

Family matters  
Economy, culture and biology: fertility and its constraints in Roman Italy

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Abstract: This article approaches the phenomenon of fertility in Roman Italy from a range of perspectives. Building on anthropological and economic theory, sociology and human evolutionary ecology various processes that affect fertility patterns by influencing human behaviour are set out. The insights provided by these disciplines offer valuable tools for our understanding of fertility in the ancient world, and enable assessment of the likelihood of historical demographic scenarios proffered. On their basis, I argue that there is little force in the argument that attributes a perceived demographic decline during the Late Roman Republic to a drop in fertility levels amongst the mass of the Roman population.

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# **Family matters.**

## **Economy, culture and biology: fertility and its constraints in Roman Italy\***

### **1 Introduction**

Expansion was characteristic of Italy during the Late Roman Republic. In Brunt's view, as expressed in his still influential *Italian Manpower*, this expansion coincided with absence of natural demographic growth among Roman citizens. According to him, it was not just (excess) mortality that curbed growth, but also a deliberate limitation of fertility by all Romans that was induced by economic motivations. As he put it: 'If the rich sought to limit the number of their children in order to keep together their wealth, smaller proprietors will have acted in the same way, in order to protect their natural heirs against penury. (...) Thus the rich and the peasant proprietors (or tenants) must have desired to restrict the number of their children. The proletarii simply could not afford them. For this reason, as contended earlier, many must have remained celibate; if they chose to marry, or if they already had wives before they fell into destitution, they had every motive to avoid procreation in the first place, and if they failed in this, to abstain from rearing the children born'.<sup>1</sup>

However, the theory concerning fertility behaviour during the Late Roman Republic that has been put forward by Brunt depends largely on such viewpoints as have become controversial in the discipline of demography. Rather than purely economic and rational in scope, decision making processes - such as those concerning marriage and procreation - are embedded in specific cultural and social settings that affect outcomes through the creation or upholding of practical, structural, normative or perceived constraints. It is this notion that has been put forward decades ago against traditional rational choice theory, which originates from the discipline of economics and assumes that human behaviour is the result of decisions made by rational preference ranking. The shortcomings of RCT have been revealed by experimental economics and game theory, and affected a wide range of disciplines.<sup>2</sup> Criticism of the focus on economic rationality in scientific approaches toward fertility behaviour emerged with the failure of the European Fertility Project to explain the timing of fertility declines in purely economic terms.<sup>3</sup> Perspectives from the fields of cultural anthropology and human evolutionary ecology have since then been employed to approach the phenomenon of fertility. Therefore, a reappraisal of the processes and interactions underlying fertility behaviour that accommodate the insights of a wider range of approaches seems due.

### **2 Economic incentives: children as an asset to the household**

The most influential view that has emerged in the field of anthropological demography concerning fertility amongst pre-transitional societies, Caldwell's Wealth Flows Theory, stands in marked opposition to Brunt's idea that deliberate fertility limitation was widespread among the inhabitants of Roman Italy. It argues instead that pre-industrial societies are characterized by high fertility amongst the mass of the poor since in societies where education costs are low or non-existent children are an economic asset to their parents.<sup>4</sup> Through the positive contributions of their labour to their family's income, as well as through their insurance value in times of danger, disaster, and parent's old age, children compensate for the little food and other means of subsistence (mainly clothing) they need. Net lifetime wealth flows run upwards from children to parents; benefits outweigh costs and procreation is stimulated.<sup>5</sup> As such, high fertility rather than fertility limitation

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\* I wish to thank Jeremia Pelgrom, Luuk de Ligt, Paul Erdkamp and Walter Scheidel for their comments.

<sup>1</sup> Brunt (1987<sup>2</sup>), p. 142-143.

<sup>2</sup> Cf. Boudon (1998). In the field of political science, for example, rational choice theory has sparked criticism for its inability to explain voting behaviour. Cf. e.g. Landemore (2004) who quite correctly describes her article 'Politics and the Economist-King: Is Rational Choice Theory the Science of Choice?' as "another unapologetic contribution to 'the gentle art of rational choice bashing' ". An amalgam of responses has been put forward by rational choice theorists in different disciplines, e.g. through the addition of the concepts of 'bounded rationality' (Simon 1957) and 'unintended consequences of individual rational action'. For criticism on rational actor models in a demographic context, cf. Riley and McCarthy (2003), p. 85f.

<sup>3</sup> Roth (2004); De Bruijn (2006), p. 552f.

<sup>4</sup> First presented in Caldwell (1982) and thereafter elaborated in numerous publications; most recently in Caldwell (2005) where he states (p. 721-723) that people in pre-industrial societies had 'rational reasons for not adopting contraception'.

<sup>5</sup> Caldwell (2005), p. 334.

is economically rational, and poverty and fertility in the context of pre-industrial societies show a positive rather than a negative correlation.

Yet in the wake of Caldwell's first publication a substantial debate has emerged in the fields of anthropology and demography as to whether children in pre-industrial societies actually compensate for their consumption, and, if so, at which age benefits start outweighing costs. A wide range of ages have been designated as break-even points. Whereas some argue that a child already produces more than it consumes by about age twelve, others hold that the break-even point (that is, exclusive of compensation for deficits previously accumulated) is only reached somewhere between age 20 and 29 – and, accordingly, that children are a net drain or even a substantial net drain on household resources.<sup>6</sup> The range of outcomes provided by the anthropological surveys is indicative of the seriousness of their methodological shortcomings. Lower labour productivity of children relative to adults as well as consumption costs are often not accounted for. Children's net contributions to the income of the household therefore tend to be overestimated.<sup>7</sup>

In fact, it seems to be only outside the context of smallholder agriculture that children are an economic asset: in non-familial labour contexts they can make long hours day in day out and overcome the negative effects of structural underemployment that prevail in pre-modern agricultural systems like that of Roman Italy. On a farm where there is on average little work to do throughout the year their opportunities to contribute are simply too scanty to compensate. In as far as the ancient evidence suggests that their labour contributions made children economically beneficial to their parents during childhood, it is outside the agricultural context. This is exactly what the picture sketched by Caldwell with reference to Bradley shows, notwithstanding the fact that he presents it as it though it were characteristic of any Roman childhood spent outside the upper-class: 'lower-class children were put to work around ten years of age, working from dawn to sunset and placing their earnings in the common family budget', the level of their earnings enhanced 'by first placing them in apprenticeships such as nailmaking, copperwork, shorthand, woolcarding, linen and mat waving and building'.<sup>8</sup> Moreover, one needs to account for the fact that Roman life expectancy at birth is thought to have been near age 25 largely because of high infant mortality, a phenomenon which drives mean costs per child upwards.<sup>9</sup> As it stands now it seems therefore that, contrary to Caldwell's assertion, wealth flows have been downward from older to younger generations in pre-transitional contexts. One of the explanations for the downward flows observed may lie in the fact that the elderly kept contributing to the family's income and did not stop working until death or until physical inability withheld them from doing so.<sup>10</sup>

If the thesis that high fertility amongst the poor was effectively the result of the economic value of children is to hold it must have been their value as an old age security investment that counted and shifted the balance to favour fertility.<sup>11</sup> Could this argue against Brunt's sketch of the demographic developments during the Late Republic? The implication of this old-age security theory shall be that in a conscious decision making process young Romans overcame the inclination to avoid investments of the most unpopular kind: those that concern long-term goals and at the same time can give but fairly weak promises on eventual returns. If we want to hold

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<sup>6</sup> Nag, White and Peet (1978), Dow and Werner (1983), De Tray (1983) and Clay and Van der Haar (1993) as well as Caldwell (2005) regard children as net contributors to the family income. Opposite conclusions based on field work are found in Mueller (1976), Stecklov (1999), Lee (2000) and Lee and Kramer (2002). Cf. as well Kaplan and Lancaster (2003), p. 122.

<sup>7</sup> Surprisingly, some of the often-cited work does not set production against consumption but somehow manages to provide the outcome of the equation based on only one part of the calculation: e.g. Nag, White and Peet (1978) and De Tray (1983). For methodological criticism on anthropological surveys in this context cf. Bardhan (1978), Mueller (1976) and Lee and Kramer (2002) do take account of consumption as well as production, and of differential productivity per hour.

<sup>8</sup> Caldwell (2004), p. 4; Bradley (1985), p. 319-320 and 323. Our best source of information consists in the Egyptian apprenticeship documents that mostly concern the sons of artisanal families working in the textile industry and slave children.

<sup>9</sup> Cf. Robinson (1997), p. 67. Woods (2007) however argues that infant mortality may well be overestimated for antiquity.

<sup>10</sup> Cf. e.g. Finley (1981), p. 160 on the elderly in classical antiquity.

<sup>11</sup> Cain (1983) and Friedlander, Okun and Segal (1999), p. 505f. Putatively the stimulus to high fertility and continued childbearing could be searched for in the assistance that children provide to their parents in nursing their younger siblings (Lee and Kramer 2002). However, this cannot explain why adults should (marry and) get children in the first place despite their poverty – which is the thesis that has been rejected by Brunt and interests us here.

that the main reason why poor young Romans got children was old-age security, possible future misfortunes must have loomed so large in their minds as to overcome human tendencies towards preoccupation with present rather than future benefits and costs. It is the assumption that they did do so that the Wealth Flows Theory may be criticized for - notwithstanding the fact that children would in fact be 'the best deal around' for many of them.<sup>12</sup> Fathers in their fifties lamenting the loss of near-adult sons in fear of a '*destitutus senectus*' tell us one thing about the expected role of children in the lives of their aged parents. But young men in their thirties may not have had the same outlook or considerations when faced with fertility decisions.

Concerning the perception of risks at illness and disability in old age though an observation by an author of the Hippocratic Corpus reminds one to take the prevailing mortality conditions in antiquity into account: '*Old men generally have less illnesses than young men; but such complaints as become chronic in old men generally last until death*'.<sup>13</sup> Healthy life expectancy fell short of overall life-expectancy by a considerably larger share than it does under modern conditions. Illnesses were, moreover, spread more evenly over the life course due to the higher prevalence of (infectious) diseases unrelated to the ageing process. Physical dependency and disability were as much a concern for the young as they were for the old and may thus have played their part in fertility decision making processes.

On the other hand, it is of importance to realize that economic dependency of the elderly has been stretched enormously by the introduction of fixed retirement ages that have not been adjusted to increasing life spans. This phenomenon should not cloud our perception of the economic dependency on children for adults in Roman Italy. In antiquity, where the elderly did not stop working after a certain age but kept contributing to the family's income, old age economic dependency started with decreasing physical ability only.<sup>14</sup> In this respect Roman Italy resembles other pre-industrial societies, where elder males in rural areas in particular continue to work on their farms (even though their descendants may now be the official owners) and thus need little actual support from their children.<sup>15</sup>

Potential alternatives to childbearing were scarce in the Roman world as capital markets were underdeveloped and insurance programs were absent. For low-income groups investments in land, livestock or slaves were mostly out of reach, especially in a period such as that of the Late Republic which was characterized by land pressure.<sup>16</sup> The most viable alternative to children for an average Roman to rely on was a younger spouse. This 'insurance system' is likely to have created sex differentials in motives to childbearing among average Roman couples. If men in their thirties facing decisions concerning investment in children perceived old age as an upcoming threat, those who had a substantially younger wife may not have considered it necessary to invest in children as well. The latter could provide a substantial source of security in these cases<sup>17</sup> – but as the wives were prone to survive their husbands, and not all of them remarried, they faced the reverse situation. A Roman woman would consequently be dependent upon children or lateral relatives during her old age. For this reason, she had more to gain from childbearing in the *longue durée*.<sup>18</sup>

### 3 Genes and 'memes': biology vs. culture?

The criticism addressed to economic theories of fertility emerged after the thought that the onset of fertility decline was the result of economic factors came to be empirically contradicted and the

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<sup>12</sup> Lee (2000), p. 47.

<sup>13</sup> Hippocrates, *Aphorisms* 2.39 (transl. W. Jones): 'Οἱ πρεσβύτεροι τῶν νέων τὰ μὲν πολλὰ νοσέουσιν ἥσσον· ὅσα δὲ ἂν αὐτοῖσι χρόνια νοσήματα γένηται, τὰ πολλὰ συναποθνήσκει'.

<sup>14</sup> Cf. Finley (1981), p. 160.

<sup>15</sup> This situation may be explained in economic terms, i.e. the pressure of poverty. But ongoing activity might as well be correlated with the wish to keep pulling the strings and be in charge – and in control – of the family enterprise. Data on labour input by older rural males: Mueller (1976).

<sup>16</sup> Cf. Nugent (1985), p. 75f; Razin and Sadka (1995), p. 23f. and Robinson (1997), p. 66 on these alternative means to secure future well-being.

<sup>17</sup> Nugent (1985), p. 80f. with note 25: in several societies both men and women have been observed to take younger spouses for the specific purpose of providing for care during old age and disability – often in a context of polyandry or polygyny.

<sup>18</sup> In anthropological field research, women tend to assign larger importance to children for their long-term well-being than men do: Kagitcibasi (1982).

dominant consensus, to speak with Alter, 'dramatically shattered'.<sup>19</sup> Economic development had been thought to be the key explanatory variable, with fertility levels decreasing first in the most developed countries and following upon mortality decreases. But data from Hungary, France, the Indian state of Kerala, Bangladesh, Sri Lanka and China called both elements of the pattern into question. Socioeconomic factors emphasized hitherto by transition theory appeared to be either spurious or inconsistent in their explanatory value as to the timing or tempo of the decline in fertility. Though a branch of demography still attempts to explain away the various 'outliers' in order to retain a coherent, general theory of fertility decline it is now generally accepted that instead of one road heading for Rome, 'there seem to be many roads to lower fertility, and onset and pace of the decline cannot be predicted anywhere near satisfactorily'.<sup>20</sup> This acceptance is the result of a shift in focus towards factors other than the economic value of offspring that affect people's reproductive behaviour.

But notwithstanding the attention paid to the complexity of the phenomenon and our inability to explain its occurrence in a straightforward and coherent manner over time and place, scientists now agree that declines in the number of offspring per woman show a very strong correlation with what tends to be described as "the empowerment" of women. Education and professional development have been designated as factors of main importance in explaining marked diminishment in (or even the entire disappearance of) procreation through genes among women. Since both education and professional development tend to compete with motherhood for time- and other forms of investments, their accessibility may alter preferences and distort reproductive behaviour.<sup>21</sup> Rather than the (increased) absolute costs of children per se, intra-group variation in number of children among high opportunity groups in modern societies are explained by differential values attached to alternatives for genetic replication. Apart from education and/or professional development, these may obviously include an array of consumption goods and services to which access has boosted. From a human evolutionary perspective, one might say that 'genes' as sexual replicators compete with the cultural replicators that have been labeled as 'memes' for prime position in cost-benefit balancing connected with fertility decisions.<sup>22</sup> If access to means that enable memetic replication plays a major role in limiting fertility, inversely one might suppose that in the absence of strong memetic competitors, genes become the winners.

For women in ancient Italy alternatives to genetic replication were far from omnipresent – non-familial labour opportunities were restrained due to structural underemployment as well as the availability of slave women, while education was not within reach for the overwhelming majority of them. These structural conditions fit the average pattern for pre-modern agrarian societies, where the overwhelming majority of people is illiterate and lives in relatively isolated villages. In such contexts cultural transmission is overwhelmingly vertical, not horizontal, since for the majority of the population the family is the most significant social institution where production, consumption and socialization concentrate. This favours norms that encourage reproduction in order to increase the power of one's lineage, and leads to the depiction of childlessness as a condition of misfortune.<sup>23</sup>

In Latin literature we find overwhelming evidence for the idealization of motherhood and family oriented values – in political, religious and social contexts. We may truly speak of a standard catalogue of female virtues that stresses marital fidelity, wifely and motherly devotion

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<sup>19</sup> Alter (1992).

<sup>20</sup> De Bruijn (2006), p. 553.

<sup>21</sup> There is a vast body of literature on the importance of the 'agency role' and/or 'status' of women for the reduction of fertility, notably on the role of education. Cf. e.g. Sen (1999), p. 195f.; McDonald (2000) and Presser and Sen (2000). The suggestion made by the economist-demographer Folbre (2001), p. 373 that 'perhaps what policymakers [i.e. in Western countries worrying about fertility decline] consider the optimal rate of population growth requires some optimal level of female empowerment (just enough but not too much)' is bizarre but telling.

<sup>22</sup> On 'memes' as replicators, cf. Dawkins (1989<sup>2</sup>), ch. 11. They can be defined as cultural self-replicating units of transmission or 'units of cultural inheritance'. See also Richerson and Boyd (2005), p. 70f and 150f for the 'Dual Inheritance Theory' on the independent co-evolution of genes and memes. The problem is of course that ultimately the inclusive fitness of memes is dependent on that of genes. That is, memes will in the end fail to spread if genes do not. In as far as memetic reproduction overruns genetic reproduction it is therefore maladaptive behaviour.

<sup>23</sup> Richerson and Boyd (2005), p. 170.

and dedication to housework.<sup>24</sup> Others, set up for young girls, lament the fact that they died unmarried.<sup>25</sup> Relief and sculpture art tell the same story: the portrayal of women often symbolizes reproductive sexuality, dynastic continuity and marital and familial concord.<sup>26</sup> The strong normative emphasis on the virtue of motherhood discernible in the ancient sources reflects that 'in Rome, as in many societies, motherhood had always established or enhanced a woman's status' and 'fertility was associated with the general good'.<sup>27</sup> "Turia", by the preservation of her suggestion to her husband to divorce her because her infertility bereft him of the offspring *she* felt he should have, has become the embodiment of Roman procreative norms.<sup>28</sup> A reflection of her anxiousness for the creation of a next generation can be found in the attitude of a (fictive) Roman mother on what was supposed to be her daughter's wedding day: '*Our whole house was planted with laurels and alight with torches, and was blaring out the wedding hymn. At that time my poor unhappy mother was holding me in her lap and prettily decorating me with wedding finery. She was pressing honey-sweet kisses on my lips, planting now with anxious prayers the hope of children to come*'.<sup>29</sup> Richerson and Boyd's Dual Inheritance Theory points to the demographic transition as an example of how natural selection pressures for cultural adaptation may lower genetic fitness.<sup>30</sup> That is, when it is difficult to combine genetic replication with what is rewarded by culture, people may start to restrict their number of offspring in order to gain these cultural rewards. However, it is clear that among the mass of the population of Roman Italy culture and biology did not function as counteracting forces in the context of fertility. Rather, biological urges toward sexual reproduction were reinforced and even strongly encouraged by 'cultural' ideology – in which 'cultural' may be replaced by 'religious', 'social' or 'political'.

#### 4 Natural fertility and family planning

Even so, we find references to several plants and drugs described as contraceptive or abortifacient, as well as evidence of exposure and infanticide: model behaviour does not necessarily equal actual behaviour. Our question should however focus on what circumstances could have created different patterns from what one would expect given the conditions sketched above, and why. It is helpful to have a brief closer look at the material. The author of the Hippocratic corpus explains why we should trust his description of the development of the human foetus: '*You might wonder how I know this: well, I have learned much in the following way. The common prostitutes, who have frequent experience in these matters, after having been with a man know when they have become pregnant, and they destroy the child. When it has been destroyed, it drops out like a piece of flesh*'.<sup>31</sup> Other sources refer not to professional sex workers, but to elite contexts and proffer a wide range of comments that suggest that low fertility among Roman women who belonged to the upper class was common. The best known and perhaps most telling example consists in Augustus' marriage laws that penalized the unmarried and childless and rewarded the prolific.<sup>32</sup> 'Ordinary' population groups, as so often, do not get to the fore in the sources.

On the grounds that the plants and drugs mentioned by ancient authors were effective and available, however, Riddle argued that they were used on a large scale and affected overall population trends. Indeed, he pointed out that modern laboratory research and, sometimes, animal testing or their use by people in traditional societies established that at least some of the

<sup>24</sup> E.g. Forbis (1990). Cf. also CIL VI. 2, no. 10230 where a man explains why there is a standard repertoire of praise for women: the praise they all get follows 'the right precepts' and it is simple and similar because their lives are simple and similar.

<sup>25</sup> For a literary example, cf. Pliny's letter to Aefulanus Marcellinus (*Epistulae* V.15).

<sup>26</sup> As shown e.g. by Boymel Kampen (1991).

<sup>27</sup> Dixon (1988), p. 71.

<sup>28</sup> *Laudatio Turiae*, l. 25-50, in Flach (1991) and Hemelrijk (2001) (Dutch translation and commentary).

<sup>29</sup> Note that the mother is decried as 'poor' because the day ended tragically when some gladiators interfered and captured the girl; in financial terms the family was well off. Apuleius, *Metamorphoses* IV. 26.

<sup>30</sup> Richerson and Boyd (2005); Roth (2004). Cf. above, n. 22.

<sup>31</sup> Hippocrates, 8.19 (Περὶ Σαρξῶν), ed. and transl. P. Potter (Loeb): '(...) ἐπὶν ἐς τὰς ὑστέρας ἔλθῃ ὁ γόνος, ἐν ἑπτα ἡμέρησιν ἔχει ὀκόσα περὶ ἔστιν ἔχειν τοῦ σώματος· τοῦτο δὲ τις ἂν θαυμάσειν ὅπως ἐγὼ οἶδα· πολλὰ δὲ εἶδον τρόπον τοιῷδε· αἱ ἐταῖραι αἱ δημόσιαι, αἵτινες αὐτῶν πεπεύρηται πολλάκις, ὀκόταν παρὰ ἄνδρα ἔλθῃ, γινώσκουσιν ὀκόταν λάβωσιν ἐν γαστρὶ, κάπτειν διαφθείρουσιν· ἐπειδὴν δὲ ἤδη διαφθαρῆ, ἐκπίπτει ὥσπερ σάραξ·'.

<sup>32</sup> E.g. Dixon (1988), chapter 4.

plants and drugs mentioned had spermicidal effects or contained chemicals that induce distortions of the delicate hormonal balance necessary to ensure reproduction.<sup>33</sup> But the need for specific doses and specified knowledge as well as the limited availability of such herbs created barriers to their use. Moreover, methods exposed users to health risks and the effectiveness of the means were far from guaranteed.

These latter factors may well have inhibited the spread of prevention and abortion and/or rendered them ineffective to the irrelevant. Still, the theoretical possibility of the presence of family size limitation cannot be put aside given the fact that alternative means could have been employed to limit family size: infanticide and abandonment. As effectiveness, the availability of means and health risks to the mother are no issues here the topic of their prevalence creates a debate that is different in character. To a modern mind, both may seem abhorrent and thus tend to be classified as the ultimate means of last resort. But to discount abandonment and infanticide as realistic options for Roman parents imposes anachronistic thinking upon the past. Since we have clear indications in the ancient sources that Romans did not think of infanticide and abandonment in a similar manner as tends to be the case among present day industrial populations, we should refrain from any contentions based on arguments of psychological cost to sustain that these practices could not have been widespread.<sup>34</sup> It is difficult to establish to what extent they were direct effects of poverty, for they are also correlated with sex specific preferences and extramarital procreation<sup>35</sup>, but lack of economic means certainly made some people kill their daughters or leave their children - either to be found by others or not. Ancient evidence shows considerable tolerance for both.<sup>36</sup> For those who wanted to do so, there were ways to evade a large number of children.

The definition of family limitation as consisting only in 'parity-specific stopping behaviour' that is indicated by a sharp decline in births after a certain age or number, is both arbitrary and outdated. The concept of 'natural fertility' that has been defined as the absence of such behaviour likewise tends to cause confusion, but continues to be in use even though it was already labeled 'something of a misnomer' in the 1970s.<sup>37</sup> It misleadingly suggests that among pre-transitional societies fertility levels are dependent upon biological factors only, with individual pairs 'subjected' to a natural regime and any means for family limitation out of reach. In fact, there are large differences among 'natural fertility' populations, with the Hutterites having exhibited what is near biological maximum fertility at population level with a total fertility rate (TFR) of around 9.8 children per woman, and the Eskimos at the other end of scale. The latter count as a natural fertility population, but have no more than 3.5 children on average.<sup>38</sup> The variance of the natural fertility distribution is thereby more than three times as large as that of the controlled fertility distribution – a typical level of fertility in traditional societies clearly does not exist.<sup>39</sup> Still, natural fertility is a distinguishable demographic condition in that its observed lower limits substantially supersede those of non-natural fertility populations.<sup>40</sup> Family limitation that is only directed at

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<sup>33</sup> Riddle (1992), p. 32f and Riddle (1997). Caldwell (2004), p. 7-8 challenges Riddle's findings on the effectiveness of some of them, but solely presents material that antedates Riddle's work and fails to convince on this specific matter.

<sup>34</sup> As to the acceptance and prevalence of various means of family limitation, Russia and the US provide an instructive example of the extent to which these are biased in a culture-specific manner. In contrast to the US, in Russia abortion was fully accepted as the primary means of family limitation and employed on a very large scale. Cf. for Russian abortion rates Popov, Visser and Ketting (1993), p. 233 (1987: reported figures amount to nearly three abortions per woman over the reproductive years; adjustment for underreport leads to an estimated lifetime rate of five).

<sup>35</sup> Infanticide: e.g. Woolf (2001), who does not regard female infanticide as an indication of family limitation *an sich*, but interprets it as resultant from the existence of a cultural preference for the male sex (p. 146). Abandonment: analysis of medieval Florentine data showed that abandoned children were often illegitimate children of female servants, sent to foundling homes to avoid inheritance conflicts. In 1456 it was requested that 'any person who places, hires or brings into the city, environs or countryside of Florence a slave or servant should pay and be required to pay for each head to the treasurer of the hospital of the Innocenti one large florin within eight days from when she was hired'. Roth (2004), p. 143.

<sup>36</sup> Boswell (1988), p. 75f on abandonment; Eyben (1980/1981) on infanticide.

<sup>37</sup> Easterlin (1978), p. 73. Cf. McDonald (2000), p. 432: 'In pretransitional societies, high fertility was/is socially determined, not naturally determined'.

<sup>38</sup> Campbell and Wood (1988), p. 43. *Individual* biological maximum fertility is obviously much higher than the average TFR of 9.8 that was observed in the population of Hutterites (marriage cohort 1921-1930).

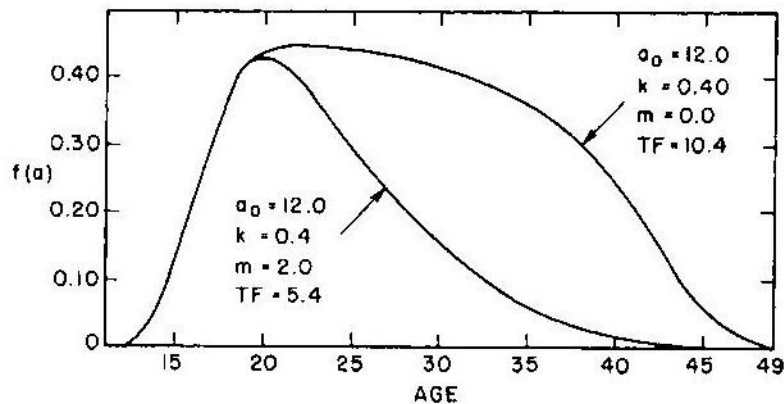
<sup>39</sup> Oppenheim Mason (1997), p. 447f. warns against the misconception that 'culture' can or should eradicate all individual strategic behaviour – or, more specifically, family planning.

<sup>40</sup> Campbell and Wood (1988), p. 42.

widening the interval *between* births has not had the same dramatic effect in historical populations as the deliberately caused sharp reductions in childbearing after a certain age or number do in modern day post-transitional populations. Thus, natural fertility curves do not only differ in shape – as may be observed in fig. 1 - but are also associated with higher levels of fertility.

The question we need to resolve is therefore whether or not the measures available (including infanticide and abandonment) were applied to such an extent that Roman Italian fertility would drop beneath what is observed for other natural fertility populations. Did family limitation become so widespread as to have this effect, and did it lead to population decline?

As a confirmative answer to this question would set our Republican population apart from a strong trend observed widely among historical populations, it surely asks for strong evidence. It is such evidence that neither Riddle nor Brunt have at their disposal. That Riddle inferred from the availability of certain devices that they were used on a large scale and led to population decline, justifies Friers subsequent inference that 'Riddle is clearly unfamiliar with demography'.<sup>41</sup> Substantial fertility decline is characterized by the limitation of family size to a specific number of children, a practice that can be tracked by the presence of the so-called parity specific stopping behaviour referred to above. The analysis of the only ancient data that allow for it, the Egyptian census records dating from the period of Roman rule in Egypt, show no indication of extensive presence of such behaviour and are compatible with data on other pre-industrial populations.<sup>42</sup>



**Fig 1 Age specific fertility schedules** (proportion ever married: 100%;  $a_0$  = start of marriage;  $k$  = distribution of marriage over time;  $m$  = measure of fertility limitation; TF = total fertility in number of children per woman). (Coale and Trussell 1974, p. 193).

It seems rather likely that the differences observed between post-transitional and pre-transitional fertility regimes are fundamental and apply to the ancient Roman population in equal manner as they did to the Egyptian and European historical populations. All this of course with the exception of some small elite groups that are irrelevant to macro-demographic analyses. The Egyptian census data confirm what the qualitative evidence from the Roman world cited above strongly suggests: that in general motherhood and fertility were highly valued and favoured by prevailing norms and conditions, and that under these structural conditions people would not be inclined to stop after a certain number of children.

### 5 A child-free life – did the elite set a trend?

There are more grounds to doubt large scale spread of fertility limitation and reject Brunt's designation of it as a cause for natural population decline among the free inhabitants of Roman Italy during the Late Republic. The prostitutes referred to above obviously had clear incentives to seek resort to abortion as well as other methods to ensure that their work would not be hindered

<sup>41</sup> Frier (1994), p. 328. Cf. as well Scheidel (2001), p. 38-39 and Caldwell (2004).

<sup>42</sup> This can be readily derived from the fertility curves displayed in Bagnall and Frier (1994), p. 137, fig. 7.1 and 7.2. See also their p. 141 and Caldwell (2004), p. 11.

by pregnancy and offspring. For them, the cost of children was very high. We cannot declare such specific motivations applicable to the average Roman woman. But what about the influence of the elite? To establish the likelihood of elite behaviour 'trickling down' towards the mass of the population, we must take note of potential differential conditions between the two population sections.

For the elite, it is the strive for preservation of political, economic and social status that is said to underlie decisions concerning marriage and fertility. The limitation of childbearing in elite circles is said to have been induced by the wish to forego the division of (landed) property.<sup>43</sup> Clearly, such land division would bring about future impoverishment. For members of the highly competitive elite strata this would entail not just a loss of economic assets, but, more importantly, the decline of political and social status. The risk of a considerable slide downwards through overproduction was real, and the system of adoption of (adult) sons offered an efficient adaptive strategy to safeguard future political and social influence.

Moreover, as a result of their wealth and status elite men had plenty of access to resources for sexual satisfaction other than their legitimate wives - notably slaves and concubines - which enabled them to separate the desire to maximize offspring quantity from the desire to maximize offspring quality, and optimize what Scheidel terms 'marginal reproductive success'.<sup>44</sup> The Roman juridical system prescribed that recognition by the father determined whether a child was legitimate or not, and so power over heirship was in his hands.<sup>45</sup> Any child born to a mother without Roman citizen status whom a man decided not to acknowledge as one of his would therefore be of no threat to his finances - nor leading to land division on the long term. Roman men with access to slaves and/ or concubines could therefore continue to beget children and maximize genetic success without being forced into making concessions as to the quality of their offspring in terms of the chances at an economically and socially successful future for the latter. Neither did they need to make any commitments to long term investments. Fertilization in the margins enabled men to produce 'spare heirs' without any risk at overproduction of legitimate heirs.

Of course, there was no difference between elite and other men in that both could beget children by women whom they were not bonded to by marriage, and in whom they did not need to invest. But Darwinian theory suggests that men with status and assets are more likely to do well in extramarital reproduction when monogamy is socially imposed, like in Roman Italy - be it because they are more attractive to females, or because they are in a position which enhances successful sexual exploitation of subordinates through power display. As chances for men of lower status were more limited, perhaps as well because they lived in small communities which tend to be characterized by larger social control and less anonymity, reproductive success was more dependent upon fertilization within the marital context. The Roman legal system put all men in an equal position as far as (il)legitimacy of offspring was concerned, but in practice elite men were in a better position to maximize quality and quantity of offspring at the same time. The Stoic Musonius Rufus who write in the first century AD was probably only partially correct when he complained that elite parents 'robbed their children of brothers, never having learnt how much better it is to have many brothers than to have many possessions'.<sup>46</sup> Perhaps their offspring did not share their homes with any brothers, but some half-brothers may have gone unnoticed. The attempts to limit their number of *legitimate* children that are characteristic of the European elites between 1600 and 1900 were clearly a behavioural strategy to avoid loss of status and assets. Their behaviour narrowly matches Polybios' description of Greece during the second century BC: '*ostentation, the love of money, and the habits of indolence have made men unwilling to marry, or if they do, to raise the children born, except for one or two at most out of a larger number, whom they desire to leave rich and bring up in self-indulgence*'.<sup>47</sup>

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<sup>43</sup> Cf. e.g. Musonius Rufus XV.

<sup>44</sup> Scheidel (2008), p. 13, 15, 27f.. 45.

<sup>45</sup> On children and (il)legitimacy, see e.g. Dixon (1992), p. 124f.

<sup>46</sup> Musonius Rufus XV. Translation Lutz (1947).

<sup>47</sup> Polybios 36.17. Cf. as well Salmon (1999), p. 8, who interprets the passage as referring to elite behaviour. On pre-modern European elites e.g. Johansson (1987), p. 450f.

For others though, more encapsulated in traditional surroundings, matters were different. For individuals it rarely pays to act against social defaults.<sup>48</sup> In pre-modern Europe the conditions that led to demographic decline amongst the elite did not affect the mass of the population. In 1700 there was near uniformity in Europe in the maintenance of natural fertility within marriage. Wrigley puts it brusquely: 'in high mortality regimes, some exceptions among small subgroups granted, what constituted the best fertility strategy for society as a whole prevailed over any strategy of heirship which might seem to promise benefits for individual families'.<sup>49</sup> One of Juvenal's satires sketches a likewise distinction between elite and mass: '*yet these [poor women] at least endure the dangers of child birth, and all the troubles of nursing which their fate urges them: how often do gilded-beds witness a lying-in when we have so many sure-fire drugs for inducing sterility or killing an embryo child? Our skilled abortionists know all the answers. So cheer up, my poor friend, and give her the stuff to drink whatever it shall be. Things might be worse – just suppose she wanted to get big and torture her womb with bouncing boys; you might become the father of an Ethiopian, and soon you will find that a dark-coloured heir whom you would rather not meet by daylight, shall fill up your wills*'.<sup>50</sup>

Notwithstanding the criticism on the Wealth Flows Theory that has cast severe doubts upon the economic value of children in absolute terms, however, their *relative* value was certainly much higher amongst the mass of the Romans than in elite circles, as their labour contributions compensated for at least part of their consumption. This may well explain the distinction between upper-class Romans and those from the lower ranks. As Patterson has already argued, 'the rich, not the poor, are the main target of criticism from moralists such as Polybios for their refusal to rear children'.<sup>51</sup>

Moreover, the narrow definition of Wealth Flows theory that is often employed in anthropological research concentrates on the productive economic value of children. Thereby, it ignores the considerable stress laid upon the importance of the social and cultural value of children by Caldwell. The advocacy to bear children for the good of the state by a Roman censor<sup>52</sup> may exemplify Wrigley's concept of the dominance of collective interests. Social settings of this kind create high social costs to the limitation of childbearing, which in turn discourage people from limiting their number of offspring even if they would have an intrinsic motivation to do so.<sup>53</sup> It is instructive to note in this context that for women in the Roman upperclasses it took some effort to maneuver around the firewalls put up by ideology. In politics they could exert influence, but provided that it was 'on the stage, behind the curtain'.<sup>54</sup> If instead of through their male relatives, they exerted it overtly and directly, losing any (ideological) connection with the family context or traditional values, it was at the risk of being depicted in fairly negative terms. Likewise, though some education was condemned necessary for elite women, it asked for a defense. This led to the creation of the ideal of the '*matrona docta*' that stressed how education enhanced a woman's qualities as a mother and came to the benefits of her children. The defense

<sup>48</sup> Sterelny (2004), p. 254.

<sup>49</sup> Wrigley (1978), p. 149.

<sup>50</sup> Juvenal, *Satirae*, 6.592-601: '*hae tamen et partus subeunt discrimen et omnis / nutricis tolerant fortuna urgente labores, / sed iacet aurato uix ulla puerpera lecto. / tantum artes huius, tantum medicamina possunt, / quae steriles facit atque homines in uentre necandos / conducit. gaude, infelix, atque ipse bibendum / porrige quidquid erit; nam si distendere uellet / et uexare uterum pueris salientibus, esses / Aethiopsis fortasse pater, mox decolor heres / impleret tabulas numquam tibi mane uidendus*'.

<sup>51</sup> Patterson (1985), p. 118. Given the 'moral' undertone of Polybios work and his attempts to explain the downward slide of the Greeks and their conquest by the Romans, it should be interesting to consider this passage in that light.

<sup>52</sup> Gellius, *Noctes Atticae* 1.6. Cicero, *De officiis* 1.54 holds that procreation in family context forms the '*principium urbis et seminarium rei publicae*'. Treggiari (1991), p. 205f. Dio Cassius' 'speech of Augustus' addresses elite fathers with reference to the well-being of the state (LVI.2.6-7): 'but for the State, for whose sake we ought to do many things that are even distasteful to us, how excellent and how necessary it is, if cities and people are to exist, and if you are to rule others and all the world is to obey you, that there should be a multitude of men'. Seneca, *Controversiae* 10.4 discusses whether a man who crippled exposed children could be accused of harming the state. An argument for the defense of the man is that since one would not find these people in the census-rolls, and neither in wills, they were not part of the state, and therefore the state could not be harmed by harming them. The implication is obviously that if they had been, the state could be harmed by their crippling.

<sup>53</sup> Cf. Easterlin (1978) who tried to incorporate social theory in the economic analysis of fertility decision processes created by the Chicago School of New Home Economics. His approach came to be known as 'the Easterlin synthesis'. See De Bruijn (2006) and Robinson (1997) for an overview.

<sup>54</sup> Hillard (1992).

of the education of own daughters by both men and women could coincide with negative verdicts on education of girls in general, or that of other families.<sup>55</sup> It shows how strongly the barriers that needed to be overcome could be felt, even where a break with tradition was considered to be required or desirable to maintain status. Thus, tradition and ideology may well have hindered the spread of deviation from the 'motherhood-norm' among the bulk of the population for whom status issues were less of an issue.<sup>56</sup>

As the effects of the mechanism of internalization of norms are usually strong it seems fairly unlikely that parents by definition perceived childbearing as a burden. Moreover, children in themselves can be a source of social status. The benefits of status gained by (a large number of) offspring will be comparatively large specifically when there is little status to gain in other domains.<sup>57</sup> This phenomenon brings along that parents without resources have little need to manipulate their number of offspring for social reasons, and even less so given the fact that they could foster hopes at profiting from the benefits of opportunistic strategies by their children.<sup>58</sup> Musonius Rufus refers to the social benefits that stem from a large number of offspring: *'a man who has many children is honored in the city, (...) he has the respect of his neighbours. (...) he has more influence than his equals if they are not equally blessed with children. I need not argue that a man with many friends is more powerful than one who has no friends, and so a man who has many children is more powerful than one without any or with only a few children, or rather much more so, since a son is closer than a friend'*.<sup>59</sup> Here, sociological theory is compressed in his observation that even among men of equal wealth, those with more children will gain more respect.

Apart from economic and social differentials preventing the spread of family limitation among non-elites in the Roman Republic, an additional phenomenon should be taken into account – that of the conflict situations between spouses which wishes for family limitation may evoke. What their outcome would be for individual cases cannot be predicted. It is clear, however, that in bargaining processes, unequal power relationships will bias outcomes. In assessing scenarios for Roman Italy, we may need to attach at least some value at observations from present day pre-transitional societies. In these, it stands out that it are often the females who would wish to limit their offspring through contraceptives and their husbands who tend to discourage their use.<sup>60</sup> The eventual outcome mostly consists in another child. This situation sits somewhat uneasily with the assumption of some Roman historians that fertility limitation should have spread easily among a population with male/female relationships which we may certainly classify as unequal.

Finally, the demographer Davis already noticed that the claim that fear of absolute poverty led to decreases in fertility could not be substantiated. He concluded that 'fear of hunger as a principal motive [to reduce population] may fit some groups in an extreme stage of social disorganization or at a particular moment of crisis, but it fits none with which I am familiar'.<sup>61</sup> Under such extreme conditions, fertility will not have been limited by deliberate choice alone: biological mechanisms also respond to food crises and severe distress by preventing reproduction.<sup>62</sup>

## 6 Alternative strategies

Instead, to forego a downward slide into such extreme conditions, adaptive strategies could be employed to ensure economic subsistence. A brief look into one of the main proximate determinants of fertility, age at first marriage (AAF), exemplifies the case. In pre-transitional populations the age at which women marry has a deep impact on fertility and is often equated

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<sup>55</sup> Hemelrijk (1999), p. 212.

<sup>56</sup> Cf. Robinson (1997), p. 69.

<sup>57</sup> Cf. Kapparis (2002), p. 95f. on the ancient world.

<sup>58</sup> Kaplan and Lancaster (2003), p. 197.

<sup>59</sup> Musonius Rufus XV, transl. Lutz (1947).

<sup>60</sup> Cf. De Bruijn (2006), p. 556 on unequal utility functions concerning fertility and family size.

<sup>61</sup> Davis (1963), p. 362.

<sup>62</sup> Whereas only extreme conditions lead to complete (temporary) infecundity, subfecundity will result from malnourishment through its effects on the age of menarche and by the creation of longer birth intervals: e.g. Scott and Duncan (2000), p. 81. Moreover, it is not just STDs that cause infecundity; for antiquity, it is clearly relevant that malaria and tuberculosis may also lead to sterility. See Hobcraft (1987), p. 824.

with the onset of childbearing – that is, provided that such is physiologically possible.<sup>63</sup> In demography male age at marriage is often considered irrelevant since ‘it is the females that matter most’ in the analysis of fertility. Yet the ancient marriage pattern is a remarkable one. Women married fairly young, and there seems to have been a considerable age gap between partners. Though exact details lack, on the basis of commemorative shift patterns on inscriptions the AAFM for women is mostly placed at between age 15 and 20; and that for men around age 30.<sup>64</sup> I would suggest that the age differences comprised in the Roman marriage system can be thought of as an adaptive strategy that effectively helped minimize *both* the risk of ‘underproduction’ or demographic decline, and that of ‘overproduction’ under limited land resources. The longer male marriage was postponed, the lower the number of male siblings competing for assets was likely to be.<sup>65</sup> Such would ever more be the case if, as Woods has suggested, the life tables that are commonly used overestimate infant mortality and underestimate the mortality of young and middle-aged adults due to infectious disease.<sup>66</sup> Late male marriage would therefore minimize risk at division of property through inheritance whilst at the same time a young bride ensured optimal utilization of the period of female high fecundity for procreation.

### 6.1 The advantage of the extended family

Moreover, the argument as put forward by Brunt that in ancient Italy the average peasant must have deferred marriage until he had succeeded to the enjoyment of a farm, whether owned or rented, need not hold. Household systems can vary, and the neolocal marriage system in which nuclear families prevail and the establishment of a marriage coincides with the establishment of a separate household is not a universal phenomenon. For ancient Italy we have only scattered evidence, but Roman census records from Egypt and Ptolemaic salt-tax registers show results that are strikingly similar to medieval Tuscan data and suggest that the prevalence of larger than conjugal families was around 30%.<sup>67</sup> Given their larger size though, a significantly higher proportion of family members must have lived in them.<sup>68</sup> Whether other than nuclear households were equally widespread in Republican Italy, we cannot tell. The scanty literary references we have do not permit quantification. They do, however, point to the co-existence of various household types. Extended or multiple household arrangements could serve as a social risk-management strategy that enabled distribution of resources across more people.<sup>69</sup> One could start making a living on the farm of a parent or other relative – and shift towards a conjugal family system in a later phase.<sup>70</sup> Therefore, contrary to what Brunt presupposes, being the owner or renter of a farm was not necessarily a precondition for marriage.

In as far as the need for a dowry would be an insuperable barrier to marriage, we may remark that bridal dotes provided by a girl’s father were an established practice in all social strata. Such can be inferred from juridical evidence and Egyptian documents<sup>71</sup>; but a comparison of the dowries given in Roman elite circles with those donated to brides in other pre-modern European societies has revealed that the Roman ones were markedly smaller as a proportion of family assets.<sup>72</sup>

Also, economic pressure on the household is partly a result of the life cycle. The younger the children, the more burdensome their dependency. Living in an extended or multiple

<sup>63</sup> Cf. e.g. Bongaarts and Potter (1983), ch. 2.

<sup>64</sup> Saller (1987), p. 29-30. Lelis, Percy and Verstraete (2003) proposed a revision of the dominant view. However, the sudden and steep increase in commemorative shift inscriptions for males strongly pleads for placing male AAFM near age 30: see Scheidel (2007b).

<sup>65</sup> Coale and Demeny (1983<sup>2</sup>) level 3 West indicates that an adult male would have a 16% chance of dying between age 20 and 30. Saller (1994) table 3.1.a, p. 48 suggests that the mean number of living brothers declines from 1.0 to 0.8 over the same period for this type of population.

<sup>66</sup> Woods (2006).

<sup>67</sup> Bagnall and Frier (1994), p. 57-66 with table 3.1 (Roman census); Clarysse and Thompson (2006), vol. 2, p. 246f. (Ptolemaic salt-tax registers) and Herlihy and Klapisch-Zuber (1985), p. 292 (15<sup>th</sup> century Tuscany).

<sup>68</sup> Bagnall and Frier (1994), p. 66-67 with table 3.2.

<sup>69</sup> See e.g. Erdkamp (2005), p. 64-71 on household formation in the Roman Empire.

<sup>70</sup> Bagnall and Frier (1994), p. 61 note that the average age of adults in Egyptian conjugal households was remarkably high by comparative standards.

<sup>71</sup> Treggiari (1991), p. 323.

<sup>72</sup> Saller (1984), p. 201; Saller (1994), p. 212f.

household could serve to help sustain this phase in the life cycle by changing the adult-child ratio into more favourable proportions. As adults other than the parents would bear part of the costs of offspring a choice for non-neolocal marriage was an adaptive strategy that had its advantages. Surely, the demographic reality of high mortality brought along that multigenerational households could not last forever. By the age of 10 years, only half of Roman children would still have a surviving grandparent to rely on for support.<sup>73</sup> Still though, during the initial stages of the start of a new generation when the dependency ratio within the parent-child ratio was most unfavourable, grandparents could theoretically overtake a considerable part of the necessary caretaking in over 50% of all households. In such cases, both the social and economic costs of childbearing were shared between parents and grandparents. We may be unable to tell in how many cases grandparents, parents and children were co-resident. But even if they were not, there must have been numerous cases - especially in the countryside - where generations were not on the move, and lived close to each other. In practical terms sharing the house or sharing the neighbourhood may easily have amounted to the same. Ancient texts that speak of the obligations of children to assist their parents in old age can be supplemented by those that show how it was a matter of *pietas* for ascendants to care for their grandchildren. Family affection was expected to reach further than one's own children; as such, for example, we find grandchildren (both boys and girls) on the wills of the aristocratic aged.<sup>74</sup> Moreover, as grandparents were not the only candidates for participation in an extended household, the prevalence of the extended household as a type was not limited to their survival rates. Siblings of either parent or more distant relatives could take their place, or could have been the ones to start with anyhow.

A negative correlation between individual responsibility for children and fertility levels furthermore emerged in some studies, though this remains rather insecure as causal relationships are difficult to prove in social sciences.<sup>75</sup> But when the economic and social costs for the upbringing of children are shared between a larger group of kin - whether these are grandparents, aunts, uncles or other relatives - multiple fertility enhancing effects may result. For the young parents having children is made worthwhile partially precisely because the costs are shared, whereas the benefits that will crop up at a later stage, once the children are grown, will accrue more directly to the parent-couple. By that time the grandparents would have deceased and, as the parents' family members will increasingly have started their own separate household, ties with siblings will have loosened.

At the same time, when incorporated in the household or closely involved with its daily routine, the eldest members of the family may exert considerable influence over the rest of the household. Grandparents are likely to encourage fertility as they wish to maximize dynastic utility, from which they may gain from both in biological and social respects.<sup>76</sup> Therefore, the less individualistic the construction of social life is, the more intra-individual processes tend to affect fertility processes and, for the reasons sketched above, promote them. The integration of several generations in the household therefore presumably had a twofold effect, both in promoting fertility and in facilitating its realization.

## 6.2 Birth intervals

Child spacing could serve the same purpose of pressure-relief within the family. Among Kalahari !Kung women in Botswana, long birth intervals are said to be the result of adaptive behaviour to extreme adverse ecologic constraints. Their 4 to 5 year birth intervals optimize chances of survival for both mother and child.<sup>77</sup> We have no reason to presuppose that birth intervals were a static factor in antiquity. Before adding another mouth to the family, the optimization of the productivity of children which already formed part of the household might be

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<sup>73</sup> Parkin (2003), p. 52.

<sup>74</sup> E.g. described in a letter from Pliny (*Epistulae* 7.24); the grandson lived in his grandmother's house. His sister, not known by Pliny, got a share as well. The fact that no children are willed might suggest that they had deceased. But cf. the case of a grandfather who wanted his granddaughter to be his heiress in an effort to exclude her father whom he hated thoroughly (*perosus*): Pliny, *Epistulae* 8.18.4.

<sup>75</sup> Cf. Caldwell, Caldwell *et al.* (1987), p. 28.

<sup>76</sup> Cf. Becker and Barro (1988), p. 23 for an economic perspective.

<sup>77</sup> Betzig (1988), p. 10; Blurton Jones (1986). On the positive effect of lengthened birth intervals and postponed weaning, cf. Hobcraft, McDonald and Rutstein (1983) and Scott and Duncan (2000), p. 77.

awaited.<sup>78</sup> In fact, one of the observations that have strengthened criticism on the concept of natural fertility is the recent accumulation of evidence that suggests that in pre-industrial populations, couples deliberately lengthened the duration of breastfeeding to cushion (temporarily) adverse economic conditions.<sup>79</sup> This is obviously an adaptive strategy that has far less impact on fertility than the outright rejection of childbearing and marriage Brunt held responsible for propelling a decline of the free population in Italy – and may in the end have no effect at all given the fact that prolonged breastfeeding pushes infant mortality downwards.

### 6.3 Migration

Even if land played an important role in subsistence provision, this should not eclipse the fact that there were other economic niches. Urbanization is an obvious candidate. The rapid growth of Rome during the Late Republic attests of its qualities as a pull-factor. As Voland recently put it, '[migration] no doubt include[s] important components of reproductive strategy' but continues to be 'an automatically neglected stepchild of research'. The fact that migration is both the most complex factor in demography and the least documented one explains for this – unfortunate - deficit.<sup>80</sup> What the aggregate effects on fertility were is difficult to tell.

One thing is clear: Rome came to be big and densely settled, and by consequence a disease-prone environment. For this reason, it has acquired the epithet of 'urban grave-yard' that tallies with what has been observed for other European pre-industrial cities. But whether migrants ever returned from Rome or were able to reproduce themselves within the city largely depends on the character of migration and urban-rural mortality differentials. The latter have been said to be fairly high. However, Erdkamp's suggestion that migration to Rome or other cities was not a one-way phenomenon, but often temporarily and seasonal in character<sup>81</sup> may have its implications for urban-rural mortality differences. If going to Rome to make a living did not imply a breach with rural life, migrants going back and forth will have carried their diseases with them. On the positive side, their exposure to unhealthier living conditions was not permanent. What matters on a macro-level is that both effects suggest that urban-rural mortality differentials may have been smaller than assumed.

More important given our present concern, however, is the observation that in other pre-industrial populations the prospect of the availability of future employment opportunities has had a positive effect on fertility levels. If migration was available as a ready alternative, there was no need to worry about the future opportunities of offspring.<sup>82</sup> The 'outlet' or 'niche' provided by urbanization therefore formed another reason why countryside dwellers did not need to refrain from marriage and children.

### 6.4 The Roman army

In similar vein as it did for the 'third sons' in the Middle Ages for whom there was no religious function to fulfill or land to hold, the army may have served as another such niche. Its continual need for new recruits turned it into a stable outlet, thereby creating opportunities for a larger number of offspring. The army-niche obviously brought along higher mortality risks for those who filled it. In fact, if we take it that real wages are sound indicators of the relationship between population and economy, what their fluctuations suggest is indeed that growth rates were driven by changes in mortality rather than changes in fertility. In other words, exogenous rather than endogenous factors made for the difference.<sup>83</sup>

## 7 Conclusion

The relationship between economy and fertility is a far more complex one than suggested in Brunt's *Italian Manpower* – and, moreover, only one of a complex of processes and interactions underlying fertility behaviour. We have in fact little reason to suppose that during the Late Republic, Roman Italy deviated from general pre-transitional patterns and responded to

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<sup>78</sup> Kaplan and Lancaster (2003), p. 196.

<sup>79</sup> Van Bavel (2004). Cf. Friedlander, Okun and Segal (1999) for more indications.

<sup>80</sup> Voland (2000), p. 142.

<sup>81</sup> Erdkamp (forthcoming).

<sup>82</sup> Davis, (1963), p. 354.

<sup>83</sup> Scheidel (2007a), ch. 3, p. ##.

increasing land scarcity by substantial fertility limitation. The demand for children was elastic to some extent, but the structures and strategies sketched above were conducive to fertility and created opportunities for couples to continue marriage and childbirth as they had done before, rather than turn to celibacy and childlessness. Cicero's appeal to a jury in the *Pro Cluentio* exemplifies the social, economic and cultural forces at work when he argues that murder of an infant had bereft 'the father of his hopes, his name of continuity, his family of its support, his house of an heir, and the Republic of a citizen-to-be'.<sup>84</sup> In combination with biological urges, these factors created a strong framework that favoured childbearing among the mass of the Roman population.

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<sup>84</sup> Cicero, *Pro Cluentio* XI.32.

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