

## Labour Relations in Java 1650, 1800, 1900

Ulbe Bosma,

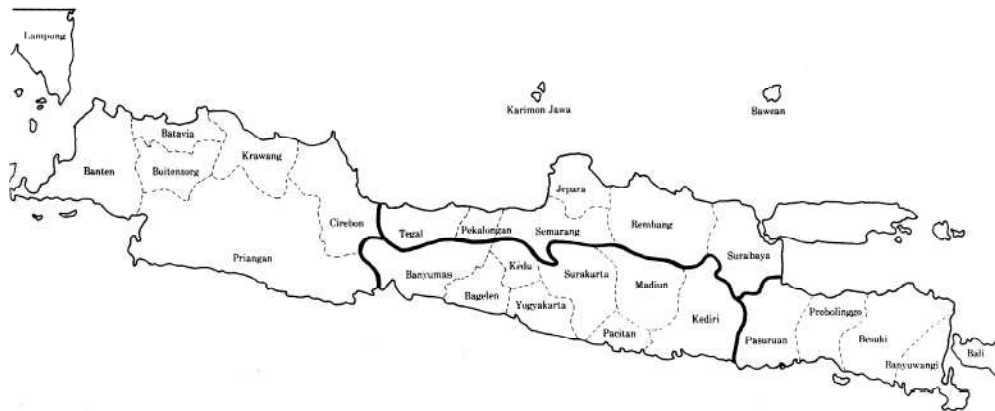
IISH

### *Introduction*

This paper aims at assessing the changing composition of Java's labour force for the years 1650, 1800 and 1900. Clearly, the quality of the available data varies considerably for these benchmark years. For 1905 a proper census is available and with some corrections these data comprise a reasonable sound estimate. Moreover, they can be corroborated by other contemporary data. For 1800 we have the very crude and incomplete figures compiled by the EIC's general surveyor Colin Mackenzie who was assigned to this task by Java's Lieutenant-Governor-General Stamford Raffles (1811-1816). Excerpts of these data have been published in Raffles' *The History of Java*. Finally, for 1650 we only have some fragments and traces of census figures. Actually, in 1651 a census was held by the Javanese ruler Amankurat I, but it was lost and only part of its data have been reconstructed by Merle Ricklefs. The Dutch East India Company (VOC) has made some surveys on the populations around its most important bases in Java, but these seem hardly to contain any data on labour relations. Apart from the census figures on occupations, landownership, tenancy and so on, data on the level of urbanization in each of the years 1650, 1800, 1900 are an important additional source.

This paper will begin with a reconstruction of the general population growth on Java (and the small adjacent island of Madura that in practically all census reporting is considered to be part of Java) between 1650 and 1900. This will be done on the basis of secondary literature. Next, the paper will present figures on urbanization in Java for the relevant years. Then it will discuss data found for 1650 (most of which are VOC data) the data presented in Raffles' *History of Java* (1815) as well as the census of 1905. The latter comes so close to the benchmark year 1900 that we will use it as if it concerns '1900 data'. Since the overwhelming majority of Java's population is rural until 1900, this paper focuses primarily on questions of landownership and employment outside subsistence agriculture. The latter may include military and maritime labour. Plantation labour within the colonial setting is another increasingly important segment. Since Chinese millers started sugar production around Batavia in the 17<sup>th</sup> century Java's cash crop production for the world market has continuously expanded. It culminated in the massive plantation complex of the early 20<sup>th</sup> century comprising 1,300 plantations. Slavery (house and plantation) is a third element to be discussed. Corvée labour as well

as military conscription will fall outside the purview of the present paper, but are planned to be included in future research.<sup>1</sup>



*Map of Java. Reprinted from Changing Economy in Indonesia: A Selection of Statistical Source Material from the Early Nineteenth Century to 1940, edited by Peter Boomgaard (Amsterdam: Royal Tropical Institute, 1991).*

### *Demography*

Any attempt to gauge the changing labour relations in Java needs to be based upon estimates on the population of this island at large. Demographic growth on Java has always been a hotly contested issue, since it is so closely related to debates about the alleged blessings or curses of colonial rule. While it is undeniably clear that the population of Java started to increase rapidly in the course of the 19<sup>th</sup> century, one can argue about the extent to which the population of Java has been undercounted before 1850. As for the small European population of Java, we have been able to assess that undercounting has been the case.<sup>2</sup> But for the indigenous population we have to rely on assumptions about the relative effects of factors that impinged upon the demography and these effects were mixed. The positive impact of smallpox vaccination in the early 19<sup>th</sup> century was counterbalanced by the arrival of cholera on Java in 1821 and the Java War (1825-1839). Taking all these factors together, one can reasonably assume that Raffles' figure of the Java and Madura's total population of 4.6 million is reasonably on target and almost the same as the figure given by Boomgaard.<sup>3</sup> We therefore take this 4.6 million as a point of departure for 1800.

Census data for mid-17<sup>th</sup> century Java are scarce. The ruler of Mataram Amankurat I ordered a head count in 1651, but these data are lost and according to

<sup>1</sup>. Military and maritime labour under the VOC is currently researched by Matthias van Rossum. For the 19<sup>th</sup> century colonial army, extensive data are available in the Colonial Reports.

<sup>2</sup>. Bosma, 'Sailing through Suez from the South', 525.

<sup>3</sup>. Raffles, *The History of Java*, vol 1, p. 62, table II gives the figure of 4,615,270. The total population of Java [and Madura?] according to Boomgaard in 1815 amounted to 4,527,767. See Boomgaard, *Children of the Colonial State*, 154; For the early 19<sup>th</sup> century demographic growth on Java see Boomgaard, *Children of the Colonial State*, 189. See also Boomgaard, 'Smallpox'. See with respect to the debates about early nineteenth-century demographic growth in Southeast Asia Owen, 'The Paradox of Nineteenth-Century', 51-52.

Ricklefs we can be reasonably certain that there is no other census before 1774.<sup>4</sup> He has however reconstructed a proxy on the basis of some surveys of the number of households, which were made by Javanese rulers in order to establish the number of soldiers they could mobilize in times of war. Each household that could deliver one soldier is a *cacab* (later on to be reshaped into a tax unit). For the Northern Pasisir (North Coast of Java) about 92,700 *cacabs* were recorded and for Eastern Moncanagara and Eastern Salient (based upon Babad Sangkalaning Momana 1638-39) 62,400.<sup>5</sup> According to a VOC document the Susuhunan of Surakarta and his noblemen could count on an army of 93,900 men around 1700.<sup>6</sup> In the 19<sup>th</sup> century attempts have been made to reconstruct the 17<sup>th</sup> and 18<sup>th</sup> century population of Java by using such data on *cacab* and multiply them by six. If we would apply this procedure the total population of Java around 1700 would not exceed the 2 million, which is unrealistically low. Moreover, according to contemporary academic standards this is hardly an acceptable procedure. There are also data on forced deliveries, which have been collected by the VOC in certain parts of Java, but these may be more helpful to reconstruct geographical shifts in population density than to reconstruct the total population. Such a reconstruction has helped to substantiate the claim by Ricklefs and Carey about the relative preponderance both in population and wealth of the Surabaya region in the 17<sup>th</sup> century.<sup>7</sup> None of these data bring us to solid ground as regards the total population of Java in early modern times however.

We must rely on a different set of indications about population growth in the 17<sup>th</sup> and 18<sup>th</sup> century. Anthony Reid, for example, has observed that for most of this period the population growth was about 0.2 percent, whereas Ricklefs argues that from 1755 onwards the population growth may have climbed to 1.0 percent per annum.<sup>8</sup> Though we do not have much demographic data on 17<sup>th</sup> century Java, there are strong indications that decades of war have led to a declining population. Ricklefs strongly suggests that this was the case for Java for the period 1675-1755, but also indicates that we cannot know the extent of the decline. Nonetheless, for Ambon we have more precise figures by Gerrit Knaap that show how violence leads to a fairly drastic declining population.<sup>9</sup> It is therefore likely that the population of Java was at a peak around 1650, after which it went into a period of substantial decline until the mid-18<sup>th</sup> century.

For the period before 1600 there is no reason to suppose that the population growth in Southeast Asia was lower than in Europe. On the contrary, the average health condition of the Javanese was in all likelihood better than the contemporary Europeans. Visitors from Europe noted the longevity of the people in this part of the world.<sup>10</sup>

---

4. Ricklefs, 'Later 17th and 18th century Javanese history', 6.

5. Ricklefs, 'Some Statistical Evidence', 4-5, 8.

6. NA, VOC inv.no. 7784, 'Lijste aanwijssende 't getal van sodanige Javaansche volkeren als er op Cartasoera bij de gedane monsterring door de Prijeijs van den Sousouhouang in weesen bevonden zijn (ontfangen 26 Majj 1706 per den IJsselt).

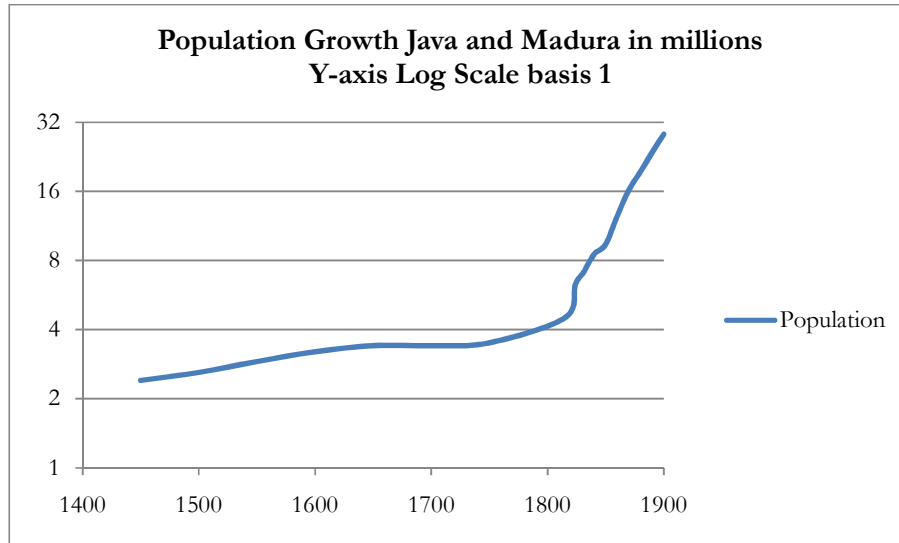
7. Ricklefs, 'Later 17th and 18th century Javanese history', 15;

8. Reid, 'Southeast Asia in the Age of Commerce', 12-15 [check]; Ricklefs, 'Later 17th and 18th century Javanese history', 30.

9. Knaap, 'The Demography of Ambon', 238; Ricklefs, 'Later 17th and 18th century Javanese history', 29. [The last two columns on p. 8 based upon Javanese sources also show a decline]

10. Reid, *Charting the shape*, 218-219.

Diagram I. Reconstruction of the Population Growth of Java and Madura



Data for 1650, 1700, 1750 are assumptions based upon Ricklefs, 'Later 17th and 18th century Javanese history', for the period 1450-1650 we based ourselves upon Reid's claim that population growth in Southeast Asia was about 0.2 in early modern times. Reid, 'Southeast Asia in the Age of Commerce', 12-15 [check]; For the latter part of the 18th century we based ourselves upon Ricklefs claim that in the later part of the 18<sup>th</sup> century population growth on Java may have neared 1.0 percent. Ricklefs, 'Later 17th and 18th century Javanese history', 30. For 1815-1850 see Boomgaard, *Children of the Colonial State*, 166. And for 1850-1900 see the *Colonial Reports* of 1870 [?], 1880, 1890 and 1905.

#### *Age and Gender ratio's*

In the 19<sup>th</sup> century the child/adult ratio is shifting over time since child mortality is declining and because surveyors may have raised the statistical age on which young adulthood was reached from 10 to 12 years. Whereas in the 18<sup>th</sup> century children made up less than 40 percent of the population, their share increased to over 50 percent around 1900. As in most societies the gender distribution of Javanese is slightly skewed towards the female population. For 1800 (see table 4) the gender ratio is 85 male: 100 female, a ratio that I have also applied for 1650. For 1900 the numbers for adult men are 6,681,112 and for adult women 7,258,901 (a gender ratio of 1.08) on a total population of according the same census of 1905 25.5 million 'indigenous' people.<sup>11</sup> The gender ratio has not changed at all in the 19<sup>th</sup> century, but the age ratio definitely has. According to the data presented by Raffles we would arrive at the percentage of the population below 6 is 11 per cent, which is somewhat low given the life expectation at that time. I therefore assumed that 15 percent of the population is under seven years old in 1650 and 1800. For 1900, we are assuming that 20 percent of the population is younger than seven.

<sup>11</sup>. According to Widjojo the total population of Java and Madura in 1905 was 30,098,008.

### *Urbanisation*

The data about the population size of the most important cities of Java for 1800 and 1900 are reasonably reliable. The 1650 data are just guesses based upon travelogues, city maps, paintings, data on food supplies to these cities and so on. It has been recorded that some Indonesian coastal cities were large Islamic and trading centres before the arrival of the Europeans and these cities went through a phase of contraction and destruction before the Europeans partially reorganised these cities.<sup>12</sup> Anthony Reid has made an inventory of the guesses on the size of the urban populations of 14 important cities in Southeast Asia, which, he argues, ‘undoubtedly suggest’ that the largest Southeast Asian cities of the 16<sup>th</sup> and 17<sup>th</sup> century appear to have reached numbers between 50,000 and 100,000. He adds to this however that the urban conglomerates in Southeast Asia were remarkably green, and not the type of cities that Europeans and Chinese created under the Dutch East India Company rule. Their urban planning was derived from the heavily packed urban centres in China and Europe. Nonetheless, the Javanese coastal cities of Bantam, Japara, Tuban, Pati and Surabaya all had brick walls in the early 17<sup>th</sup> century, even though these never surrounded the entire city.<sup>13</sup> The problem is that the estimates by European visitors are usually exaggerating the population size of the cities. François Valentijn, famous for his detailed early 18<sup>th</sup> century descriptions of the possessions of the Dutch East India Company, gives a figure of 20,000 households for Semarang, and 10,000 households for the kraton of the ruler of Surabaya.<sup>14</sup> I tend to agree with Luc Nagtegaal in his extensively researched *Riding the Dutch Tiger* that a population of 10,000-20,000 for Semarang and Surabaya in the mid-17<sup>th</sup> century sounds much more realistic than the estimates of Valentijn.<sup>15</sup> A city as Bantam, still important as an emporium for the pepper trade at that time is probably even smaller, if we take a drawing in Valentijn’s own book seriously.<sup>16</sup> The cities Yogyakarta and Surakarta must have been much smaller in the 17<sup>th</sup> century than around 1800, but we are still trying to find out whether the court archives of these cities might provide any detail about that.

---

<sup>12</sup> Ford, ‘A Model of Indonesian City Structure’, 376.

<sup>13</sup> See Reid, ‘The Structure of Cities’.

<sup>14</sup> Valentijn, *Beschryving van Oost-Indien*, Vol. 4, 1, pp. 26, 47.

<sup>15</sup> Nagtegaal, *Riding the Dutch Tiger*, 91-93

<sup>16</sup> Valentijn, *Beschryving van Oost-Indien*, Vol. 4, 1, 212.

Table 1 Urbanisation on Java (Source see appendix II)				
City	1650	1800	1850	1900
Batavia	25,000	47,000		
Surabaya	10,000-20,000	25,000		
Semarang	10,000-20,000	20,000		
Yogyakarta		37,000		
Surakarta		105,000		
Bantam	5,000-10,000			
Total cities <20,000		300,000		
Percentage of Population in these cities				

Table 2 Java's Urban Population (according to Boomgaard, Children of the Colonial State p. 111)			
	1815	1850	1890
Number of towns>20,000	5	19	16
Percentage of Java's population in these towns	6.7%	6.8%	2.8%
Number of towns > 5,000	-	78	74
Percentage of Java's population in these towns	-	12.7%	6.4%

The crucial conclusion from the data provided by Peter Boomgaard is that urbanisation has not increased over the 19<sup>th</sup> century. The data on 1650 suggest that the level of urban growth of Java's main cities just held pace with the general population growth in the 18<sup>th</sup> century. In other words urbanisation stagnated.

#### *Labour Relations 1650, 1800, 1900*

Below reconstructions will be made of occupational distributions and labour/property relations in Java for the years 1650, 1800, 1900.

#### Labour Relations 1650

For 1650 sources are extremely scarce. There are VOC surveys that were made in different parts of Java from the late 17<sup>th</sup> century onwards, but these hardly present any usable data apart. For the Priangan some late 17<sup>th</sup> century data have been published in De Haan's Priangan just to show – in his words – the utterly unreliable character of the surveys made by the VOC.<sup>17</sup> Moreover, such reports do not include data on occupational structures. On the basis of secondary literature and 'circumstantial evidence' we can at least present some ideas about 1650. Assuming a population of 3.5

---

<sup>17</sup>. De Haan, *Priangan* IV, 960.

million in 1650, we may estimate the total number of households at 800,000 (which means an average household size of 3.71875). Migrant labour, gender divisions and by-employment complicate the identification of the connection between household and labour. Moreover, the total number of slaves (often forced migrants) is difficult to gauge, because not only the VOC but also Javanese princes did have considerable numbers of slaves. In certain sectors such as the sugar mills *budjangs*, unmarried men were hired as seasonal migrant labourers. The textile sector was largely dependent upon cottage weaving and mostly female labour.

Based upon extrapolations from 1800 and scarce data about 1650 we may assume that in the latter year about 82 percent was involved in farming agriculture. That would amount to about 640,000 households, a figure that squares nicely to 200,000 to 300,000 thousand *cacabs* that are identified in different 17<sup>th</sup> century sources for Java (see p. 3 of this paper). On the basis of this evidence we assume that about half of the households is headed by an independent farmer, fitting category 4 of the Labrel taxonomy.

Table 3. Population division Java & Madura 1650 and Agricultural labour force 1650 (reconstruction ubo)				
Category	M	F	M Labrel	F labrel
Total population	1,609,000	1,891,000		
Children < 6	525,000		1	1
Economically active	2,975,000			
Non-agrarian population (table 4)	588,256			
Agrarian population	2,386,744			
Total members of households of landowning farmers	1,193,372			
Total members of households of sharecroppers dependents	1,193,372		14	14
Heads of households of landowning farmers	320,907		4	4
Spouses of landowning farmers spinning for the market		48,000		12
Other household members > 6 of landowning farmers	872,465		5	5

For textile, construction, industries, and *warungs* (street shops) we have taken the percentages of table 5 and converted them into absolute figures on the basis of the estimated 800,000 households of 1650. As regards construction, the actual figure might be higher since extensive fortifications were built in these years and in all likelihood a greater percentage of Javanese was involved in shipping in 1650 than in 1800.

Table 4. Estimates about occupational structure Java 1650				
	Column I	Column II	Column III	
Sector	Numbers individuals	Households (Column I x 3,71875)	Percentage of households (extrapolated from 1800)	LABREL
Textile (workshop)	3,697 Female 3,049 Male	25,087	0.85	14
Construction	9,880	36,741	1.2	14
Other industries incl. Shipping	22,800	84,788	2.25	14
Shipping	38,000 <sup>18</sup>	141,313	4.75	14
Employers in textile, construction, other industries and shipping	4,075	15,154	0.5	13
Sugar mills	3,600 <sup>19</sup>	13,388	0.1**	14
VOC ships sailors	400	1,488	0.001	14
VOC military (Ambonese)	2,500	9,297	0.07**	14
Priests and Teachers	9,600	35,700	1.2	18
Fishing	24,000	89,250	3	12
Shopkeepers	7,200	26,775	0.9	12
Administrators	23,200	86,275	2.9	18
Slaves VOC Batavia*	16,000	16,000	0.5%**	17
Slaves other cities Java	guessed. 2,000	2,000	0.06	17
Slaves or pawns of Javanese rulers	guessed 5,000	5,000	0.015	17
Total	175,001	588,256	18,3%	

The total of column II minus column I = 413,255 are spouses and other members of the household assisting and therefore Labrel 5.

\*See appendix II

\*\*Percentage of total population of Java

NB In the categories shipping, textile, construction and fishing, we have not yet identified the employers, but just work on the basis of assumptions. For shipping, shipping industries and construction we assumed that 5% can be considered as employers, for textile 10% and for fishing we assumed that the boats and nets are collectively owned.

<sup>18</sup>. Based upon the figures given about the tonnage of private ships from the Pasisir calling at Batavia presented in Nagtegaal, *Riding the Dutch Tiger*, 124 compared with Knaap, 'Shipping and Trade'. According to Nagtegaal the growth in tonnage of the shipping from the Pasisir to Batavia increased by 50 percent between 1640 and 1775.

<sup>19</sup>. Assuming that around 1650 60 mills were in operation around Batavia each employing 60 workers.



To arrive at estimates for the different Labour Relations the following steps have been taken:

#### Labour Relations 1800

The data that are published in Raffles' *History of Java* are seriously flawed. As a matter of fact, the author himself admits that they are not checked against the original data that have been collected, but put together rather hurriedly when he left Java.

Table 5. Total Population of Java & Madura (Employment) Based on Raffles, <i>The History of Java</i> Vol 1, 244-245, 248-249, 254-255, 261-286. (not included the Residencies of Bantam, Batavia, Madura & Sumenep and the Principalities)						
	Total Population	M <sup>20</sup>	F	Involved in cultivation	Involved in Other employments	Total Households
Javanese	2,643,457	1,220,057	1,423,400	78.2%	22.8%	633,923 <sup>21</sup>
Chinese & Foreign Orientals	17,468	8,677	8,845	583	7,917	8,500
Total Slaves	25,035 <sup>22</sup>					

From the above table the Residencies of Bantam, Batavia, Madura & Sumenep and the Principalities are excluded, since for these residencies Raffles has not give the number of cultivators. The figures are not always consistent. Some of the Residencies give figures for households involved in agriculture or other employments, others give figures for all adults and some for each individual. Some undercounting may have occurred, because data on landownership had to be provided by the village heads in the context of the land rent system. These village heads had a distinct interest in giving low numbers, probably only those who owned sawah land (the *gogol*). And yet, the totals of Raffles do not substantially differ from those of Boomgaard. Neither does it seem that Raffles' data are skewed in favour of non-agricultural labour, as one might expect if

<sup>20</sup>. The division male/female is based upon Raffles, *The History of Java* vol. 1, page 62, table 2. These data on the gender division are however far from complete. It presents however a division 6/13 male and 7/13 female, which we have used in table 3.

<sup>21</sup>. For the Residencies Tegal, Pekalongan, Semarang, Jipang & Grobangan, Japara & Jawana, Gresik, Surabaya and Pasuruan a division has been made for cultivating and non-cultivating households. On the basis of this division we have calculated an average householdsize of 4.17. See Raffles, *History of Java*, Vol. 1, pp. 261-186.

<sup>22</sup>. The number of slaves is derived from NA, Coll. Schneithner inv.nos. 83-100, because the figures given by Raffles are far from complete.

peasants are hidden from the surveyors on a massive scale. There are however a few other glaring omissions, one of them being the data on slavery, a phenomenon that was more or less confined to the coastal cities. In Semarang for example hardly any slaves were counted by Raffles. For an estimate of the slave population we therefore relied on data from the Schneither collection that have been compiled around 1820.

The average household size according to Raffles is 4.16. Boomgaard is basing his calculations on an average household size in Java of 4.5, a figure that is slightly lower than the one that has been found for the early 19<sup>th</sup> century. Since the household comprises parents, children and other dependents, the figure of 4.5 seems to be more realistic indeed.<sup>23</sup>

Raffles' reconstruction of the division between agricultural and other employments is surprisingly credible in view of all the other biases. His tables list about 80 percent of the Javanese as cultivator, in contrast to the Chinese of whom less than 7 percent was involved in agriculture. The 80-20 division not only comes close to division we found in the Schneither collection (23 percent non-agricultural) but also to what Boomgaard has found, as we will see below. First, I will try to reconstruct the labour relations within the agricultural sector.

Raffles' *History of Java* does not present a differentiation between landownership, tenancy, sharecropping and last but not least landlessness. In contrast to rural India we unfortunately do not have any rural village studies that cover a *longue durée*.<sup>24</sup> The first thorough investigation on landownership is the Umbgrove report of the 1850s, which gives detailed accounts of the division of landownership at the village level around the 94 government-contracted sugar factories of Java. But the use of these data is problematic for our purpose, because by that time the Cultivation System already had left its stamp on Java's rural society. For the early 19th century, however, some surveys have been made by John Crawford, a high civil servant under Raffles, and there are also some relevant Dutch sources [quite a few of which have been consulted by Boomgaard]. Furthermore, there are the surveys by Colin Mackenzie, which in all likelihood provide us with much more detail than Raffles' *History of Java*. What Carey has deducted from Crawford's records is that in more densely populated parts of Java possibly 10 percent of the population of Java was itinerant around 1800.

What we know from Java around 1800 is that there were by and large two categories of agricultural labour. Most of the land was in the hands of a relatively small group of farmers (*sikeps*), who were surrounded by dependents. Carey as well as Boomgaard emphasizes the dynamic character of the Javanese society before the Java War.<sup>25</sup> Landlessness was a function of the more densely populated parts of Java, and hardly occurred in the frontier of East Java.<sup>26</sup> With respect to landownership Boomgaard presents us some very important insights about the agricultural surveys under Raffles. The whole exercise of assessing the holdings of landowners as a preparation of the establishment of the land rent during Raffles' tenure may have led to

---

<sup>23</sup> Boomgaard, *Children of the Colonial State*, 154.

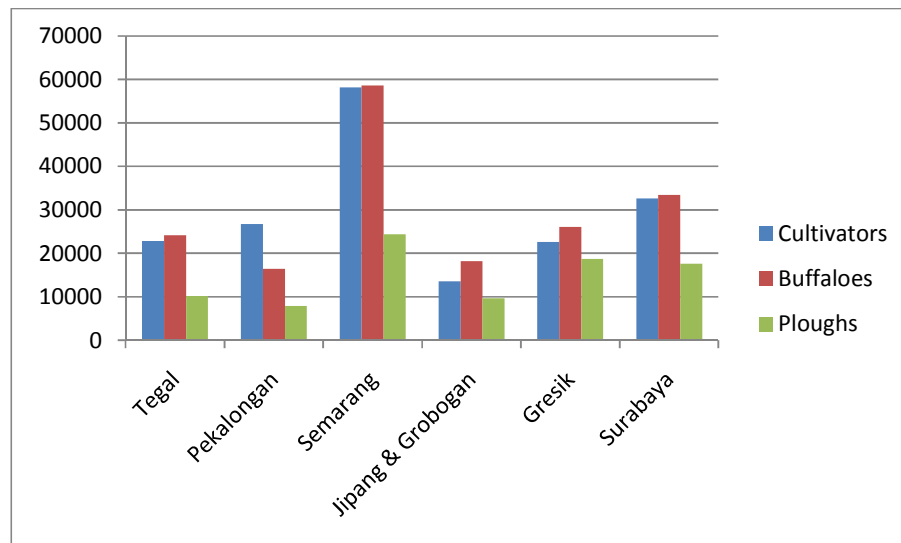
<sup>24</sup> We are referring here to the work of Harold Mann and N.V. Kanitkar, *Land and Labor in a Deccan Village: Study No. 2* (1921), Nummer 2 (reprinted by Kessinger Publishing, 2008)

<sup>25</sup> Carey, *Diponegoro*, 30-35; Boomgaard, *Children of the Colonial State*.

<sup>26</sup> See Elson, *Javanese Peasants*.

the registration of tenants and sharecroppers as owners, simply erasing the differences that had existed, at least erasing these differences on paper.<sup>27</sup> We nonetheless may have other means to single out farmers who were able to live from their land within the total population of agricultural workers. This can first of all be done by using Raffles' *History of Java*, which does not discern between owners and non-owners but does contain data about agricultural means of production. From its tables it appears that for each plough on average two buffaloes were maintained, which is for the obvious reason that it usually required two buffaloes to pull a plough through heavier and wet soils. The number of ploughs compared to the agricultural population of Java varies considerably, but on average 50 percent of the cultivating households possess a plough with buffaloes.

Diagram II. Relationship between number of cultivating households, number of ploughs and buffaloes for a number of Residencies according to Raffles, *History of Java*, 261-277.



This division may correspond to the division between *bumis* (independent farmers or *sikep*) and *manumpangers* (sharecroppers).<sup>28</sup> The overview made by Engelhard in 1796 informs that 42 percent of the population in the regencies in West Java was bumi.<sup>29</sup>

Again, the data provided by Raffles and by Boomgaard suggest a percentage of non-agricultural labour of 20 percent of all male labour. Raffles hardly provides information about non-agricultural employment and where he does he seems to be widely off the mark. He presents figures on the number of village chiefs as well as priests, but these data show immense variation: in one Residency only 1% of the village households have been counted as a village chief, in another 8%. The percentages of village priests ranges from 2% to 10% depending on the Residency from the data are

<sup>27</sup>. Boomgaard, *Children of the Colonial State*, 47.

<sup>28</sup>. See for a explanation Breman, *Koloniaal profijt van onvrije arbeid*, 44.

<sup>29</sup>. Engelhard, 'Overzicht der Bevolking'.

derived. The documents of Schneither collection provide data on a number of Residencies (see table 5) suggesting that about 2.4 percent of the population was active as priest. The share of priests may have gradually diminished over the 19<sup>th</sup> century. The *Colonial Report* of 1875, cited by Boomgaard, gives us the figures of 0.8% for clergy and 2.9% for government employees. But these figures are quite different from the colonial census of 1905 that gives the figures of 0.4% for village priests and another 0.4% for teachers (the latter were often also priests), 0.4% for civil servants and 4% for village administration. Particularly the difference between the number of civil servants and government employees reported in 1875 and 1900 are considerable and require further investigation. The number of village dignitaries (including the clergy) may have declined however, because the colonial government had a distinct interest in including as many villagers as possible for conscript labour.

In general one may wonder to what extent the composition of non-agricultural employment has really changed in the 18<sup>th</sup> and 19<sup>th</sup> century, assuming that some basic services had to be provided for the village economy regardless of the specific stages of the Javanese economy. Conversely, rural markets and rural consumption patterns may have changed in the course of the 19<sup>th</sup> century. One of the things to be mentioned in this respect is the disappearance of the cotton industry from Java. As Boomgaard emphasizes, in Java spinning was always done as reciprocal labour rather than for the market, which explains why in some residencies there was one spinning wheel in every two households.<sup>30</sup> Boomgaard arrives at a figure of 6 percent on average involved in textile sector (including *batik*), but this 6 percent is still by and large reciprocal labour rather than 'producing for the market'.<sup>31</sup> The 65,000 labourers engaged in making textile as by-employment and the possibly 10,000 fulltime employed in the textile industry concern almost entirely women.

Next to textile the maritime sector stands out as the major non agricultural sector. In the table below we give for the maritime sector the figure cited by Knaap on the total number of persons involved in the private maritime sector in Java at 65,000-70,000 in 1775.<sup>32</sup> Not included in Boomgaard's data are the soldiers. As a proxy we have taken the *État de Situation* of the colonial army under Governor-General J.W. Janssens as it has been reported to France in 1811. At the time on 13,490 'indigenous' and 1506 Ambonese soldiers were stationed on Java in addition to 2,397 European military.<sup>33</sup> Moreover, around 1800 the Javanese princes also had their small armies of Javanese soldiers, the *prajurits*. We therefore assume a figure of 20,000 professional Javanese military for 1800.<sup>34</sup>

Not included in the data of Boomgaard, furthermore, is the amount of corvée work or work on behalf of forced cultivation of coffee, cotton and indigo. Part of this replaced the existing taxes to the ruler to whom the farmer had to hand over half of

---

<sup>30</sup>. Ibidem, 127.

<sup>31</sup>. Ibidem, 129.

<sup>32</sup>. Knaap, 'Shipping and Trade in Java', 412.

<sup>33</sup>. Daendels, Staat der Nederlandsche Oostindische bezittingen, Bijlagen Tweede Stuk, Additionele stukken no. 2, 'État de situation. L'armée de sa majesté l'Empereur des Français etc. etc. etc., aux Indes Orientales'.

<sup>34</sup>. The legion of the Mangkunegara counted 1150 soldiers in 1808. The figure of 10,000 is probably too low rather than too high.

their harvest as taxes, which had become increasingly monetised from the 17th century onwards. In practice, as Carey has pointed out, taxation on land was widely evaded.<sup>35</sup> The Cultivation System that as implemented in 1830 was based upon 66 days of work per year per household, but still additional *corvée* had to be done, adding up to more than 100 days per year per household and 40 percent of the households in the Residencies under direct government rule were included.<sup>36</sup>

Table 6. Population division Java & Madura 1800 and Agricultural labour force 1800 (reconstruction ubo)				
Category	M	F	M Labrel	F labrel
Total population	2,113,514	2,486,486		
Children < 6	690,000		1	1
Economically active	3,900,000			
Non-agrarian population (table 7)	963,000			
Agrarian population	2,937,000			
Total members of households of landowning farmers	1,468,500			
Total members of households of sharecroppers dependents	1,468,500		14	14
Heads of households of landowning farmers	326,333		4	4
Spouses of landowning farmers spinning for the market		48,000		12
Fish pond owners, members of landowning farmers' households	5,500		12	12
Clergy, members of landowning farmers' households	13,000		7	
Other household members > 6 of landowning farmers	1,075,667		5	5

<sup>35</sup>. Carey, ‘“Waiting for the just King”’, 73.

<sup>36</sup>. The share of the households involved in the Cultivation declined over time, but 35-40 percent is reasonable estimate for the 1840s. Fasseur, *Cultivation System*, 17. Java in 1850 had a population of about 12,000,000 and the average size of a household was 4.7. The population of the Principalities, Batavia, and Buitenzorg and other private domains must have been about 3 million, which means that there were 1.9 million households available for the Cultivation System.

Table 7. Data on non-farming occupations in Java. Based upon Boomgaard, *Children of the Colonial State* (for the maritime sector see Knaap 'Shipping and Trade').

Product	By-employment	%	Labrel	Professional	%	Labrel
Textile (incl. Batik)	65,000	6	5	9,000	0.8	14
Construction				14,250	1.2	14
Sugar mills				11,880	1.1	14
Other industries, incl. Shipping				20,000 -25,000	2.0-2.5	14
Employers in textile, construction, sugar and other industries				2,870-3,120**	0.29	13
Maritime employers				3,000	0.29	13
Maritime				57,000	5.7	14
Sailors European ships*				1,000	0.1	14
Military				20,000	1.8	18
Fishing				35,000	3	12
Fish pond owner	5,500	0.5				12
Salt making				5,000-10,000	0.5-0.9	14
Shopkeepers				10,000	0.9	12
Clergy <sup>37</sup>	13,000	1.2		13,000	1.2	18
Administrators				3,000	0.29	18
TOTAL	94,500	7.7		204,000-214,000		

\*Matthias van Rossum, 'De intra-Aziatische vaart'.

\*\* We kept the same ratio employers and employed as for 1650 in textile, construction, other industries and maritime. For sugar mills we reckoned one hundred workers per mill.

For the dependent household members we take  $4.5 \times 209,000 - 209,000 = 731,500$

#### Census data 1905

From the mid-19<sup>th</sup> century onwards the colonial government of Java conducted a census every five years. Though these figures are a lot more reliable than the surveys conducted under Raffles, it is known that at the village level quite a lot of mistakes have crept in. They nonetheless provide us with important trends that can be corroborated by other material. Again, our point of departure is the division between agricultural and non-agricultural labour and the property relations in Java's rural society

For agricultural work this census of the *Colonial Report* provides us with the following data:

---

<sup>37</sup>. For the Clergy we took the figures from the statistics included in the Schneither collection, assuming that 50 percent is exclusively belonging tot the clergy and another 50 percent is also part of the cultivating class, analogous to the 1905 census. See NA, Coll. Schneither, inv.nos. 83-100 (For the Residencies Pekalongan, Priangan, Buitenzorg, Rembang, Pasuruan and Besuki the number of priests is given).

Table 8. Agricultural Labour Force (Census 1905, Colonial Report 1907)					
<i>Agricultural labour</i>	M	V	M %	V %	Labrel
Landowners with buffaloes	1,365,327	105,746	26	7	4
Landowners without buffaloes	2,032,352	216,151	39	16	14
Tenant or sharecropper	322,669	18,205	6	1	14
Agricultural dependent	1,305,522	962,268	25	70	14
On plantations	225,260	78,461	4	6	14.2
Totals	5,251,130	1,380,831	100%	100%	

What do the figures in this table tell us about the actual composition of the agricultural labour force in terms of independent farmers (*gogol*) who could live from their land and farmers who needed by-employment? According to Fernando about 57 percent of the agricultural workers in the desa have needed by-employment in 1900. The share of male landowners with buffaloes in the total agricultural labour population is 26 percent, and we can be sure that these belong to the independent farmers, which would leave us with the category of 39 percent of landowners without buffaloes and of whom a substantial percentage did not have enough land to live from.<sup>38</sup> Finally, there is a considerable category of rural workers who had employment outside agriculture but were also involved in agriculture as the table below shows:

Table 9. Occupations of the indigenous population of Java and Madura (Census 1905, Colonial Report 1907)					
	Also involved in agriculture		Not involved in agriculture		Lab Rel
Occupation	M	F	M	F	
Government Civil Servants			31.181		18
Desa government	322.640		26.910		18
Government recognized clergy	8.272		8.009		18
Teacher (also at Quran schools)	10.166		5.993		18
Warung shopkeepers	134.901	48.934	139.889	309.165	12
Owners Fishponds	23.262	736	6.323	1.620	12
Owners Carts	52.815	186	36.319	310	12
Prahu owners	9.129	138	14.824	194	12
Artisans	91.264	51.429	98.723	240.569	12
Artisanal activities			56.691	5.592	14
Servants with Europeans			30.901	22.264	6
Servants with Foreign Orientals			22.452	23.722	6
Other own business	120.794	17.839	331.615	344.363	12
Total	804.424	119.262	778.649	947.799	

<sup>38</sup>. Fernando, 'Changing Character of Workforce', 8-9; Bosma, 'The discourse on free labour', 410-411.

Missing here are the professional military [precise figures will be obtained from the *Colonial Report's* data on the standing colonial army].

What these figures mean in terms of the total adult population of Java, is presented in table 10 below:

Table 10. Total Adult (= older <?) Population of Java 1905, according to agricultural and non-agricultural labour and non-working				
	Male	%	Female	%
Total exclusively agriculture	4,446,706	61.5	1,261,569	19.0
Total agriculture +other employment	804,424	11.1	119,262	1.8
Total extra agricultural	778,649	10.7	947,799	14.3
Total non-employment	1,206,835	16.6	4,305,635	64.9
Total	7,236,614	100.0	6,634,265	100.0

It is clear that the number of female workers is underestimated by the colonial census of 1900 in two ways. Their total number in the table of occupations does not correspond with the general figure of the census and the total of non-employed women is way too high, hardly counting their involvement in agricultural labour let alone other work within the household. Their total number in table 9 should have been: 7,815,543. This means that we have to add another 1,181,278 women to the category 5.

The total Javanese population of Java in 1905 according to the census is 25,500,000. The number of children below 7 is estimated by me at 5.1 million, which leaves us with 20,400,000 people who in principle can work. From this number we can deduct 180,000 children attending primary education.<sup>39</sup> The adult population that is potentially economically active is 7,236,614 males plus (the corrected) 7,815,543 females, together 15,052,157. This leaves with 5,347,843 still unaccounted for, who in all likelihood are children between 7 and 12-14 years, who might not have been included in the labour statistics of the time. Of these youngsters 40 percent (2,139,137) should be attributed to dependent agricultural households (LABREL 14), and 60 percent (3,208,705) to LABREL 5 as household dependents.

Furthermore, the total figures on non-employment in the government statistics (see table 9) are incredibly high for 1905, and may include many labourers who work part of the year on plantations. It seems as if the massive involvement of Java's rural population in plantation agriculture is hardly accounted for in these government statistics. This concerns both male and female labour. The involvement of male and female labour in the colonial plantation economy around 1900 was impressive. We can cite data obtained for the sugar industry in the 1920s, the largest plantation sector,

<sup>39</sup>. Van Leeuwen, *Human Capital and Economic Growth*.



which was employing 10 percent of the male and 3.6 percent of the female adult population of Java for 100 days around 1920.<sup>40</sup>

It is clear that wives of landowning farmers are not counted as landowners, unless they have their own plots or are widows. If we transfer these female agriculturalists to the categories 5 and 14 where they belong, we can deduct 3,870,299 from the number of unemployed female labour keeping just 685,162 in this category 1.I attribute 60 percent (2,322,179) to Labrel 5 (dependent females of landowning farmers) and 40 percent (1,548,120) to dependent farmers (Labrel 14). The number of unemployment male and females is still substantial then, and one may wonder how many of these are elderly, sick, itinerant or wage earners who are temporarily out of a job. It would require micro studies to obtain a better insight in these issues.

Table 11. Population division Java and labour force 1900 (reconstruction ubo)					
Category	M	F	Total	M Labrel	F labrel
Total population	12,259,615	13,240,385	25,500,000		
Children < 6	5,100,000		5,100,000	1	1
Children attending school	180,000		180,000		
Potentially economically active	20,220,000		20,220,000		
Young dependents (within dependent households)	2,139,137		2,139,137	14	14
Young dependents in other households	3,208,705		3,208,705	5	5
Independent farmers (according to table 7)	1,365,327	105,746	1,471,073	4	4
Dependent farmers (table 7)	2,355,021	234,356	2,589,377	14	14
Agricult. dependent (table 7)	1,305,522	962,268	2,267,790	5	5
On plantations (table 7)	225,260	78,461	303,721	14.2	14.2
Female dependents landowning farmers		2,332,179	2,332,179		5
Female dependent agriculture		1,548,120	1,548,120		14
Government, schools, clergy	397,012		397,012	18	
Shops, Fishponds, Cart Owners, Artisans and	551,427		551,427	12 and 4	

<sup>40</sup>. According to the census of 1920 there were 9.435.919 men of 15 year and older and 10.876.338 women of 15 year and older on Java in that year. According to Levert about 55 percent of the labour force was male, 32 percent female and the remaining 14 percent young adult. Dividing the latter 14 percent equally over male and female, one gets 610,000 male and 390,000 female workers employed for 100 days per year doing field work plus 400,000 male working as cane cutters and employed in the factories. See for census data *Nederlandsch-Indië Volksstelling 1920* vol. II and see Levert, *Inheemsche arbeid*, 126.

other business involved in agriculture					
Own business outside agriculture	1,523,914		1,523,914		
Other own business	675,978		675,978	12	
Servants	99,339		99,339	6	
Unemployed	1,206,835	685,162	1,891,997	3	3

NB the totals on the labour relations of the potentially active population in this table amount to 20,323,975, which is slightly higher than the 20,200,000 which are deducted from the total population size of Java. This may be caused by an estimation error.

### *Discussion*

This paper first presented some rough demographic data including gender and age distribution as well as urbanisation to set the parameters for a further investigation into the occupational structure in Java. What can we conclude from this particular exercise?

Java's demographic growth over the past four centuries can be reconstructed by combining macro data on life expectations in Southeast Asia on the one hand with regional surveys done by the VOC on the other. It is clear that war circumstances have an immense impact upon population growth, and the late-17<sup>th</sup> and early 18<sup>th</sup> century was a particularly violent epoch. The population of Java was probably not much larger in 1700 than a century before, and probably lower than in 1650. With regard to urbanisation, for the 16<sup>th</sup> and 17<sup>th</sup> century the only available figures seem to be the impressionistic accounts in the dairies of officials of European trading companies. These travellers were invariably deeply impressed by the cities of South and Southeast Asia and tend to exaggerate the size of the towns towards hundred thousand or more residents. But in view of the size of the total population in Java in the mid-17<sup>th</sup> century and taking into account the level of urbanisation that agriculture could sustain in these days, there is no reason to expect that the populations of any of the other cities of Java exceeded the 30,000 inhabitants of Batavia at the time. But even if we downplay the degree of urbanisation in early modern times, we still do not see an increasing urbanisation of Java over the entire period 1650-1900. It is outside the purview of this paper to discuss the implications, but it does not require much imagination to see here a concomitant of the plantation economy that was imposed by the Dutch.

The next issue, which is more or less related to this one, is the distribution between agricultural and non-agricultural occupations. The available data strongly suggest that the share of non-agricultural labourers in the total adult population of Java had declined from almost 20 percent to 10 percent over the 19<sup>th</sup> century. We should not jump to conclusions too hastily, since there is a substantial group that is partly employed in agriculture and partly in other professions. The available data suggest nonetheless that the agricultural sector may become relatively more important in the course of the 19<sup>th</sup> century. Furthermore, very substantial changes have taken place within the agricultural sector, namely a process of *proletarianisation* since the introduction

of the Cultivation System.<sup>41</sup> There is an immense literature on the growing landlessness of Java in the 19<sup>th</sup> century, mainly under demographic pressures and increasingly skewed distribution of land. Our data seem to subscribe to those views. Though we hardly have figures for land distribution at the time of Raffles, we have a figure about the number of cultivating households that do possess a plough, namely 50 percent. The plough with its span of buffaloes is an important indicator of someone's status as an independent farmer. This is corroborated by the data found for West Java on the division between *bumis* and *manumpangs*. It is exactly for this reason that these means of production are recorded as early as in the days of Raffles. This allows us to compare the percentages of households involved in agriculture with ploughing cattle recorded by Raffles with the census of 1905. In fact, this percentage has declined from 50 percent to approximately 27 percent.<sup>42</sup> This corroborates the conclusions already drawn by Fernando and others that in the 19<sup>th</sup> century an increasing percentage of the agricultural population had to seek by-employment. The tendency is clear: a shift from self-employed (LABREL 12 to sharecropping, and piece rate and time rate work at the plantations (LABREL 14).

#### SOURCES

NA, 1.04.02, VOC, inv. nos, 1315, 1489, 7784.

NA, 2.21.007.57, Coll. Schneither, 83-100 Statistieke opgaven betreffende de residentieën op Java, 1816-1824.

Still to be consulted:

NA, 1.10.59, Inventaris van het archief van S.C. Nederburgh [levensjaren 1762-1811], 1606-1809; familie Nederburgh, 1458-1965, 387 Generale staat van het aantal nederzettingen, dessa's en haar bewoners in regentschappen, behorende tot het comptoir Java's Noord-Oostkust 1796

NA, 2.10.01, MvK, , 1814-1849, 3041 Verslagen van de residenten van Sumanap, Pekalongan en Kadoe, Pasoeroean, Buitenzorg, Bantam en de Preanger Regentschappen, betreffende de toestand in hun residenties bij de overname van het bestuur van de Engelsen (1816).

NA, 2.10.01, MvK I, 3065A Korte historie van de Preangsche, Soendasche, Radja-Javaanse, Jaccatrasche en Cheribonsche Landen. 1796 1 katern

NA, 2.10.01, MvK I, 3067 Korte statistiek van Java en Madoera. 1845

#### PUBLISHED SOURCES

---

<sup>41</sup> Fernando, 'Growth of Non-agricultural Economic Activities'

<sup>42</sup> There is some difficulty involved in comparing the 1800 data with the 1905 data. Whereas the percentage for 1800 concerned 'households', the census of 1905 differentiates between male (26%) and female (7%) in 1900. Since the group of female owners of ploughs is small, it hardly impacts the overall picture of a decline of farmers who own sufficient means of production to act as independent producers.

[Still to be consulted:] Carey, Peter and Hoadley, Mason C. (eds.). The archive of Yogyakarta. Volume II. Documents relating to economic and agrarian affairs. Oxford: published for the British Academy by Oxford University Press, 2000.

## PUBLICATIONS

Boomgaard, Peter, *Children of the Colonial State. Population Growth and Economic Development in Java, 1795-1880* (Free University Press, 1989)

Boomgaard, Peter, 'Smallpox, vaccination, and the Pax Neerlandica, Indonesia, 1550-1930', *Bijdragen tot de Taal-, Land en Volkenkunde* 159, 4 (2003) 590-617.

Bosma, Ulbe, 'Sailing through Suez from the South. The Emergence of an Indies-Dutch Migration Circuit 1815-1940', *International Migration Review* 41, 2 (Summer 2007) 511-536.

Bosma, Ulbe, 'The discourse on free labour and the forced Cultivation System: the contradictory consequences of the abolition of slave trade for colonial Java 1811-1863', in Van der Linden, Marcel (ed.), *Humanitarian Intervention and Changing Labor Relations. The Long-term Consequences of the Abolition of the Slave Trade* (Leiden: Brill, 2011) 387-418.

Carey, Peter, 'Civilisation on Loan: The Making of an Upstart Polity: Mataram and Its Successors, 1600-1830' *Modern Asian Studies*, 31, 3 (1997) 711-734.

Carey, Peter. "Waiting for the "Just King": The Agrarian World of South-Central Java from Giyanti (1755) to the Java War (1825-1830)." *Modern Asian Studies* 20, 1 (1986): 59-137.

Carey, Peter B.R. *The power of prophecy : prince Dipanagara and the end of an old order in Java, 1785-1855*. Leiden: KITLV, 2008.

Daendels, H.W. *Staat der Nederlandsche Oostindische bezittingen onder het bestuur van den Gouverneur-Generaal Herman Willem Daendels in de jaren 1808-1811* ('s-Gravenhage: s.n., 1814)

De Haan, F., *Priangan. De Preanger-Regentschappen onder het Nederlandsch Bestuur tot 1811* (Batavia en 's-Gravenhage: Kolff en Martinus Nijhoff, 1912)

Elson, R.E., *Javanese peasants and the colonial sugar industry : impact and change in an East Java residency, 1830-1940* (Singapore [etc.] : Oxford University Press, 1984)

Engelhard, 'Overzicht der Bevolking en Plantagiën van de Bataviasche en Preanger-Regentschappen 1795', gereproduceerd in *Opkomst van het Nederlandsch gezag over Java: Verzameling van Onuitgegeven Stukken uit het Oud-Koloniaal Archief*, ed. J.K.J. de Jonge and M.L. van Deventer, Vol. XII (The Hague, 1884) 390.

Cees, Fasseur, Cornelis, *The Politics of Colonial Exploitation: Java, the Dutch and the Cultivation System* (Ithaca NY: Southeast Asia Program, 1992)

Fernando, M.R., *Changing character of work-force in colonial Java 1820-1930*. Paper presented at the Conference of the Economic History Society of Australia & New Zealand (July 1992).

- Fernando, M.R., 'Growth of Non-agricultural Economic Activities in Java in the Middle Decades of the Nineteenth Century', *Modern Asian Studies* 30, 1 (1996) pp. 77-119.
- Ford, Larry R., 'A Model of Indonesian City Structure', *Geographical Review*, 83, 4 (1993) 374-396.
- Knaap, Gerrit, 'The Demography of Ambon in the Seventeenth Century: Evidence from Colonial Proto-Censuses', *Journal of Southeast Asian Studies*, 26, 2 (1995) 227-241.
- Knaap, Gerrit, 'Shipping and Trade in Java, c. 1775: A Quantitative Analysis', *Modern Asian Studies* 33, 2 (1999) 45-420.
- Levert, Philip, *Inbeemsche arbeid in de Java-suikerindustrie* (Wageningen: Veenman & Zonen, 1934)
- Lucassen, Jan, 'A Multinational and Its Labor Force: The Dutch East India Company, 1595-1795', *International Labor and Working-Class History*, 66, New Approaches to Global Labor History (Fall, 2004) 12-39.
- Nagtegaal, Luc, *Riding the Dutch Tiger. The Dutch East Indies Company and the northeast coast of Java, 1680-1743* (Leiden: KITLV Press, 1996)
- Raffles, Thomas Stamford, *The history of Java* Edition [Repr.] / with an introd. by John Bastin. 2 vols. (Kuala Lumpur [etc.]: Oxford University Press, 1978)
- Reid, Anthony, 'The Structure of Cities in Southeast Asia, Fifteenth to Seventeenth Centuries', *Journal of Southeast Asian Studies*, 11, 2 (1980) 235-250.
- Reid, Anthony, *Charting the shape of early modern Southeast Asia* (Chiang Mai: Silkworm Books, 1999)
- Ricklefs, Merle, 'Some Statistical Evidence on Javanese Social, Economic and Demographic History in the Later Seventeenth and Eighteenth Centuries', *Modern Asian Studies*, 20, 1 (1986) 1-32.
- Valentijn, François, *Oud en nieuw Oost-Indien : vervattende een naaukeurige ... verhandeling van Nederlands mogentheyd in die gewesten, benevens eene ... beschryvinge der Moluccos, Amboina, Banda, Timor, en Solor, Java, en alle de eylanden onder dezelve landbestieringen behoorende ...; alles zeer naaukeurig, in opzigt van de landen, steden ..., zeden der volken, boomen, gewasschen, land- en zee-dieren, met alle het wereldlyke en kerkehyke, van d'oudste tyden af tot nu toe aldaar voorgevallen, beschreven* Vol. 4, 1 (Franeker: Wijnen, 2003; 1<sup>st</sup> print 1724-1726)
- Van der Eng, Pierre, *Agricultural growth in Indonesia since 1880 : productivity change and the impact of government policy* (Groningen: Rijksuniversiteit Groningen, 1993)
- Van Leeuwen, Bas, *Title Human capital and economic growth in India, Indonesia, and Japan : A quantitative analysis, 1890-2000* (PhD thesis Utrecht University [s.n.], 2007)
- Van Rossum, Matthias, 'De intra-Aziatische vaart: schepen, zeelieden en ondergang van de VOC?', *Tijdschrift voor Sociale en Economische Geschiedenis* (forthcoming).

Vink, Markus, “‘The World’s Oldest Trade’: Dutch Slavery and Slave Trade in the Indian Ocean in the Seventeenth Century’, *Journal of World History*, 14, 2 (2003) 131-177.

White, Ben, ‘Demand for Labor and Population Growth in Colonial Java’, *Human Ecology*, 1, 3 (1973) 217-236.

Widjojo Nitisastro, *Population Trends in Indonesia* (Ithaca and London: Cornell University Press, 1970)

## Appendix I Notes on data labour relations 1905:

There is a slight discrepancy between the demographic census figures and the data on occupational distributions.

Adult Men 1905 (KV 1907) = 6,681,112

Adult Women 1905 (KV 1907) = 7,258,901

All included men in professions = 7,468,481 (not including Madura)

All included women in professions = 6,815,059 (not including Madura)

According to Widjojo (p.6): the entire population of Java and Madura in 1905 = 30,098,008 (from this the Chinese, Foreign Orientals and Europeans have to be deducted to get the total of Javanese. This would mean just over half of the population of Java is included in the professional statistics. We can indeed expect that with an annual growth rate that exceeds the 1.5 percent about half of the population consists of children. [Whether this makes sense from the perspective of historical demography is something that still needs to be checked however]

The total Javanese population of Java in 1905 is 25,500,000. We know that about 50 per cent of the population at the time had not yet reached the adult age. The number of children below 7 is estimated by me [needs to be checked with the census] at 5.1 million, which leaves us with 20,400,000 from which we can deduct about 180,000 children attending primary education.

This leaves us with another 6,279,987 unemployed. In this category there are still women who have not be counted in, in the occupational data. [This still needs to be sorted out] The remainder are children from 6 to 12.

We base ourselves on the estimate of the total population of Java by Widjojo (p.6) and not on the one by Van der Eng (p. 269), because we believe that the latter arrives at a too high figure, when compared to the figures on the total population of Java by 1920 and 1890.

## Appendix II Data on Urbanisation:

For Batavia 1650 see Vink, 'The World's Oldest Trade', 148 mentioning 27,068 thousands for 1673.

NA, VOC, inv.no. 1489, Batavia 205, Generale Lijste van alle de huijsgesinnen binnen deser Steden (1691):

Sommarium	Nederlanders	518
	Mixtiezen	392
	Mardijkers	6,181
	Chinesen	2,936
	Amboinesen	440
	Mooren	447
	Maleijers	1,788
	Maccasaresen en Bouginesen	4,121
	Balijers & Javanen	16,437

	Lijfeigenen	14,728
Total		47,728



NA, VOC, inv.no. 1315, Batavia 502, Generale lijste aller zielen soo binnen als buiten de stadt Batavia bevonden met het eindje des voorleden jaers 1676:

	Male	Female	Older than 14		Younger than 14	
			Son	Daughter	Son	Daughter
Mardijkers	1322	1890	315	1019	1232	362
Mooren & Javanen	280	279	70	50	113	110
Malijers	299	326	121	79	94	74
Balijers	536	652	136	65	170	109
Lijfeigens	7938	7373	1968			
Nederlanders	929	605	91	129	317	309
Mestiezen	67	218	138	88	169	215
Chinezen	1089	1017	178	127	659	517

General total: 33,749.

### For 1800

For Yogyakarta and Surakarta See Raffles ( p. 288, Vol II) and not table II in vol I that has been cited in Widjojo, p. 19, For Batavia, Semarang and Surabaya see Raffles I, 62; See also Boomgaard 111.

For Batavia see also: NA, Coll Schneither, inv. no. 84: Population Batavia & Ommelanden:

1813	City and suburbs	Ommelanden	Total
Europeanen	543	47	590
Inlandsche Christenen	1,485	112	1,597
Arabieren en Moren	403	8	411
Maleiers & Javanen	6,486	89,191	95,677
Boeginezen & Makassaars	3,392	2,073	5,465
Baliers	1,120	5,325	6,445
Sambaranezen Bandanezen	455	55	510
Ambonezen & Bandanezen	106	--	106
Perananakan Chinezen	605	5,018	5,623
Slaven	14,239	4,518	18,757
Total	49,683	111,662	161,345

Raffles arrives in his census at a total figure for the population of the Residency of Batavia at 332,015. Which is according the report on Batavia (Coll. Schneither, inv.no. 84) , because he includes the Residency of Buitenzorg in the figures on the Residency Batavia. For the city of Batavia he cites the figure of 47,083. See Raffles Vol I., No. 1 'Abstract of a General Statistic Table'.