AGE ROUNDING AND SOCIAL STATUS IN MOESIA INFERIOR[1]

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Keywords: age rounding, Moesia Inferior, legal status.
Abstract: *The study overall concerns the age-rounding process in the Latin inscriptions, which has triggered the interest of the researchers starting with the 19th century. The first part of this study deals with the age-rounding process in the province of Moesia Inferior, by comparing the data with those provided for other Lower Danube provinces, differentiated on gender. The second part of this study presents the age-rounding process depending on the legal status of the deceased by using Whipple's Index. The values of age rounding are close to those obtained for the other Lower Danube provinces. It is worth mentioning that there are more ages ending in 0 and 5 than in other digits. Concerning the legal status, the age-rounding process is less accentuated in the case of citizens and militaries.*
Rezumat: *Acest studiu se referă la procesul de rotunjire a vârstelor în inscripțiile latine, care a suscitat interesul cercetătorilor încă de la sfârșitul secolului al XIX-lea. Prima parte a acestui studiu se ocupă de procesul rotunjirii vârstelor în provincia Moesia Inferior comparând datele cu cele oferite pentru alte provincii de la Dunărea de Jos, diferențiat pe sexe. A doua parte a studiului prezintă procesul de rotunjire în funcție de statutul juridic al defunctului/defunctei folosind Indexul lui Whipple. Valorile rotunjirii vârstelor sunt apropiate de cele obținute pentru celelalte provincii de la Dunărea de Jos, cu mențiunea că s-au observat mai multe vârste terminate în 0 și 5 decât în alte cifre. În ceea ce privește statutul juridic, procesul de rotunjire a vârstelor este mai puțin accentuat în cazul cetățenilor și al militarilor.*

Age rounding is a demographic phenomenon characteristic to all historical eras, from industrialization to modernization – it has only disappeared during the contemporary period. This phenomenon also appeared during the 20th century, for example within the census in Turkey

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– 1945; 58% of the adults declared an age divisible by 5[3]. In one of his books, Walter Scheidel stated, "in pre-industrial societies past and present, the capability of stating one's own age or age of an adult family member with precision, or even the mere wish to do so, cannot be taken for granted"[4]. For the fact that the exact age was unknown during the Antiquity, we cite the example of Aurelius Isidorius, who declared to be 35 in April 297, 37 in April 308, 40 in August 308, 45 before June 309, and 40 in June 309[5]. Nevertheless, the historians who studied demography warned that this might have been an exception, not the rule. In this article, we will try to determine whether there is a tendency for age rounding – by gender and social status – in Moesia Inferior.

This demographic phenomenon has been in the attention of historians starting with the end of the 19th century, when, in 1898, W. Levison published the article "Die Beurkundung des Civilstandes im Altertum. Ein Beitrag zur Geschichte der Bevölkerungsstatistik," BJ, 102, 1898. More than half a century later, when the demographic studies on the Roman Era were resumed, age rounding came back to the researchers' attention (A. Mocsy, "Die Unkenntnis des Lebensalters im römischen Reich," AAntHung 14, 1966, the series of articles signed by J. Szilagy, in *Acta Archaeologica Academiae Scientarum Hungaricae*, issues 13-19, 1961-1967, R. P. Duncan-Jones, "Age rounding, Illiteracy and Social Differentiation in the Roman Empire," in *Chiron* 7, 1977, as well as Walter Scheidel, "Digit preference in age records from Roman Egypt," in *Measuring sex, age and death in the Roman Empire. Explorations in ancient demography*, Ann Arbor, Michigan, 1996). Duncan-Jones was the only one who tried, starting from the data provided by Mocsy and Szilagy, to offer the complete picture of age rounding in the Latin-speaking half of the Empire. Nevertheless, except for Scheidel, nobody analyzed this issue at the level of a single province, and Scheidel chose as province the Roman Egypt, which provides to the researcher over 2,000 ages from census returns, tax lists,

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[3] DUNCAN-JONES 1977, 334.
[4] SCHEIDEL 1996, 53.
[5] DUNCAN-JONES 1977, 333.

tombstones, mummy labels, records of legal transactions, and lists of public officials.

We will use Whipple's Index to calculate age rounding. It applies to the interval 23-62 years old, eliminating young ages, that parents were better informed on, and old ages, less known. This interval is divided into four decades. The index-figures are calculated as follows: we subtract 20 from the percentage of ages divisible by 5 within a decade and we multiply the result by 1.25.[6] If there are only ages ending in digits divisible by 5, the result is 100, and if they represent 20 , then the result is 0. Scheidel states that this index starts from two wrong presumptions. The first is that all decades must be equal and the second – that within each decade, the classification by digits must be equal (each digit must represent 10% of the sample per decade). For the first presumption – that there should be an equal number of persons in each series – to be true, birth rate should be constant (in the pre-industrial societies, epidemics, famines, and wars make birth rate fluctuate rather significantly). In addition, life expectancy should be rather high, mostly that this situation is not present in the contemporary societies, either. As concerns the second presumption, it is hard to believe that the same number of persons died at 23 and at 32, and this situation occurs in all the decades[7].

Our sample comprises 110 females, 270 males, and 17 persons whose gender could not be determined, from funerary stones dating since the first three centuries of our era, for the province of Moesia Inferior.

In the first part, we will analyse the rapport between rounded ages and "unrounded" ages at the level of the entire sample.

For the females in Moesia Inferior, the following situation appears:

[6] DUNCAN-JONES 1977, 337.
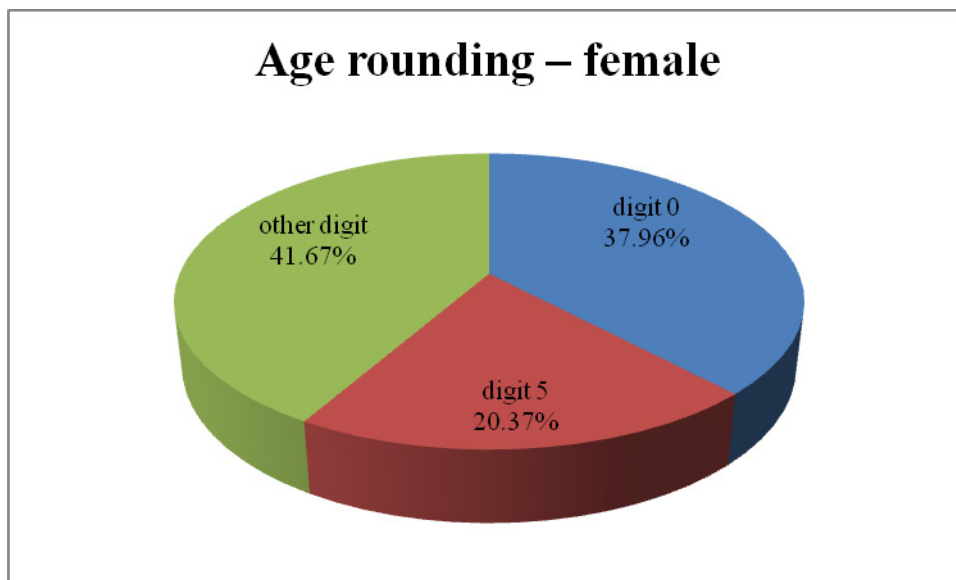
[7] SCHEIDEL 1996, 54.

Figure 1. Age rounding in Moesia Inferior (females)

In our sample, there is only one case explicitly showing that the exact age of the deceased was unknown, meaning the presence of the phrase "more or less," but for Pannonia Superior Lucrețiu Mihailescu-Bîrliba cites two such cases, a 100 years old male and an 18 years old teenager[8]. The parents, Aurelius Nio[…] and Orfia Vitilla, set up a stone for their daughter Domitia Iuliana who lived more or less 9 years and 2 months[9]. We find it surprising that the age is so exact (even the months are mentioned), but that the formula more or less is still used. In the other cases where we find the phrase "more or less," the ages are rounded. Of the 110 persons within the female sample, we eliminated two females whose age was shown fragmentarily. Of the remaining 108, 45 persons do not have the age ending in 0 or 5, meaning only 41.67%. The percentage of females with "unrounded" ages in Moesia Inferior is lower than that of

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[8] MIHAILESCU-BÎRLIBA, PIFTOR, COZMA 2007, 29.

[9] ILBR, 132.

Pannonia Inferior – 44%[10], or Dacia – 47%[11], but higher than that of Pannonia Superior – 34.6%[12]. In regard to the ages with digits ending in 0, the sample in Moesia Inferior records one of the lowest percentages – 37.96%, close to that of Pannonia Inferior (37%), but significantly lower than that of Pannonia Superior (48.2%), and slightly lower than the one of Dacia (39%). In the case of ages ending in the digit 5, Moesia Inferior has the highest percentage among all the Danubian provinces – 20.37%, unlike the other provinces: Pannonia Superior – 17.2%, Pannonia Inferior – 19%, and Dacia – 14%.

Age	Number of persons
1-4	9
6-9	9
11-14	2
16-19	8
21-24	6
26-29	3
31-34	2
36-39	1
41-44	1
46-49	0
51-54	0
56-59	2
61-64	1
66-69	0
71-74	0
76-79	1

Table 1. Classification of unrounded ages by age categories

[10] MIHAILESCU-BÎRLIBA, PIFTOR, COZMA 2007, 48-49.
[11] MIHAILESCU-BÎRLIBA 2003, 31.
[12] MIHAILESCU-BÎRLIBA, PIFTOR, COZMA 2007, 16-17.

34 of the 45 persons with an unrounded age lived until 25, meaning 75%, and 39 of the 45 until 35, meaning 86%, which shows that people had better memory concerning the persons who died younger. The following persons had their age "more accurately" stated: Domitia Iuliana, who died at 9 years and 2 months old[13]; Cornelia Alexandra, who lived 23 years and 5 months[14]; Iulia Valentina – died at 11 years and 59 days old[15]; Aurelia Sambatis, who lived 25 years, 5 months and 12 days[16]; Veturia – 24 years and 2 months[17]; Ulpia Flavia – 18 years and 6 months[18]; Aurelia Melete – 60 years, 2 months, and 7 days[19]; Valeria Matrona – 1 year and 11 months[20]; Antonia Aprulla – 9 years and 6 months[21]; Valentilla – 45 years, 3 months, and 5 days; and Aprilia – 9 years, 5 months, and 3 days[22]. If we analyze the dedicators of the inscriptions belonging to the 10 females (except for Valeria Matrona, whose dedicators are unknown), the following situation appears: the 5 persons under 20 years old have the parents as dedicators, the four under 45 years old have as dedicator the spouse, and Aurelia Meletia has the children as dedicators. In addition, 9 of the 11 cases are represented by persons under 30 years old, which shows that, in case of young persons, the dedicators were more aware of the exact age. Finally, we underline that all 11 females with exact ages recorded are citizens. If we analyze the legal status of the 20 dedicators, we notice that two of them are magistrates, one is an *IIvir,* one a *decurio coloniae,* one is *prefectus equitus* of *ala,* and 17 are simple citizens.

As concerns the rounded ages, the following situation appears by age categories:

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[13] CIL III, 12357, ILB, 132.

[14] CIL III, 12452.

[15] CIL III, 12478a.

[16] ISM II, 367

[17] ISM V, 35.

[18] ISM V, 39.

[19] ISM V, 42.

[20] ISM V, 104.

[21] IGL Novae, 93.

[22] ILB, 82.

Age category (years)	Number of rounded ages
5	2
10	1
15	2
20	2
25	8
30	11
35	6
40	5
45	2
50	8
55	1
60	9
65	1
70	3
75	0
80	2

Table 2. Classification of rounded ages by age categories

If most of the unrounded ages were recorded for ages under 25, most of the rounded ages are recorded for ages starting from 25 years old – 56 persons of 63–, meaning 88%, and from 25 years old to 60 years old, 50 persons – 79 %. Nevertheless, we have to add that three females, though with ages ending in 5 or 0, have actually their exact ages recorded – Aurelia Sambatis, Aurelia Melete, and Valentilla, that we have mentioned above. Most rounded ages are at 25 (8 persons), 30 (11 persons), 50 (7 persons), 60 (9 persons). Of the 11 cases of females deceased at 30 years old from Moesia Inferior, in nine cases the spouse is the dedicator, in one case the mother and the siblings, and in another case there is no mention of the type of relation between the dedicator and the deceased. This may indicate that they died either at birth or without having had children. The ages of 50 and 60 may be considered old ages, as we will see below (the life

expectancy at childbirth for the females in Moesia Inferior was around 35.248 years[23]).

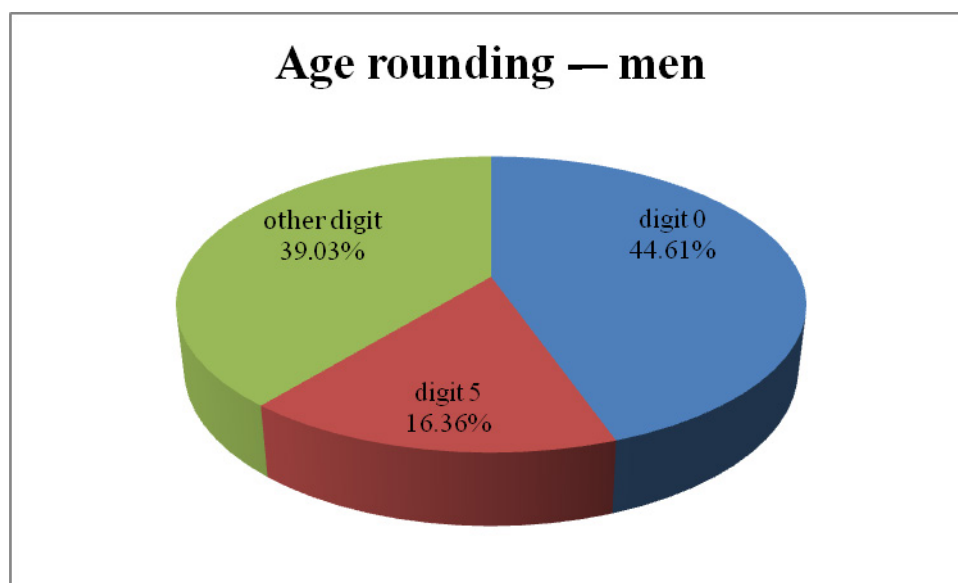When analyzing the situation of the male population in Moesia Inferior, the following situation appears:

Figure 2. Age rounding in Moesia Inferior (males)

This way, in Moesia Inferior there are 120 persons (44.61%) with the age ending in the digit 0; 44 (16.36%) have the age ending in the digit 5, and only 105 (39.03%) have the age ending in another digit. The situation is similar to that of Dacia – 42% of the persons have the age ending in the digit 0, 16% in 5, and 42% in another digit[24]. A similar situation is that of Pannonia Inferior – 41% of the persons have the age ending in the digit 0, 15% in 5, and 44% in another digit[25]. The situation is a little different in Pannonia Superior, where the rounded ages are predominant: 45.4% of the

[23] MIHAILESCU-BÎRLIBA, PIFTOR 2011, 423.

[24] MIHAILESCU-BÎRLIBA 2003, 48-49.

[25] MIHAILESCU-BÎRLIBA, PIFTOR, COZMA 2007, 57.

ages ending in 0, 21.1% ending in 5, and only 33.5% of the ages ending in other digits.[26]

As in the case of the female population, there are precisely indicated ages: Ampus Victorinus – lived one year and 6 months[27], Valerius Herculianus – 12 years and 6 months[28], Tiberius Claudius Tertullus – died at 17 years and 12 months old[29], […] Aemilius – 18 years and 8 months[30], Theocritos, the son of Theocritos, 22 years and 9 months[31], […] Claudianus – 44 years, 5 months, and 10 days[32], an anonymous male – 23 years and 11 months[33], an anonymous citizen – 46 years, 7 months, and 16 days[34], Aurelianus Valerianus – 14 years, 11 months, and 15 days[35], Aurelius Hermes – 70 years and 11 days[36], (…)us Claudianus – 1 year, 4 months, and one day[37], Caius Veturius Verus – 19 years, 8 months, and 24 days[38], Valerius Septimius – 63 years, 6 months, and 16 days[39], Marcus Antonius Valetinus – 10 years and 3 months[40], Titus Flavius Acceptus – 1 year, 2 months, and 3 days[41], Apriorianus – 19 years, 2 months, and 6 days, Valentinus – 6 years, one month, and 3 days; and Aper – 3 years and 6 days[42]. Of the 19 deceased with exact ages stated, one person has a very fragmentary inscription (reason for which it is not possible to know the legal status). Out of the remaining 18, the sources attest a peregrine and 17

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[26] MIHAILESCU-BÎRLIBA, PIFTOR, COZMA 2007, 27.

[27] CIL III, 14211³.

[28] CIL III, 14212.

[29] ISM II, 168.

[30] ISM II, 184.

[31] ISM II, 186.

[32] ISM II, 211.

[33] ISM II, 305.

[34] ISM II, 349.

[35] ISM II, 354.

[36] ISM V, 42.

[37] ISM V, 198.

[38] SCORPAN 1977, 205

[39] SCORPAN 1977, 217.

[40] IGLNovae, 93.

[41] AE, 1999, 1335.

[42] ILB, 82.

citizens. Among the 17 citizens, there are an *eques romanus*, two veterans, a military of the fifth legion Macedonica, a *librarius legati legionis* and an *ex speculatore*, reason for which we can say that they belonged to the elite. If we analyze the dedicators of these inscriptions, we notice that, in the case of the 14 deceased under 25, for five of them both parents are dedicators, for one of them the mother, and for another five the father. In two cases, the dedicators are unknown, and in one case, the kinship is unknown. In 57% of the 19 cases, the dedicators are the parents, meaning the persons who know better the ages of their children. In the other five cases of deceased over 40 years old, the following situation is outlined: in two cases the wives and the children are the dedicators, in one case the children and a brother, and in another case the dedicators are unknown. However, it is worth underlining that, out of the five cases, in three cases, the deceased was related to the military world. The legal status of the dedicators is similar to that of the deceased, meaning only one female peregrine and the rest citizens. Among the citizens, three are related to the military setting (a veteran, a legion centurion and a member of the Praetorian Guard) and one is a magistrate (*decurio coloniae*). The persons with ages stated very exactly represent 7.03% of the male population sample in Moesia Inferior.

We present below the classification of the exact age by age categories:

Age category	Number of persons
1-4	12
6-9	8
11-14	4
16-19	15
21-24	8
26-29	10
31-34	7
36-39	4
41-44	4
46-49	4
51-54	2

56-59	7
61-64	9
66-69	3
71-74	1
76-79	3
81-84	1
86-89	1
91-94	0
96-99	0
101-104	2

Table 3. Classification of unrounded ages by age categories

Most of the exact ages belong to the interval under 35 years old – 64 persons, meaning 60.95%, but there is also a certain concentration in the interval between 56 and 65 years old, close to the age when the veterans were discharged (15.23%). The agglomeration of exact ages up to less than 35 years old, unlike in the case of females – up to 25 years old, could also be due to the higher life expectancy at birth for males than for females. We find surprising the presence of the two unrounded ages over 100 years old; actually, they are the only ages over 100.

As regards the rounded ages for the male population in Moesia Inferior, the situation is the following:

Age category (years)	Number of rounded ages
5	3
10	3
15	2
20	12
25	8
30	12
35	8
40	18

45	11
50	24
55	4
60	26
65	4
70	16
75	2
80	5
85	2
90	2
95	0
100	2
105	0

Table 4. Classification of rounded ages by age categories

We notice that most rounded ages appear between 20 and 70 years old (87.8%); the most numerous cases are recorded at 30 years old (12 persons), 40 years old (16 persons), 50 years old (21 persons), 60 years old (24 persons), and 70 years old (15 persons). They are considered ages of the adulthood, of army discharge, or of the beginning of senescence, meaning of wisdom. The age of 60 was considered the beginning of what we call today senescence. Though in the historiography related to the names given to the various stages in the life of the Roman citizens many authors claimed that *senex* began around 40, Parkin proved that the old age-related view was far more complex and that, in the Roman world, the old age would have begun at 60[43].

By analyzing the situation of the entire sample for Moesia Inferior and by adding the persons whose gender could not be determined to the male and female population, the following situation appears:
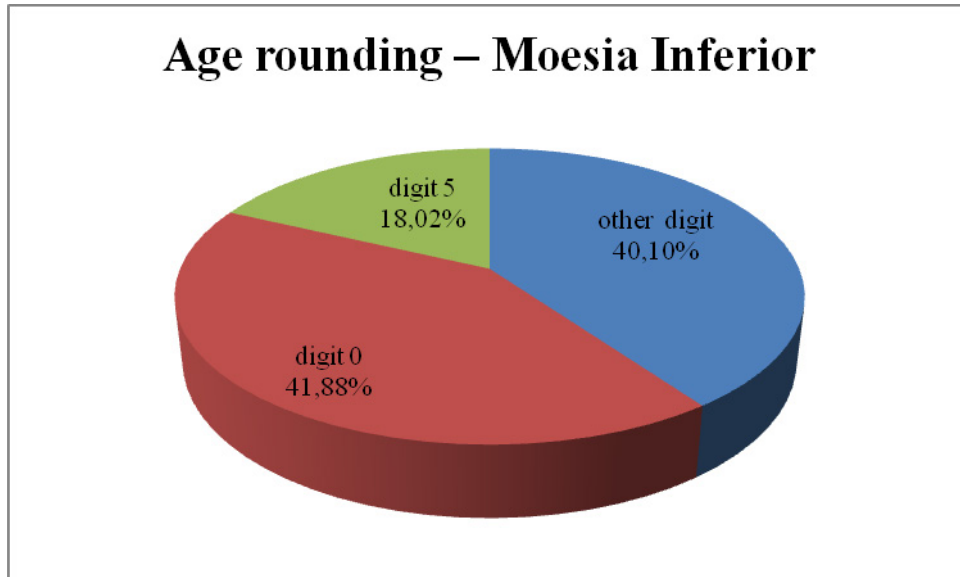
[43] PARKIN 2003.

Figure 3. Age rounding for the population in Moesia Inferior

If, in the case of females, the unrounded ages are the most numerous percentage wise, and if, in the case of males, the most numerous are those ending in 0, at the level of the entire population there is an equalization as regards the percentages. In addition, by analyzing the percentage of the exactly mentioned ages, meaning the 11 ages for females and the 25 for males, and by adding a child who died at 5 years and 12 days old[44], we obtain 36 very exact ages. They are part of a sample of 375 persons, meaning 9.6%, a mean between the percentage of the female and that of the male population.

In the following lines, we will try to apply Whipple's Index to our sample and to compare it with the results obtained by Duncan-Jones.

After applying Whipple's Index to the female sample, we have obtained the following results:

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[44] ISM II, 218.

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
23-32	19	25	70.00
33-42	11	14	73.21
43-52	10	11	88.63
53-62	10	12	79.16
23-62	50	62	75.80
Mean of the four decades			77.75

Table 5. Whipple's Index for females

The number of persons within the calculation interval is 62, meaning only 57.40% of a small overall sample, representing the smallest sample in the Lower Danube area. The first decade comprises almost 40% of the ages, and then they decrease, with the exception of a slight increase in the last decade. The relatively close values of the first two decades, also close to the final mean of the index, show that the younger persons provide the general trend for the entire sample. The third decade is weird, because the index has a high value – 87.5, showing a strong rounding process; there is only one age (43 years old) that is not divisible by 5. It is surprising that the lowest value of the index is registered at the decade 53-62. A possible explanation is that the dedicators of the stones for the persons who died at an older age are their children, usually a little less careful concerning their mother's age. The index has very high values, also due to the relatively small sample. Nevertheless, this is not the only explanation. Moesia Inferior is a peripheral province of the Empire, with a mixture between the centuries old Greek-speaking tradition and the Roman one. The more we advance southward and eastward, the fewer funerary stones that state the age. This precision is part of the Roman funerary customs, while the Greeks prefer to present information on the way a person died and who he/she was.

The index value is close to that obtained by Duncan-Jones for the females within the two Moesias – 73.3[45]. This shows that there was an accentuated preference in this area for the ages ending in a digit divisible by 5.

In his article regarding digit preferences when expressing one's age, W. Scheidel says that the interval 23-62 or 20-69 is not the best choice in order to calculate preference digits, taking into account that, for the Egypt sample, Bagnall and Frier obtained a life expectancy at birth of 22.5 years[46]. For his calculations, he used an extended sample with ages ranging between 10 and 69. We tried to apply the calculation method for Whipple's Index to this extended sample. We have obtained a 60.5 value, much lower than that obtained for the sample 23-62. This is not surprising because, up to 25 years old, in our sample there were mainly unrounded ages, as we have shown above. This extended sample comprises 76 persons – 14 more than the small one, which means, for our rather small sample, almost 14%.

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
10-19	2	12	0
20-29	10	19	40.78
30-39	17	20	81.25
40-49	7	8	84.37
50-59	9	11	77.27
60-69	10	11	88.63
10-69	55	81	59.87

Table 6. Whipple s Index for females (extended sample)

The first decade does not include an age rounding process, and the second decade provides a value under 50, significantly lower than that of

[45] DUNCAN-JONES 1977, 343.
[46] BAGNALL, FRIER 1995, 77.

the reduced sample. Starting with the third decade, the values increase: they are situated between 80 and 90, except for the decade 50-59, which records a value little under 80. The first three decades comprise many persons, while in the second half of the sample the number of persons decreases by every decade. Starting with the age of 30, the age rounding process is highly present in Moesia Inferior. The value of the rounding index at the level of the entire extended sample is significantly lower (by almost 20) than that of the reduced sample.

From the legal perspective, as regards the female sample in Moesia Inferior, the following situation appears:
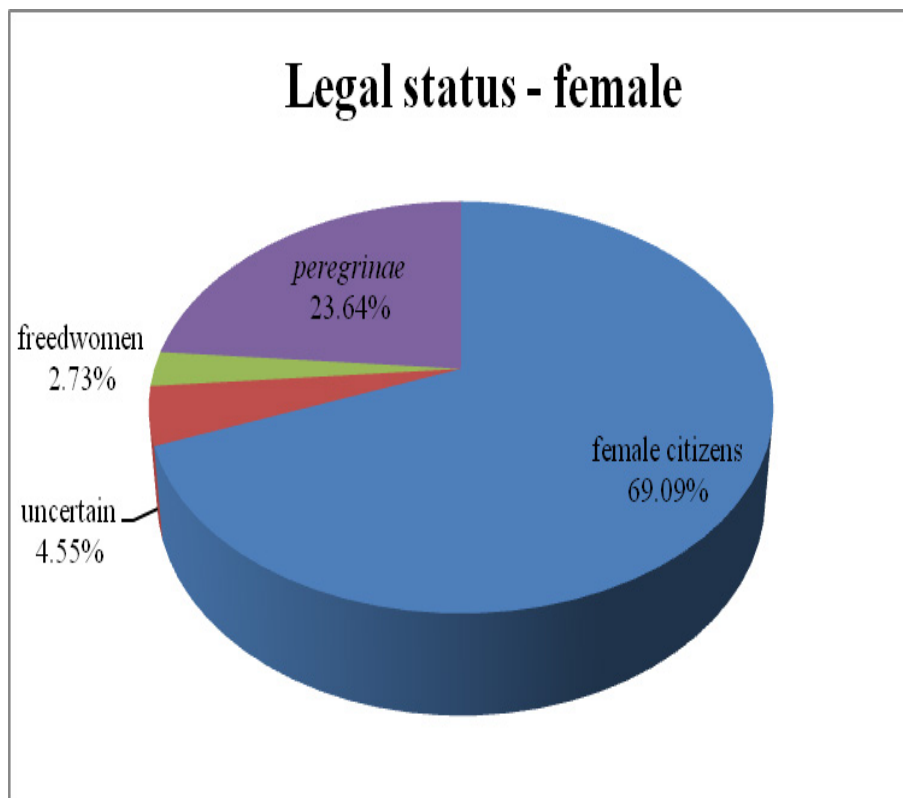

Figure 4. Legal status of the females

In order to identify any age rounding tendency depending on the legal status of the deceased females, we have applied Whipple's Index only for the female citizens and for the *peregrinae*, as the freedwomen are too few to include them in the calculation. In addition, there was no slave female in our sample.

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
23-32	12	17	63.23
33-42	7	10	62.50
43-52	8	9	86.11
53-62	5	6	79.16
23-62	32	42	70.23
Mean of the four decades			72.75

Table 7. Whipple's Index for female citizens

The situation of the female citizens is slightly different from that of women in general. There are lower values in the first two decades than those at the level of the entire population. The third decade has a very high index, as in the case of the entire female population. The mean has approximately the same values as at the level of the entire female population.

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
10-19	1	10	0
20-29	6	14	28.57
30-39	10	13	71.15
40-49	6	7	82.14
50-59	7	8	84.37

60-69	5	5	100
10-69	35	57	51.75

Table 8. Whipple's Index for female citizens (extended sample)

In the extended sample, an increase of the index values was found, which shows the accentuation of the rounding process by age. In the first decade, no rounding process is present, while the last decade features only rounding ages. The index value in the second decade is very low, while in the third decade the value is double. Starting with the age of 30, the rounding process is accentuated in the extended samples of the citizens in Moesia Inferior. The value of the entire sample is significantly lower than in the case of the reduced sample.

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
23-32	5	6	79.16
33-42	2	2	100
43-52	1	1	100
53-62	5	6	79.16
23-62	13	15	83.33
Mean of the four decades			89.58

Table 9. Whipple's Index for the *peregrinae*

The situation of the *peregrinae* is very different from that of the female citizens. The *peregrinae* offer the image of a sample with an accentuated rounding process: only two persons of the 15 within the sample do not have rounded ages.

Age groups	Ages ending in a number	Total	Whipple's Index

	divisible by 5		
10-19	1	2	37.50
20-29	3	4	68.75
30-39	4	4	100
40-49	1	1	100
50-59	1	2	37.50
60-69	5	6	79.16
10-69	15	19	73.68

Table 10. Whipple's Index for the *peregrinae* (extended sample)

In the extended sample of the *peregrinae*, we notice low values under 40 (two decades), but also exclusively rounded ages in two other decades. The index value at the level of the extended sample is lower than in the above-presented situation.

In the case of the persons with uncertain legal status, we notice exclusively rounded ages, and in the case of freedwomen, two rounded ages and an uncertain age. We may pinpoint that, the higher the social status, the lower the age rounding process: the citizens were more careful concerning the persons' age than the other categories. Though rising proportionally with them, the age rounding process remains differentiated on social categories. The female citizens have lower scores than the *peregrinae*, except for the decades 50-59, 60-69 of the extended sample. This can be explained by the fact that the samples of *peregrinae* also include persons within the Greek environment on the Black Sea coast, who had a good financial situation and a high education level, though they were not citizens.

By applying Whipple's Index on the male sample in Moesia Inferior, we obtain the following results:

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
23-32	20	40	37.50

33-42	26	34	70.58
43-52	35	41	81.70
53-62	31	41	69.51
23-62	112	156	64.74
Mean of the four decades			64.82

Table 11. Whipple's Index for males

The sample used to calculate Whipple's Index for males comprises 144 individuals, representing 56% of the overall male sample, which means a lower percentage than that of the female population. Nevertheless, this is understandable because in the female sample there is no individual over 80 years old, while the male sample comprises three centenarians. The Whipple's Index values are lower for males than for females. We notice a relatively uniform division on decades for the sample used. The first decade has a very low value, while the third decade, as in case of females, has a very high value compared to the mean and to the other values. The fourth decade is close to the mean, but slightly higher. All the values are significantly lower than for females.

When comparing it to the results obtained by R.P. Duncan-Jones for the two Moesias, our value is slightly higher, but close. Duncan-Jones obtained 57.2 for the males of the two Moesias[47], compared to 64.74 – the value that we obtained for the ages in Moesia Inferior.

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
10-19	4	25	0
20-29	19	37	39.18
30-39	20	31	55.64
40-49	29	37	72.97

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[47] DUNCAN-JONES 1977, 343.

50-59	28	37	69.59
60-69	31	42	67.27
10-69	131	209	53.34

Table 12. Whipple's Index for males (extended sample)

The first decade does not present an age rounding process; the rounded ages constitute only 20% of the decade sample. The values increase in the next three decades, while in the last two they decrease a little. The number of persons in each decade is similar, except for the first decade, which has a smaller number. The model is similar to that of the reduced sample. The values are lower in the case of the decades, as well as at the level of the entire sample.
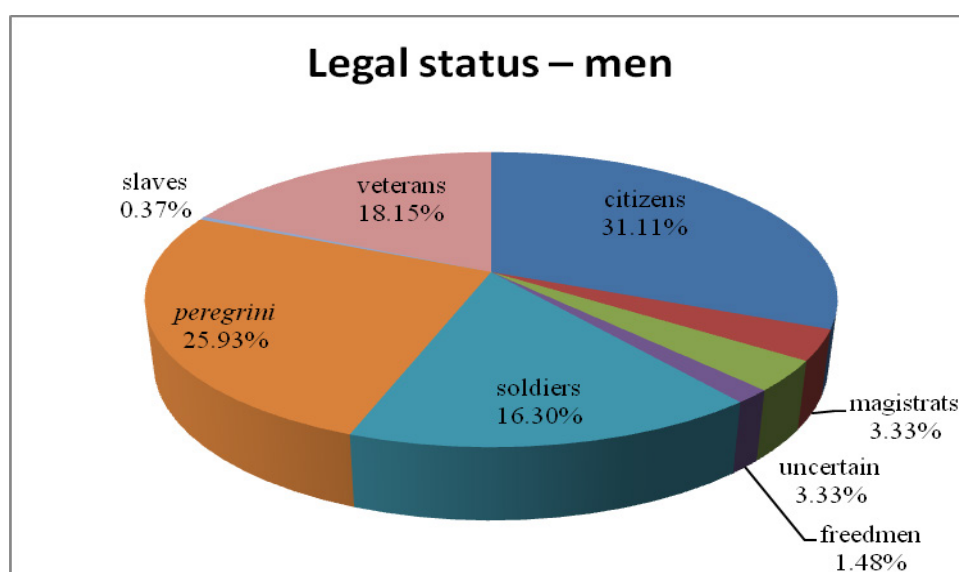

Figure 5. Legal status of the male population

As concerns the males, besides the legal statuses of *peregrinus*, freedman, and slave, we have added three other categories: magistrates, soldiers, and veterans. The magistrates would represent the wealthiest and

most educated among the citizens and the *peregrini* (in the Greek cities on the Black Sea coast), while the soldiers and veterans are categories that do not come only from that province and that present high mobility. We notice that the soldiers and the veterans would represent the highest percentage in our sample, followed by citizens and *peregrini*. This is why we will analyze the three categories below, by observing and analyzing the differences and similarities between them.

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
23-32	6	12	37.50
33-42	6	7	82.14
43-52	7	8	84.37
53-62	8	10	75.00
23-62	27	37	66.21
Mean of the four decades			69.75

Table 13. Whipple's Index for citizens

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
10-19	2	12	0
20-29	6	13	32.69
30-39	5	6	79.16
40-49	7	8	84.37
50-59	6	8	68.75
60-69	8	8	100
10-69	34	55	52.27

Table 14. Whipple's Index for citizens (extended sample)

For the first sample, the model is similar to that of the entire population. The values of the second, the third, and the fourth decades present higher values than the entire population. The fourth decade has a lower value than the second and the third decades. The last three decades have higher values than the mean and at least twice the value of the first decade. We can say that, after the age of 30, the age rounding process becomes significant. In the extended sample, the first decade does not feature an age rounding process; the second decade has a low value, while the four other decades have double values compared to the second decade. The last decade is represented only by rounded ages. The index value at the level of the extended sample is significantly lower than in the case of the reduced sample; the difference is around 15.

Compared to female citizens, male citizens register lower values, except for the second decade, where the value seems to be higher. Generally, it appears that, when the deceased was a male citizen, the dedicators stated more exactly the age than in the case of a female citizen.

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
23-32	4	9	30.55
33-42	8	9	86.11
43-52	9	9	100
53-62	3	4	68.75
23-62	25	31	75.80
Mean of the four decades			71.35

Table 15. Whipple's Index for *peregrini*

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
10-19	2	11	0

20-29	7	10	62.50
30-39	6	8	68.75
40-49	7	8	84.37
50-59	7	8	84.37
60-69	3	6	37.50
10-69	32	51	53.43

Table 16. Whipple's Index for *peregrini* (extended sample)

The first decade within the first sample offers a low value, followed by two decades with high values (one represented exclusively by rounding ages) and the last decade with a lower value. In the second sample, the first decade does not present an age rounding process, and the last decade has a very low value. The other decades have high values. The age rounding process increases with the age in the case of the *peregrini* in Moesia Inferior, but around the age of 60, the age rounding process is less accentuated.

The index values are different from those for the male citizens. The values are very high for the second and the third decades, the latter including exclusively digits ending in a number divisible by 5. Also, all the values are lower than those of the *peregrinae*. The mean is still slightly higher than that of the male citizens.

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
23-32	4	11	20.45
33-42	7	13	42.30
43-52	17	22	71.59
53-62	17	22	71.59
23-62	45	68	57.72
Mean of the four decades			58.90

Table 17. Whipple's Index for militaries and veterans

Age groups	Ages ending in a number divisible by 5	Total	Whipple's Index
10-19	0	2	0
20-29	3	8	21.87
30-39	4	11	20.45
40-49	10	16	53.12
50-59	14	20	62.50
60-69	17	23	67.39
10-69	48	80	50.00

Table 18. Whipple's Index for militaries and veterans (extended sample)

The values of both samples are in ascending order (except for the third decade within the extended sample, where the value is slightly lower than in the preceding decade), just like the number of persons within the first decade or the number of persons with ages ending in a multiple of 5. In both samples, the first part has low age rounding values, while in the second they are high. The values are lower in the second sample, but the difference of values at the level of the entire samples is low: almost 8.

The militaries and veterans represent the only category better represented in the sample 23-62 years old (43.5%), than in the overall sample of the male population (34.4%). Whipple's Index values are very low, even though there is the same tendency in the third decade, providing the highest value. The value of the first decade is the lowest in our entire sample. The fact that the militaries and the veterans have the lowest values of them all shows that it was easier to memorize the age in the army, mostly given that the data related to the enrolment age and to the years of military service were important for the General Staff and for the administration of the Roman State.

If we compare the values obtained for the sample between 23 and 62 years old and those for the extensive sample between 10 and 69 years old,

we get the following values: citizens 23-62 years old 66.21 and 10-69 years old 52.27, *peregrini* 23-62 years old 75.8, and 10-69 years old 53.43; for the militaries 23-62 years old 57.72 and 50.0. The values are lower for a more numerous sample included in the calculation. The smallest difference is that of soldiers, because the militaries were enrolled starting with ages ranging between 18 and 22. This means that there are few representatives for the decade 10-19 years old, a decade in our sample that lowers significantly the index value. This occurs because, toward 35 years old, there is a dominance of the ages ending in other digit than 0 or 5.

Even though our study is based on a rather small sample compared to that included in the studies of Duncan-Jones and Scheidel, we notice, at the level of Moesia Inferior, certain tendencies as regards the preference for rounded ages (ending in a number divisible by 5).

Unlike the other Danubian provinces for which calculations have been made – Dacia, Pannonia Inferior, and Pannonia Superior –, the female population registers a slightly higher preference for ages ending in the digit 5, in the detriment of those ending in 0 or in other digits. The male population registers values similar with those in the other provinces. The unrounded ages rare present mostly at small and young ages – under 25 for females, and under 35 for males – except that, in the case of males, there is a concentration in the interval between 50 and 65 years old. The rounded ages are concentrated, for both males and females, from 30 to about 70. The very exact ages represent around 10% for both males and females, concentrated in the younger part of the sample. If, in case of females, the very exact ages appeared only for the female citizens, at the male population they also appeared at *peregrini* and soldiers.

Because we have applied Whipple's Index of small samples, it was a little more difficult to set up tendencies, mostly that, when having as criterion the legal status. In addition, as concerns the *peregrini* and *peregrinae*, a decade for each is represented only by individuals with rounded ages. We have obtained higher values for the index than Duncan-Jones, but this may be due to the geographic location of the province (at a relatively far border of the Empire), to the presence of the Greek cities and of a Greek-speaking population. It may also be due to the fact that the

archaeological research of the decades to come may still find funerary stones. In addition, some of the inscriptions in this period were used as building material at the end of the 3rd and the second half of the 4th century to restore the enclosure walls during the invasions of the migratory peoples.

The values obtained show a low represented third decade, with a dominance of rounded ages, while the fourth decade has lower values. The female citizens, though with values not very different from those of the *peregrinae*, show a clear lower tendency, when extending the sample, for numbers divisible by 5. As regards the male population, the militaries and veterans represent the category with the lowest tendency toward rounded digits, followed by male citizens and *peregrini*. Nevertheless, it must not be forgotten that a part of the soldiers belonged to legions, which means they were also citizens, and the veterans within the auxiliary troops also gained citizenship; had we added them to the category of citizens, we would have obtained significantly lower index values. We notice the same tendencies in Moesia Inferior as at the level of the other Latin-speaking provinces, obtained by Duncan-Jones – lower values for males compared to females and for citizens compared to non-citizens. Nonetheless, in Moesia Inferior the values for *peregrini* and citizens are closer.

The application of Whipple's Index to other neighbouring provinces in the future will provide us with a better picture of the age rounding tendencies at the level of each province; it will also underline the similarities and the differences compared to other Latin-speaking provinces considered as a whole.

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