples of attribution and understanding of goals, intentions, perception and knowledge include aiding behaviour or *targeted and insightful helping*: apes seem to have an inkling of what others feel, need and want. They seem to be able to cognitively change places in sympathy with the sufferer; they show commitment to others and an emotional and cognitive sensitivity to other's situation; and they are also able to understand which kind of help and assistance might be effective.⁵

Furthermore, chimps and other apes seem to be sensitive towards unequal outcomes, pointing in the direction of *inequity aversion* (Sanfey and Dorris, 2009, p. 75; Brosnan and de Waal, 2014). They routinely cooperate in defending their territory (territorial or boundary patrol), form coalitions (coalitionary support), hunt in groups (Wolkenten et al. 2007), share food, engage in reciprocal exchanges (Silk, 2007, p. 1348; Rosati et al., 2010) and punish defectors and non-cooperators (i.e., primate policing, (altruistic) punishment, retaliation and conflict mediation). All these forms of cooperation suggest not only targeted helping, but also a certain form of *mental book- or scorekeeping* (Horner et al., 2011, p. 13849; Cheney, 2011, p. 10905) requiring recognition of other's needs and goals as well as shared intentionality and planning (de Waal, 2009; Cheney, 2011, p. 10905). According to Silk:

'... primates are able to recognise individuals; identify kin; compete the value of resources and services; keep track of past interactions with group members; make transitive inferences; discriminate between cooperators and defectors; and assess the qualities of prospective rivals, mates, and allies. Primates also know something about the nature of relationships between other group members' (Silk, 2007, p. 1348).

Furthermore, monkeys and apes have considerable knowledge about social information. They seem to monitor relationships and are well informed about rank relationships. Moreover, conflict resolution and settlement is a regular, conspicuous part of primate social life: post-conflict behaviour often involves appeasement, consolation, rapprochement and reassurance gestures aiming at relationship repair and restoration. According to de Waal (2000), even forgiveness seems to be involved. Third-party conflict mediation is common as part of the high ranking individuals' policing and pacification function: alpha males commonly intervene in others' conflicts to protect social and cooperative bonds.

Emotional as well as cognitive perspective-taking is thus not limited to human adults: a basic or limited version of primate empathy and ToM apparently exists. Nevertheless, the human species seems to be special in the degree to which it puts itself into another's shoes. Humans grasp how others feel and what they might need more fully than any other animal species (due to their higher number of mirror neurons and the more pronounced empathy and ToM capacities). Yet the human species is not the first and only one to help others insightfully (de Waal, 2009, p. 107). For example, apes recognise the needs of others and understand when one of their conspecifics is hungry or in need. They show a considerable interest in another's welfare, which has been shown by de Waal's et al. *token experiments* testing for ape altruism (de Waal, 2009, p. 112ff.; see also section 4 of this paper). Furthermore, apes spontaneously help others in need. One chimpanzee, for instance, removed the peg that held the chain, thus allowing its companion to reach out for food. This is a clear example of pro-social choice as well as targeted helping.

Yet pro-social behaviour is not limited to primates. Other species also show this kind of behaviour which was thought of being uniquely human. Elephants are perhaps among the

⁵ Cf. for an opposing view: Tomasello, 2009.

most empathetic and cognitively advanced animals: they perform concerted actions to support a calf in need or a wounded conspecific and provide care to companions in the form of water and food (Plotnik et al., 2011, p. 5116; Hakeem et al., 2009, p. 248; de Waal, 2009, p. 119ff). Furthermore, both dolphins and whales show deliberative, cooperative-altruistic assistance behaviour: they live in complex social structures, establish long-term bonds, form higher order alliances and cooperative networks, use tools and come to the defence of victims (Butti et al., 2009, p. 244). Some evidence even suggests help which crosses the species barrier (de Waal 2009).

Advanced empathy and ToM are unimaginable without a sense of self or self-awareness. Caring for others behaviour starts with the self. *Mirror Self-Recognition (MSR) experiments* test for self-identity and whether animals recognise their own reflection, their mirror image; if they do so, this would imply a concept of self. The most famous example is the *rouge or mark test*. Rouge makeup is used and a dot is put on the animal's forehead in order to test for MSR. Species that recognise themselves in a mirror are very likely marked by emotional (empathy) and cognitive perspective-taking (ToM). Species that do not recognise themselves in the mirror very likely lack these capacities. Mirror tests show that monkeys which lack MSR do not pass the test, while all anthropoid apes (i.e., chimpanzees, bonobos, gorillas and orang-utans) as well as elephants and dolphins do (de Waal et al., 2005; de Waal, 2005; 2009, p. 147). They thus have a similar (yet not an identical) capacity for MSR as humans.

3. The Evolutionary Origins of Morality

3.1 The 'Russian Doll'-Model

As we have seen, empathy and ToM work similarly in some animal species as they do in humans – albeit to a differing degree. Humans have more of everything: more empathy, (much) more sympathy, a much more pronounced ToM, more mirror neurons and VEN cells, a (much) higher level of shared 'we' intentionality (Tomasello, 2009). The emotional and intellectual capacities of humans exceed the ones of other animal species. Humans form a small, cognitive or brainy elite which operates on a higher mental level than all other animal species. Yet there are no sharp dividing lines and there is no fundamental cognitive gap between humans and apes. It is not conceivable that empathy, cognitive perspective-taking and self-awareness evolved in a single jump in one species without any intermediate steps in other animal species. Instead, continuity between past and present, child and adult, animals and humans exists. This is the fundamental message of the hypothesis of biological gradualism. Biological and socio-cultural co-evolution – i.e., *gene-culture co-evolution* (Tomasello, 2009; Haidt, 2012; Wilson, 2012) – has not replaced simpler forms of empathy, perspective-taking and self-other awareness with more advanced ones. The latter are mere elaborations on the former and remain dependent on them. There is no such thing as a big bang revolution; rather evolutionary continuity exists (de Waal, 2009, p. 139; 2010).

According to de Waal's *Russian Doll model*, empathy is as multi-layered as a Russian doll, consisting of several inner and outer layers. The doll's inner core consists of the *Perception-Action Mechanism (PAM)* underlying emotional contagion and state-matching (1). The outer layers include cognitive empathy, sympathetic concern and consolation (2) as well as perspective-taking or targeted helping (3) (de Waal, 2012, p. 876). The metaphor of the Russian doll or *Matryoshka* states that the old remains present in the new and that advanced forms of empathy built on the elementary ones (de Waal, 2008, p. 56ff.). Not all species possess all layers; only a few possess the outer layers two and three. These layers are much

more pronounced in humans, apes and cetaceans: cognitive perspective taking and targeted helping are characteristic of hominids – especially humans are masters in these abilities. However, even the most sophisticated and advanced layers of the doll remain firmly tied to its primal inner core.

This indicates that evolution does not occur in revolutionary jumps – it rarely throws out anything: structures are transformed and co-opted for other functions, or tweaked in another direction (de Waal, 2009, p. 208ff.). New features are gradual, step-by-step modifications of old ones. Empathy and the social nature of our species are an innate part of our evolution. It is part of our biological heritage as ancient as the mammalian line. Thus humans should not be placed outside of nature. Instead of emphasising the uniqueness and distinctiveness of humans (i.e. placing the human species on a pedestal), we should focus more on evolutionary continuity and empathy's (and the like) evolutionary antiquity (Brosnan, 2009, p. 291).

Closely related to the 'Russian doll'-model is de Waal's 'theory of moral development'. This theory bears remarkable resemblances to Kohlberg's developmental model (Kohlberg, 1981; 1985; Kohlberg et al., 1983). According to de Waal (2008, p. 184ff.), three stages of moral development have to be distinguished. The first one and a half stages already exist in non-human primates; the second and third stages cannot exist without the previous ones. The world of human moral thinking therefore is a continuum building on primate social life. The first stage is the level of *moral sentiments*, consisting of empathy, reciprocity, conflict resolution and a deeply ingrained sense of fairness, which is characteristic of all primate species. The second stage is called *social pressure*: To realise cooperative behaviour within primate societies as well as social harmony, social norms are required. Norm-compliance needs to be monitored, e.g., by policing alpha males. Those that do not obey the rules, such as free-riders, defectors or non-cooperators, need to be sanctioned. Trust, reputation-building as well as community spirit and social or group cohesion are essential for each society. This second level is also present in some non-human primate societies, but to a far lesser extent and in a less systematic way. The third and most advanced level of moral development is the stage of *deliberation* and *reasoning*. This stage requires self-reflection and abstraction skills as well as full cognitive perspective-taking and ToM. Here the parallels between human and non-human primates end.

In sum, several parallels exist between human and non-human primates: Our closest living relatives share basic levels of emotional (empathy) and cognitive perspective-taking (ToM), other-regarding preferences and pro-social behaviour, reciprocal altruism and a limited sense of fairness, solidarity and community concern with us. Human and non-human primates are both tribal animals and group-seekers; they both have social instincts. As such, we share nepotistic or kin biases, that is, in-group favouritism and cooperation and out-group hostility and xenophobia. Furthermore, we know that most forms of morality start with emotions such as empathy, sympathy, emotional contagion and intuitions. Since emotions are part of our biological heritage, our morality is also part of it. Continuity exists between past and present, old and new (i.e., continual evolutionary line of ancestors). The fundamental difference between human and non-human primates is that humans have a much more pronounced mirror neuron system including distinct empathy and ToM capacities, a unique language system as well as the ability to make deliberate use of reasoning (including cognitive perspective-taking, self-awareness, self-other distinction and the Kantian notions of autonomy, self-legislation and personal freedom). Yet human uniqueness should not be super-elevated. A huge gap or a discontinuity between animals and humans, nature and culture, humans and their animal past does not exist; this kind of dualism (i.e., humans as the crown of creation versus nasty, brutish and primitive animals) stemming back from

Christianity has to be overcome. Primate research has shown the gradual evolution of morality. Humans as *zoon politikons* (Aristotle, 2013) are the descendants of (eu)social animals. Morality is not a cultural innovation that was invented by humans. Instead, moral behaviour is a result of our 'compassionate instincts' (Keltner, 2010) and 'moral sentiments' (Smith, 1976b) we share with other mammals. These instincts are deeply ingrained in our biological heritage. Moral behaviour is therefore not uniquely human; it was not purposefully or consciously developed. It is rather a by-product of biological and cultural co-evolution (i.e., natural evolution of morality) – evolution favours those animals that solidarily help each other, form trusting alliances and establish and maintain coalitionary support. Social connectedness increases evolutionary fitness and reproduction benefits. Thus cooperative and pro-social group animals out-perform less cooperative ones. Bonding ties as well as the ability to function in a group and build a social support network are crucial survival skills; they are essential for survival as well as reproduction.

Human empathy therefore has a long evolutionary history. The origins of altruism and fairness date back to our closest living relatives – monkeys and apes. Empathy and pro-social behaviour comes naturally to us (i.e., natural sympathetic emotions and empathetic concerns); from their first birthday onwards, human children behave already cooperatively (Tomasello, 2009). As such, human morality (i.e., social instincts and a moral sense) is derived from animal sociality; it has deep roots in the helping behaviour of great apes among others. We descend from a long line of group-living primates with a high degree of interdependence and a need for security that shapes social life. Humans are group animals with obligatory parental care and a herd instinct.

3.2 Multi-level Natural Selection

To sum up: humans walk on two legs and face a bipolar tension. On the one side, they are 'natural beings', *Naturwesen* as Kant (1788 [2010]) would say, relying on intuitions, emotions and sentiments. Unconsciousness, automatic processes and passions play a huge role in decision-making. Freud (1923[1989]) speaks in this regard of the 'id', the source of our instinctual and bodily needs, wants, desires, drives and impulses. At the same time, however, humans are also 'rational beings', *Vernunftwesen* (Kant, 1788[2010]), relying on deliberate reasoning and cognitive perspective-taking. Freud (1923[1989]) speaks of the 'super-ego', the source of consciousness and critical and moral reasoning. Moreover, an ongoing conflict between competition and cooperation and between 'selfishness' and 'groupishness' exists within each human being – a conflict between self-interested utility maximisation, egoism and a me-first attitude (Rand, 1961[1964]) on the one hand, and companionship, collegiality, mutual aid, cooperation, community concerns, social bonding, group-oriented behaviour, civic-mindedness and social responsibility on the other hand (Plato, 2011; Damasio, 1994[2006]; Haidt, 2001; Kahneman, 2001; Thaler and Sunstein, 2008[2009]). Pro-social motives in group-living animals (i.e., striving for a well-functioning whole) clash with self-interested motives which set limits to solidarity and collaboration.

Multi-level natural selection (MLNS) helps in explaining this conflicted dual nature of motivations (Wilson, 2012; Haidt, 2012, p. 217ff.): MLNS theory refers to the interaction of individual selection and group selection. *Individual-level selection* comprises in-group competition and self-interested motivations; the main aim of the individual is intra-group survival and reproduction (i.e., passing on of genes to the next generation). *Group-level selection*, on the contrary, refers to between-group competition, in-group altruism, social cohesion and cooperation. Group-level traits include cooperativeness, empathy and networking. Natural selection thus works at multiple levels simultaneously – at the individual

and the group level. Selection pressures within groups as well as between groups (i.e., competition between groups vs. competition among individuals within groups). What is important is that group selection pulls for cooperation and helps to transcend self-interestedness; it aims to suppress or regulate self-interestedness and allows for cooperative societies (i.e., self-domestication of self-interest). Group selection favours group-mindedness, i.e., the ability to learn and conform to social norms, obedience to social institutions and sharing of collective and group-related emotions and concerns. It tends to suppress anti-social behaviour such as free-riding, defection and opportunism and spurs individuals to act in ways that benefit the group as a whole. It also allows for a transition from selfish individuals to groupish team-players (Haidt, 2012, p. 217ff.). Group selection – and not kin selection and inclusive fitness (see Dawkins' hypothesis of the 'selfish gene' (Dawkins 1976[2009]) –, is therefore responsible for advanced pro-social behaviour. It is one of the main driving forces of evolution and at the same time the evolutionary origin of eusociality.

It is remarkable that cohesive and cooperative groups mainly consisting of (reciprocal) altruists usually win the competition with other groups; they out-perform those groups that mainly consist of selfish individuals. Selfish individuals and free riders, however, can beat altruistic ones. Thus an incentive to cheat and defect exists in this prisoner's dilemma-like situation. Wilson (2012) characterises this situation as a moral 'dilemma of good and evil': While group selection fosters altruism, cooperation, groupishness and virtue (the good in society), individual selection fosters selfishness and competition for survival and reproduction (the evil in society).

3.3 Dual Motive Theory and the Model of the Triune Brain

This constant tug and pull between cooperation and competition, ego and sympathy, self-interest and other-interest can also be explained by *dual motive theory* (Cory, 1999; 2006a; 2006b) and the model of the *triune brain* (MacLean, 1990). According to Cory and MacLean, the human brain consists of an evolutionary developed tri-partite structure: a reptilian complex, a paleo-mammalian complex and a neo-mammalian complex. The *reptilian complex* is mainly responsible for physiological operations, reproduction and self-preservation. Here self-interest motives dominate. The *paleo-mammalian complex* is responsible for maternal care, nursing, infant attachment, family life, social bonding, emotional and pro-social behaviour. Finally, the *neo-mammalian complex* or neo-cortex is in charge of problem-solving, learning, memory and communication of thoughts and feelings which allow for behavioural adaptations to complex environments. The paleo- and neo-mammalian complexes are mainly dominated by empathy and other-interest motivations. Thus the model of the triune brain, which is based on dual motive theory, exceeds standard economics with its single motive theory. While the *Homo oeconomicus* idea of man is solely based on self-interest and/or egoism, dual motive and triune brain theories assume a multi-dimensionality and heterogeneity of anthropological motivations. Two dominant motivations – egoistic self-interest and empathetic other-interest – exist side by side. To put it differently: two fundamental behavioural programmes – the self-preservational or ego programme and the affectional or other-interested programme – are running at the same time (i.e., *conflict systems neuro-behavioural model*). The aim is now to balance these two antagonistic programmes and to solve the constant conflict between empathy/other-interest and ego/self-interest (Tomer, 2012).

In sum, human beings display a dual nature; they can be characterised as *Homo duplex*. Human nature is selfish, but it also has a groupish overlay. In other words: human cooperativeness is laid on top of the self-interested foundation. A mixture of selfishness and

selflessness exists. It depends to a large degree on the socio-economic and cultural environment (i.e., situation-specific variability/situational adaptations) which 'card' is played – the selfish/competitive one or the groupish/cooperative one. In different socio-economic contexts different moral games are played and different moral rules and principles are applied (i.e., practice of moral differentiation along changing contexts): For instance, in situations where individuals are being watched or where they are not anonymous, the level of cooperation and altruism is considerably higher compared to situations characterised by a large degree of invisibility and anonymity. In the latter, individuals cheat and free ride more often and the competitive and self-interest cards are played considerably more often (the same holds true for situations which resemble competitive market situations (Falk and Szech, 2013)). This has been shown by comparing experiments played in the 'dark' with those played in the 'spotlight' and by investigating the effects of eyespots on computers or walls on honesty, generosity and cooperation. The reason for the differing behaviour in the different contexts is the importance of reputation for cooperation (and as a consequence the possibility of punishing free-riders and defectors). The higher the level of transparency and information about the other players and the easier it is to identify cooperators and cheaters, the more are people willing to obey to the social norms (Maestripiere, 2012, p. 109ff.; Haidt, 2012, p. 97). The next sections elaborate on this and analyse the dual nature of (non)human primates with the help of experimental economics, game theory and primate research.

4. The 'Token Economy'

Among the most famous experiments by de Waal and others are the *token economy experiments* or *pro-social choice tests*. Monkeys and apes are introduced to the use of 'money'. The study participants (monkeys and apes) get rewarded with poker chips or 'monkey money' in order to test their bartering and monetary skills. Furthermore, the experiments allow for testing monkey and ape altruism. The chips can be used in a 'chimpomat', a vending machine which delivers food upon token insertion. Tokens are, therefore, used in exchange for goodies. Two kinds of tokens are available: a selfish token which yields a small piece of apple for returning the token just for the 'deliverer' of the token, while the other partner gets nothing, and a pro-social token which rewards both monkeys or apes equally.

Monkeys and apes interestingly show a clear preference for pro-social tokens: they clearly prefer sharing over solitary consumption, which in turn might be interpreted as a caring for others or altruistic behaviour (de Waal, 2009, p. 112ff. and p. 193ff.). Pro-social behaviour seems to be a key characteristic of our closest relatives. De Waal's et al. experiments thus suggest a long evolutionary history of pro-social or fairness 'norms'.

Nevertheless, selfish or egoistic behaviour is always around the corner; e.g., capuchin monkeys are in a much more egoistic mood with other conspecifics that they have never met before. Pairing a capuchin monkey with a stranger will reduce pro-social behaviour and increase selfish behaviour. To put it differently: the stronger the personal tie of a monkey with its partner, the more it would pick the pro-social rather than the selfish token. A strong in-group bias thus seems to exist.

Reduced pro-social behaviour is also observable when monkeys do not see each other (here they share considerably less). A further way to reduce pro-social acts is when the monkey's partner gets a superior reward. Here the monkey becomes reluctant to pick the pro-social option, pointing in the direction of a self-centred inequity aversion or an egocentric sense of fairness. In sum, monkeys are perfectly willing to share and behave pro-socially

given that their partner is visible and gets equal rewards. As soon as the partner is better off or invisible, competition kicks in and interferes with generosity (de Waal, 2009, p. 194ff.).

Similar experiments combining economic game theory and primate research were conducted with apes, in particular with chimpanzees, and human children at the age of 3-5 (Tomasello, 2009). Both were tested in a modified version of the ultimatum game (UG) (Güth et al., 1982):

'One individual choose between two tokens that, with their partner's cooperation, could be exchanged for rewards. One token offered equal rewards to both players, whereas the other token favoured the chooser. Both apes and children responded like humans typically do. If their partner's cooperation was required, they split the rewards equally. However, with passive partners – a situation akin to the so-called dictator game – they preferred the selfish option. Thus, humans and chimpanzees show similar preferences regarding reward division, suggesting a long evolutionary history to the human sense of fairness' (Proctor et al., 2013, p. 1).

In other versions of the modified UG, participants face a choice of two tokens: one represents an equal reward distribution, while the other represents an unequal distribution favouring solely the proposer. The tokens work again like money, which means that they can be exchanged for food. As a result, chimps, just like human children, chose the equitable token much more often; they made equitable offers respectively choose a more equitable split of rewards in the UG. Consequently, children and chimps are similarly sensitive to the contingencies of the UG. Further parallels between chimps and human children exist with regard to the dictator game (DG):

'In a simple choice task resembling the DG, with either a passive partner (chimpanzees) or while alone (children), both species preferentially chose a "selfish" offer that brought the majority of rewards to themselves. In the UG condition, in contrast, respondents could affect the outcome (by accepting or rejecting the offer), and both species shifted their choices to a more equitable distribution. This shift is similar to the way adult humans change their offers between DGs and UGs. Most adult humans are more selfish in DGs than in UGs' (Proctor et al., 2013, p. 3).

5. 'Animal *oeconomicus*' versus 'Animal *moralis*'

In primate research there is an intense debate going on about the nature and motivation of non-human primates. Just like humans, our closest living relatives – chimpanzees and bonobos – seem to be bipolar apes. Like humans they have a pro-social as well as a selfish side (i.e., dual motivational structure). They walk on two legs – a selfish one and a pro-social one (de Waal, 2009, p. 159). Furthermore, there is this bipolar tension between the 'animal *oeconomicus*' and the 'animal *moralis*', between self-interest and the common good as well as between competition and cooperation. Part of the 'nasty' (i.e., anti-social, egoistic) side of the primate species is the violent nature, the inborn aggressiveness as well as the Machiavellian-like power struggles. There is definitely no shortage of aggression and violent conflicts in primate societies (de Waal, 2009, p. 44ff.). On the contrary, there is plenty of on-upmanship, egoism, competition, jealousy and nastiness among primates. Power struggles

and hierarchy fights are a central part of every primate society, so that conflict is always around the corner. No primate can afford to treat everyone nicely all the time, since every individual faces harsh environmental conditions as well as competition and rivalry over food (Tomasello, 2009, p. 83), mates and territory. At the same time, primate societies in the wild are characterised by a substantial level of cooperation, close social relationships as well as far reaching social embeddedness and social cohesion. Primates are – up to a certain degree – cooperative and empathetic animals that need to work hard to keep selfish and aggressive urges under control. Although they are highly competitive animals they have the ability to engage in give-and-take; they are masters in connecting and establishing social ties, which in turn help constraining the selfish and competitive side. The right (Smithian) balance between self-interest and sympathetic concern for the welfare of others has to be found: unconditional trust, cooperation and empathy are naïve and detrimental, whereas unconstrained greed and egoism only lead to the sort of (self-destructive) dog-eat-dog world or Hobbes' (1651[2012]) *bellum omnium contra omnes*.

The debate about the nature of (human and) non-human primates is mainly shaped by two research groups, the one lead by Tomasello at the Max Planck Institute for Evolutionary Anthropology in Leipzig, the other one led by de Waal at the Living Links Centre at the Yerkes National Primate Research Center in Atlanta. The primate research debate revolves around the following questions: are our closest living relatives rational utility maximisers? Are they sensitive to fairness and (in-)equity? How do they solve collective action problems and prisoners' dilemma-like situations? Does third-party punishment of free-riders and defectors occur in non-human primates?

According to a study conducted by the Tomasello group in 2007, chimpanzees are rational utility maximisers and more or less insensitive to fairness. Contrary to humans, chimpanzees show only a very limited version of other-regarding preferences or inequity aversion, that is, aversion towards inequitable outcomes. Instead, they behave more like *Homines oeconomici* and act in accordance with the self-interest economic model. In their study, Tomasello and colleagues tested chimpanzees in a *mini-ultimatum game*, a game in '... which proposers are given a choice between making one of two pre-set offers [typically a fair (50/50) versus an unfair split (80/20)] which the responder can then accept or reject' (Jensen et al., 2007a, p. 107). In an UG with humans, proposers typically make offers of 40-50% and responders typically reject offers under 20%. Testing the mini-UG on other primate species revealed that chimpanzee responders tended to accept any non-zero offer; chimps only rejected offers of zero. Even worse, chimpanzees offered the most selfish offer (the smallest amount possible). This is exactly what the self-interest principle or the *Homo oeconomicus* model would predict. The authors conclude that since chimps show only limited concern for others – i.e., other-regarding preferences – or a very basic concern for fairness and reciprocity, they differ fundamentally from humans. A full sense of fairness and justice (including a willingness to cooperate and to punish non-cooperators) seems to be uniquely human.

In a further study, the Tomasello group tested chimpanzees and bonobos to discover whether they are sensitive to food theft and punish thieves in response. In the *ultimatum theft game*, a bonobo or chimpanzee proposer consistently steals food from responders. Although one would expect signs of arousal as well as attempts to punish thieves, responders still accepted all positive offers (i.e., no rejection of non-zero offers) without punishing thieves or showing signs of anger (Jensen et al., 2007b; Skoyles, 2011). This indifference towards outcomes confirms previous findings of the Tomasello research group. Moreover, it extends the results of their previous studies to socially more tolerant bonobos, the other 'Pan species' beside chimpanzees: even bonobos did not punish unfair outcomes or actions or display

sensitivity to fairness and equity. The rejection rates of bonobos and chimpanzees were similar. The authors conclude with regard to the evolutionary origins of fairness norms:

‘... bonobos, like chimpanzees, are self-regarding in an ultimatum game that uses unfair actions to produce unfair outcomes. Both apes act like rational maximisers, with no concern for fairness or the effect of their choices on the outcomes affecting others. This finding is very different from what is found in humans, including children. While humans are strongly affected by concerns for fair allocations and fair intent, chimpanzees and bonobos do not appear to be. Concern for fairness and other-regarding preferences may thus be a derived trait in humans.’

In summary, only ‘[h]umans but not chimpanzees [and bonobos] punish unfair offers in ultimatum games, suggesting that fairness concerns evolved sometime after the split between the lineages that gave rise to *Homo* and *Pan*’ (Kaiser et al., 2012, p. 944 and p. 942).

Riedl, Jensen, Call and Tomasello (2012) further investigate whether chimpanzees engage in *third-party punishment* of free riders and defectors. Social punishment is essential in order to maintain and stabilise cooperation by deterring non-cooperation, opportunism, free-riding and cheating. In the case of third-party punishment, individuals impose sanctions on a perceived transgressor or social norm violator for uncooperative acts even when the punishers themselves are not directly affected and when it is costly to do so. Riedl et al. (2012) conducted one of the first third-party punishment studies with non-human animals in order to determine whether human third-party punishment and norm enforcement have their evolutionary origins in other great apes. Chimpanzees were confronted with third-party theft in the form of stolen food. The experimenters expected that if chimpanzees were sensitive to third-party violations, they would react most strongly to third-party theft in which one chimpanzee – the thief – stole food from another individual – the victim. Furthermore, they investigated whether dominant individuals like alpha males are more likely than subordinates to use coercive and punitive strategies and whether kin-based nepotism leads to more retaliation. The key findings are that chimps punish those who take food away from them directly, but they do not punish third parties, that is, individuals who steal food from others, for their violations of cooperative behaviour. In addition, dominant chimpanzees are more likely than subordinates to retaliate when they are stolen from. Yet dominants rarely intervene by punishing third parties. Even kin-based relatedness with the victim does not induce third-party punishment. In general, chimpanzees do punish others, but they do not do so when they are not personally affected. In contrast to humans, an apparent tolerance of free-loaders exists: chimpanzees engage in second-party punishment (where a punisher gains for directly securing a resource) but not in third-party punishment (which reveals a sensitivity of the punisher to social norms applicable to all). According to Riedl and colleagues, chimpanzees do not cooperate in the same manner or to the same degree as humans, although they have a primitive(!) sense of fairness and sociality. From the perspective of the Riedl et al. study it is at least questionable whether they are averse to inequity.

The last study worth mentioning deals with chimpanzees solving *collective action problems*. Schneider, Melis and Tomasello (2012) found that pushers tended to be individuals higher in rank, while free-riders tended to be subordinate individuals. Dominant or higher-ranked individuals who pushed had the security of knowing that they would be rewarded for their effort. They were always assured a share of the reward, which lessened the risk of

action. It is therefore in their own interest to provide public goods even when case-by-case free-riding occurs. For subordinates, however, the situation looks different: they usually pay a very high price for pushing as they are typically unable to gain much access to the reward and thus they tend not to act or volunteer. In sum, chimpanzees are able to overcome volunteer's dilemma scenarios, but they have a limited set of mechanisms available to do so.

The Tomasello research group studies show that apes (mainly) act in a self-interested manner. In contrast to the human tendency to split rewards more or less equally, non-human primates offered the smallest amount possible and respondents accepted virtually all offers. Here apes appear as rational utility maximisers. The studies also showed that chimps and other great apes are more competitive (especially over food and other resources) and less socially tolerant; they only have a limited sense of fairness, pointing towards a gap between humans and great apes. Apparently, apes are much more self-focused or self-centred, which explains their egoistic behaviour; a shared intentionality and a 'we'-mode seem to be much less developed (Tomasello, 2009). Nevertheless, a basic form of cooperation and collaboration and a limited sense of fairness – although a self-focused one – cannot be denied.

The Tomasello research group studies, however, differ sharply from the UG and DG studies conducted by the de Waal research group. In a recent token economy study, Proctor, Williamson, de Waal and Brosnan (2013) found that non-human primates such as chimps and capuchin monkeys resemble humans in their decisions about cooperation and aversion to inequitable reward distribution (Wolkenten et al., 2007); e.g., chimps make equitable and fair offers in UG (Milinski, 2013). Moreover, chimps protest against inequity in experimental settings, indicating that they are up to a certain degree sensitive towards unequal outcomes and that (basic) social norms among chimps exist.

In a further *Pro-social Choice Test* (PCT) by Suchak and de Waal (2012), capuchin monkeys were spontaneously pro-social, selecting pro-social tokens which rewarded both individuals much more often than the selfish ones that rewarded the chooser only. Interestingly, they assisted or benefited their partners regardless of whether they were paired with an in-group or an out-group conspecific (de Waal et al., 2008, p. 13685). Not only did capuchin monkeys show pro-social tendencies and social reciprocity, they were also quite sensitive to inequity as well as to payoff distribution: They behaved pro-socially unless their partner received a higher-quality reward, e.g., grapes instead of apples. The results of this study have been replicated with PCT as well as in *giving assistance tests* with chimpanzees and bonobos (Horner et al., 2011). In the latter, individuals can choose between providing instrumental help to other individuals pursuing a recognizable goal (e.g., out-of-reach object) or doing nothing. The controlled experiments by Horner et al. show that chimpanzees as well as the chimpanzees' congener, the bonobo, were proactively pro-social: They showed helping behaviour, sensitivity to the needs of others as well as pro-social preferences (i.e., they picked the pro-social token considerably more often). One reason for this might be that all participants in this study were female. Interestingly, high-ranking individuals tended to behave more pro-socially than subordinates. Furthermore, there was no correlation between pro-social choice on the one hand, and kinship, affiliation and rank on the other hand: Chimps behaved equally pro-socially towards all partners regardless of whether they were kin or unrelated group-mates (Barnes et al., 2008).

These results are compatible with chimpanzee behaviour in the field. Here chimps routinely cooperate in defending territories; they form coalitions, hunt together in groups, share food, engage in reciprocal exchanges and targeted helping, mutually groom and console each other. A high rate of pro-social behaviour, successful cooperation and sharing of rewards exists in the wild chimpanzee's natural social life. The reason for this is that

chimps that do not share food with others are more likely to encounter threats and temper tantrums; e.g., chimps may refuse to share with others who did not previously groom them.

As the debate between Tomasello's and de Waal's research groups has shown, the empirical results are not consistent. Some research suggests that apes are somewhat indifferent to the welfare of other group members, highly competitive and less socially tolerant, while other research suggests that apes are motivated to provide benefits to others and respond positively to the needs of others. Although the empirical results are reliable and robust, we receive seemingly incompatible conclusions about social preferences in apes, pointing once again to the complex, multi-faceted and dual nature of (non-)human primates: They are walking on two legs – a selfish and a pro-social one. Equally important is the fact that apes – just like humans – behave differently in different contexts (cooperative vs. competitive environments) (Maestripiere, 2012, p. 109ff.): Some primate species' lives are filled with frequent aggression and violence, while others are filled with peaceful communitarianism, cooperation and egalitarianism, pointing to the interplay of evolution and ecology. Social structures and ecological settings matter! In cooperation with genes and the biological heritage, the environment and social milieu influences behaviour (i.e., behavioural and brain plasticity due to epigenetical factors). Of particular importance is the sex ratio, the question whether females or males are predominant. In harsh and competitive environmental conditions – when survival is at stake – primates tend to behave counter-empathetic with competitors. Under these conditions rivals are treated with hostility and primates show the opposite of empathy. In a cooperative setting, however, non-human as well as human primates are much more empathetic with their respective partners (Sapolsky, 2010; Silk, 2009). The studies also point at evolutionary continuity (i.e., the evolutionary origins of human cooperation date back to our closest living relatives) and our primate legacy, that is, gradual differences as well as parallels in the behaviour of apes and humans can be detected (see the next section).

6. Human vs. Non-Human Primate Societies

Altruistic behaviour is widespread in nature (Maestripiere, 2012, p. 171ff.), but typically limited to kin and reciprocating partners. It is a form of sacrificing behaviour that is costly to the actor and beneficial to the recipient in that it increases the recipient's fitness. In primate societies, the most common forms of altruistic behaviour are social grooming, coalitionary support, alarm-calling, parental care and food-sharing. Primate research now gives information on the evolutionary foundation and deployment of morality in general and reciprocal altruism in particular.

Morality originally evolved in small face-to-face (primate) communities consisting mainly of close kin (e.g., relatives). It is dependent on biological imperatives such as survival and reproduction. That is why morality is kin-biased (kin selection theory) (Hamilton, 1964; Maynard Smith, 1964; Wilson, 2012) or biased towards reciprocating partners (reciprocal altruism).⁶ In primates, in-group favouritism and nepotistic biases exist: Social interactions, e.g., cooperative breeding and coalitionary support, are typically restricted to group members that have strong social bonds. Responses towards strangers and members of neighbouring groups range from passive avoidance to active hostility. So far, there is only little empirical evidence of cooperation among members of neighbouring primate groups in the wild. Thus

⁶ Trivers, 1971; Bolton and Ockenfels, 2000; Falk and Fischbacher, 2000; Gintis, 2000; Fehr, Fischbacher and Gächter, 2002; Bowles and Gintis, 2004; Fehr and Schmidt, 1999; Fehr and Fischbacher, 2003; Axelrod and Hamilton, 1981; Silk, 2009.

non-human primate societies function considerably more on the basis of kinship, nepotism and direct reciprocity compared to human primate societies (Tomasello, 2009).

Humans, however, rely on cooperation to a far greater extent than most other animals do (i.e., large-scale collaboration within socio-cultural institutions). They are able to orchestrate cooperation in substantially larger groups which is not kin-based or limited to familiar group members such as close kin, mates and reciprocating partners. The pattern of cooperation (i.e., scope and scale) is different in the sense that humans have a general disposition to behave altruistically to others and extend (reciprocally) altruistic behaviour towards strangers (Silk, 2009; Silk and House, 2011). Humans are one of the rare animal species that regularly provide aid to strangers and impose costly punishment on defectors and non-cooperators in anonymous, one-shot interactions. Cooperation in humans is based on a willingness to impose costly punishment on those who shirk social obligations. It is motivated by other-regarding and pro-social preferences based on concern for others, empathy and inequity aversion.

Non-human primate behaviour can now be explained by individuals' attempts to reward those individuals who help them and punish those individuals who hurt them, i.e., rectify wrongs and reward good behaviour. Altruism by one individual, therefore, enhances the likelihood of cooperation by the other (i.e., contingent cooperation or altruism towards direct-reciprocating partners). Human primates – as well as other species such as eusocial insects –, however, often punish individuals that violate social norms or fail to cooperate, even when they are not directly affected or harmed. This form of punishment is called *altruistic or third-party punishment*. Such behaviour is altruistic because the individual who imposes sanctions incurs a cost, while the benefits are widely shared by other group members. Altruistic punishment helps to stabilise social cooperation. It carries short-term costs for an individual since sanctioning is costly, but this 'investment' is more than recouped by the long-term gains of being treated fairly in the near future.

Altruistic punishment which benefits the group has to be distinguished from punitive action which benefits the individual. Individual-level selection favours the latter one (*retaliation*) since it generates direct fitness benefits for the self-interested individual actor. Group selection, however, favours collaboration and altruistic punishment since it generates benefits for the whole group (Wilson, 2012). Retaliation is widespread in non-human primate groups. There is some (limited) empirical evidence and anecdotes for altruistic punishment in non-human primates (Silk, 2009), suggesting that apes punish norm-violators and non-cooperators. In some non-human primate species, policing individuals mediate disputes among other group members. Impartial mediation and conflict resolution ideally brings disputes to a speedy end, thus reducing the costs incurred by the participants and avoiding the possibility of escalating conflicts.

Empirical research on the behaviour of chimps and other great apes in captivity and in the wild has led to the conclusion that a basic sense of justice and fairness exists in their societies, e.g., they assist other individuals who are victims of attempted theft. Both chimps and capuchin monkeys commonly share food among adults as well as unrelated (non-kin) individuals. They not only share food; they also tend to do so reciprocally, which means that they share food more often with those who shared with them (i.e., contingent cooperation). As such, food sharing appears to be a special form of repayment for a service. Capuchins, for example, are more likely to share food with a partner who recently helped them in a cooperative task such as successful hunts (i.e., hunting prey together requires a cooperative effort and a coordination of hunting behaviour). Other sharing services include grooming (Silk 2009) and coalitionary support, e.g., cooperative defence against predators and competitors. Furthermore, they seem to be sensitive to the distribution of rewards in a cooperative task,

which implies sensitivity to payoffs. Monkeys and apes are apparently aware of their partner both as potential cooperators and competitors. They seem to be sensitive to the social context, whether it is a cooperative or competitive environment, and cooperate significantly more frequently with socially tolerant partners. Moreover, it seems as if socio-economic interactions in non-human primate life are based on a primitive form of social capital consisting of trust, personal networks, communication and reciprocal altruism. Here the fulfilment of expectations and obligations according to the motto *quid pro quo* is essential. Monkeys and apes test the strength of their social bonds by playing *trust games* such as hand-sniffing, eyeball poking and fondling of genitalia (de Waal, 2009, p. 164ff.; Maestripiere, 2012, p. 186ff.). They seem to recall previous favours such as grooming and establish a buddy system of mutually positive partnerships. A clear tendency to return favours apparently exists. This kind of exchange must rest on memory of previous events combined with a psychological mechanism similar to gratitude, that is, positive feelings toward an individual whose act of kindness the other individual recalls. Sharing food and other items fosters cooperation in animal communities. Monkeys and apes seem to connect effort with compensation and reward, so that joint effort requires joint rewards. Their relationships seem to rest on direct reciprocity and mutualism. Especially chimps look back, remembering previous events very clearly. De Waal (2009, p. 178ff.) speaks in this regard of 'deliberate and calculated reciprocity'. Chimps and other great apes do not only look back, they also seem to look forward anticipating events; e.g., they treat others nicely so as to curry favours. As such, chimps and other apes may have foresight and planning abilities following the motto 'If I do this for another individual, I may get that in return'. Interestingly, kinship is not necessarily required for chimps to work closely together; cooperation and reciprocal altruism among non-relatives also exists. Moreover, chimps and other great apes show signs of other-regarding feelings as well as inequity aversion. They are apparently sensitive to unequal treatment – at least up to a certain degree – and engage in 'tit for tat' strategies (to discourage exploitation and free riding, defectors and non-cooperators must be punished).

However, according to de Waal (2009, p. 190) and others, monkeys (and to a lesser degree also apes) have an egocentric version of fairness and justice – one which distinguishes them from human primates. They seem to exhibit disapproval or approval of certain kinds of behaviour, and distinguish between acceptable and non-acceptable actions according to the foreseeable outcomes for themselves; e.g., inequity aversion implies a reaction to both over and under-compensation whereas advantageous inequity is typically preferred to disadvantageous inequity. In apes, basic fairness norms seem to exist (although they differ substantially from human fairness norms). They seem to monitor their interactions more closely and keep better track of each individual's contributions to common goals. They also seem to be able to establish prescriptive social rules. Although primates show altruistic (as well as egoistic) behaviour, it is questionable whether they do so intentionally. The question is whether they behave altruistically on a motivational or intentional level. According to de Waal (2008), animals – contrary to humans who are capable of intentional altruism – only show motivational altruism. Lots of animal altruism is merely functional or instrumental, while intentional (pure altruistic) helping behaviour seems to be restricted to the great apes and some other mammals with large brain size (de Waal, 2008, p. 199). In summary, retributive, friendly emotions such as gratitude (based on a psychological and memory-based process) as well as mutual expectations and prescriptive rules seem to exist. The fundamental difference between a human and a non-human sense of fairness is that the non-human sense is more egocentric than the human one (this is especially true for monkeys); thus, a complete sense of fairness seems to be non-existent for non-human animals.

Following Brosnan (2009, p. 291ff.), four steps in the evolution of the inequity response have to be distinguished:

- (1) The ability to notice when rewards differ between individuals. This first step requires advanced cognition to compare one's own rewards with those of another individual as well as social learning.
- (2) React negatively to discrepancies in the rewards between oneself and another individual. This second step requires individuals not only to notice the results or outcomes of another individual, but also to respond negatively to this difference in payoffs. This capability provides a fitness benefit for the individual, if this negative reaction to inequity leads individuals to look out for new partners who might be more equitable (i.e., shopping around for better partners).
- (3) Take deliberate and cognitive action to rectify inequity towards the self. This third step requires a concise understanding of how one's own behaviour will affect the payoff of the partner, as well as an ability to inhibit, hold back and give up the immediate reward.
- (4) Reaction towards overcompensation or advantageous inequity aversion. Individuals are uncomfortable when the partner receives less than they themselves do and consequently strive for material compensation.

All four stages need to be developed in order to consider the reaction a true sense of fairness or justice. So far, only humans possess this kind of sense of fairness and justice. If, for example, a reaction to overcompensation is missing, the response is a one-sided reaction which is self-centred and ego-centric. Both chimps and capuchins respond negatively when receiving less reward than a partner individual. As such, the response in non-human primates differs from the one in humans. The primary difference is the following: While humans treat fairness as a norm (including both over- and under-compensation), non-human primates seem to be more interested in their own outcome and do not react when receiving more than their partner. What is missing is an equivalent reaction to overcompensation (Brosnan, 2009).

In summary, the (gradual) differences between human and non-human primates include the following aspects: apes show considerably more often egoistic and selfish behaviour (they fail to suppress or transcend their natural selfishness); they are less cooperative and less altruistic (Tomasello, 2009, p. 14ff.) (although they have a basic sense of altruism and cooperation); they are highly competitive especially over food and less socially tolerant; they operate only with some basic social norms of fairness and justice; these norms are moreover often self-focused and self-centred; apes also lack a full sense of shared intentionality and a full 'we'-sense: they usually engage in group activity in 'I'-mode, not in 'we'-mode (Tomasello, 2009, p. 63). This fully developed shared intentionality and 'we'-mode is uniquely human. Only humans engage in large-scale and mutually beneficial collaborative activities (apes, on the contrary, participate much less often in activities that yield group-level benefits; and if they do so, their behaviour is more likely to be based on kinship, nepotism and direct reciprocity). The remarkable human capacity for collaboration makes it possible that humans are able to orchestrate cooperation within large-scale and anonymous groups of individuals with partially conflicting interests. Collaboration requires social norms of fairness and justice, that is socially agreed-upon and mutually known expectations bearing social force, monitored and enforced by third parties (Tomasello, 2009, p. 87). In shared cooperative activities, the co-operators must be mutually responsive to each other's intentional states; they need to coordinate roles and develop interpersonal trust and commitments. Collaboration

also requires shared intentionality, that is, joint intentions and joint commitments in cooperative endeavours and cooperative groupthink.

To get from ape group activities to human collaboration, three basic sets of processes are required (Tomasello, 2009, p. 54ff.):

1. Socio-cognitive intelligence, skills and motivations for shared intentionality, collaboration, communication and social learning.;
2. Tolerance and trust.
3. Social norms and cultural institutions.

Apes lack the full and comprehensive socio-cognitive capacity for joint attention, mutual common knowledge and a sense of inter-subjectivity and interdependency. Only humans show a distinct commitment to joint goals (i.e., shared intentionality) and act in a distinct 'we'-mode (i.e., human uniqueness and distinctiveness). They are also able to internalize social norms (i.e., social norms of cooperation, norms of conformity and moral norms) – often accompanied by the feelings of shame and guilt; this helps to transcend selfishness and transforms problems of competition into those of collaboration. Last but not least, humans show more concern for others wellbeing than apes do; other-regarding preferences and pro-social behaviour are considerably more pronounced in human than non-human primates.

7. 'Lessons' Learnt From Primate Research

The following ten insights can be gained from primate research:

1. Human and non-human primates display a complex and multi-faceted anthropological nature. A dualism or heterogeneity of motives exists; self-interest and altruistic motives (partially) conflict with each other (i.e., *dual motive theory*).
2. Human and non-human primates stand on two legs (*animal duplex*): a self-interested one and a pro-social one. A bipolar tension exists between the 'animal oeconomicus' and the 'animal culturalis' or 'animal moralis'. This dual nature can be explained with evolutionary models such as triune brain theory.
3. Human and non-human primates are 'equipped' with pro-social/other-regarding preferences, a basic sense of fairness and inequity aversion. Both engage in reciprocal altruism and altruistic punishment – albeit to differing degrees.
4. Empathy, ToM and mirror neurons are present both in human and non-human primates (albeit to differing degrees). They are essential for other-regarding preferences, which translate into pro-social behaviour.
5. The context determines whether the selfish or the pro-social side dominates. In competitive environments, human and non-human primates commonly behave in a more self-interested and even egoistic way, while in a cooperative environment they behave more pro-socially and are common-good oriented.
6. Selfish behaviour is more likely when interacting with strangers and out-group members that are not kin-based or when the level of anonymity is large. Moreover, when the partner is not visible and/or present and when no reputation or social capital effects are involved, individuals behave more in line with the self-interest 'animal oeconomicus' model. Furthermore, human and non-human primates behave similarly in UG and DG. In UG, where reputation is at stake, individuals behave more pro-

socially, while in DG, where the level of anonymity is much higher than in UG, individuals typically behave considerably more selfishly.

7. Institutions matter! The formal and informal institutional framework is decisive in steering individuals' behaviour either in a more competitive or in a more cooperative direction. The behaviour of humans will be either more self-interested or more pro-socially oriented depending on socialisation, education, socio-economic policies as well as the respective (formal-jurisdictional) enforcement, monitoring and sanctioning mechanisms.
8. Different evolutionary forces are at play (i.e., multi-level natural selection): individual selection explains self-interested behaviour aiming at survival and reproduction, while group selection helps to explain the evolution of eusociality (i.e., collaboration and social norms of fairness).
9. The evolutionary origins of human morality can be traced back to animal sociality (and morality). According to the gradualism hypothesis of de Waal, evolutionary continuity between monkeys, apes and humans exists. Human morality is just a further development or advancement of animal morality and sociality. While non-human primates display a more egocentric version of fairness, human morality can under certain preconditions transcend egoism and selfishness. Furthermore, it is able to transcend tribalism, nepotism and in-group biases (human morality is commonly applied towards (reciprocating) in-group partners as well as strangers and out-group members). It thus opens up new possibilities for large-scale collaboration beyond local, regional and national boundaries.
10. Last but not least, although empirical evidence for evolutionary continuity and our primate legacy exists, the differences between human and non-human primates should not be neglected. Uniquely human are (the degree of) shared or 'we'-intentionality. Human primates are considerably more socially tolerant and cooperative; at the same time, they are less egoistic and less competitive.

The aforementioned insights gained from animal research illustrate how ethology and primatology in combination with behavioural economics and neuroscience can enrich economics as well as (economic) ethics. In particular, they might help to lay the foundations of a more realistic idea of man and to transcend the anthropological foundations of *Homo oeconomicus*. But further interdisciplinary research is required to fully grasp the moral foundations of human behaviour.

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