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Slavery and Wealth in the Cape Colony

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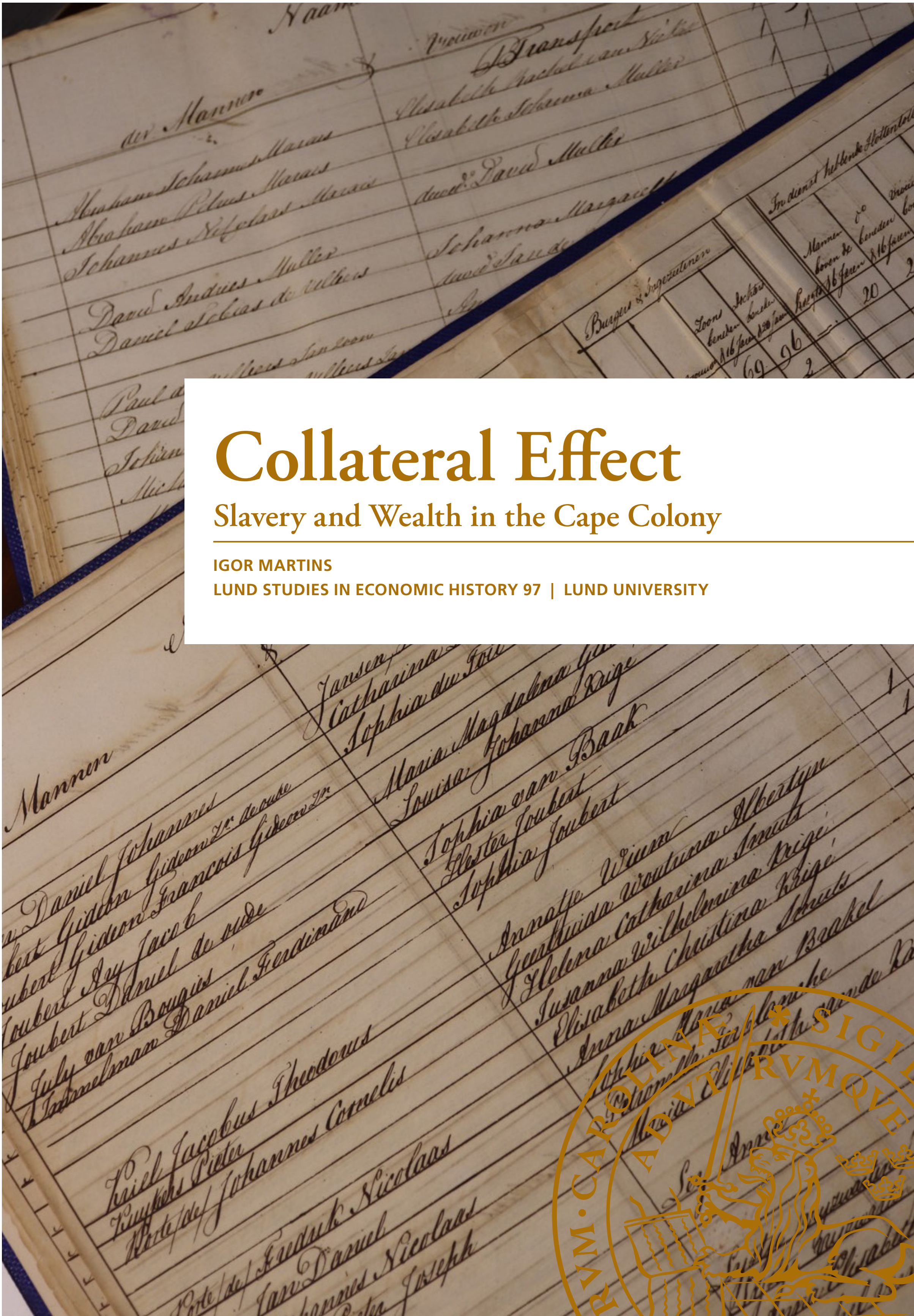

Collateral Effect

Slavery and Wealth in the Cape Colony

IGOR MARTINS

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Collateral Effect

Slavery and Wealth in the Cape Colony

Slavery, as an economic system, has always been strongly associated with labor. This is not surprising as slavery was the most brutal system of labor coercion. When considering slavery as a system of property rights, however, it is easy to observe how slaves could be exploited in ways beyond labor extraction. This understanding, although not new from a theoretical standpoint, has been largely neglected from an empirical perspective. This thesis aims to fill this gap by measuring the importance of slavery to living standards and production processes as both labor *and* capital inputs. The British Cape Colony serves as the case study for this endeavor.

Employing a range of newly digitized historical databases covering the economic life and genealogical history of the British Cape Colony through the 18th and 19th centuries, this thesis uses the Slave Trade Act 1807 and the Slave Abolition Act 1833 to analyze slaveholding households from a longitudinal perspective, such that the interdependencies of slave ownership, agricultural output, and related capital are considered simultaneously.

This thesis concludes that scenarios with weak property rights to land and lack of organized means for the provision of credit rendered slaves a suitable financial instrument allowing slaveholders to exploit the enslaved as means to raise capital beyond the agricultural labor. It magnifies the importance of slavery in the colony and provides economic historians with another tool to further interpret the profitability and the efficiency of the slave system. Understanding the proprietary relationship between masters and slaves and, consequently, their exploitation beyond agricultural work is key to explaining the dynamics of slavery in its entirety.

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Slavery and Wealth in the Cape Colony

Igor Martins

LUND UNIVERSITY

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Abstract

This thesis reassesses the framework we have come to accept around the dynamics of slavery in a series of papers which, together, shed new light on the economics of coercion. Employing a range of newly digitized historical databases covering the economic life and genealogical history of the British Cape Colony through the 18^{th} and 19^{th} centuries, it explores the determinants of labor coercion in light of two significant institutional shocks: the Slave Trade Act 1807, when the transshipment of slaves became illegal, and the Slave Abolition Act 1833 when the possession of slaves was outlawed. Slaveholding households are analyzed from a longitudinal perspective, such that the interdependencies of slave ownership, agricultural output, and related capital are considered simultaneously. It concludes that scenarios with weak property rights to land and lack of organized means for the provision of credit rendered slaves a suitable financial instrument allowing slaveholders to exploit the enslaved as means to raise capital beyond the agricultural labor. It magnifies the importance of slavery in the colony and provides economic historians with another tool to further interpret the profitability and the efficiency of the slave system. Understanding the proprietary relationship between masters and slaves and, consequently, their exploitation beyond agricultural work is key to explaining the dynamics of slavery in its entirety.

Key words

Slavery, slave trade, slave emancipation, agricultural history, Cape Colony

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Collateral Effect
Slavery and Wealth in the Cape Colony

Igor Martins

LUND UNIVERSITY

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List of Papers

I Martins, I., (2018) Slave Trade Act 1807: The effects of an import ban on Cape Colony slaveholders. *Unpublished manuscript.*

II Martins, I., Cilliers J., and Fourie, J. (2019) Legacies of loss: Intergenerational effects of slaveholder compensation in the Cape Colony. *Unpublished manuscript.*

III Martins, I., (2020) Raising capital to raise crops: Slave emancipation and agricultural output in the Cape Colony. *Unpublished manuscript.*

IV Martins, I., and Green, E., (2020) Capital and labor: Theoretical foundations of the economics of slavery. *Unpublished manuscript.*

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Introduction

1 Motivation, aim, and contribution

The thesis focuses on the British Cape Colony from 1806 to 1840. During this era, a major change in the mode of production took place: slave labor, which was introduced soon after European arrival, was outlawed.

Ending slavery consisted of two major steps. Firstly, through the Slave Trade Act of 1807, Britain made the transshipment of slaves illegal. Afterward, in 1834, the possession of slaves was completely outlawed. These institutional changes had a dramatic impact upon the Cape's slaveholders and slaves alike, presenting us with a unique opportunity to study the persistence and decline of slavery in light of major economic and institutional shocks. In this thesis, I aim to show that the study of slavery – as an economic institution – must incorporate the role of slaves as laborers *and* capital investments in the productive process. While the idea of slavery as a set of property rights embracing more than a mere labor arrangement is not particularly new (Engerman 1973; Garnsey 1996; Wright 2006; Dooling 2006; Fourie 2013a; Green 2014; González et al. 2017; Ribeiro and Penteado 2018; Ribeiro and Penteado 2020), this thesis contributes to the field by exploring "slavery's invisible engine" – as defined by Martin (2010) – from a quantitative perspective. It measures the degree to which production processes were connected to the ability of slaveholders to raise capital through the enslaved. By doing so, this thesis highlights the importance of the enslaved for the agricultural economy and living standards beyond the exploitation of their labor.

The complex nature of labor on coercive systems was first studied systematically by Nieboer (1900), who explains the theoretical reasons for the existence of labor coercion in different societies adopting a factor endowments approach. Ultimately, the theory postulates that slavery as an industrial system – i.e. geared towards surpluses – is more likely to develop when land is abundant. In other words, for a given land-labor ratio, coercion is more likely to develop. Many scholars used Nieboer (1900) as a point of departure to criticize his theoretical premises (Siegel 1945; Patterson 1977; Kopytoff and Miers 1977; Patterson 1982) but others received it more favorably while proposing revisions to the original framework (Bloch 1966; Domar 1970; Engerman 1973; Feinstein 2005; Austin 2005; Green 2014; Klein and Ogilvie 2017; Hopkins 2019). Domar (1970), for example, sought a mathematical model where coerced labor systems were caused by high land-labor ratios. Engerman (1973), in a less quantitative vein, suggests that the factors behind the emergence and persistence of slavery are not necessarily the same. The idea is that once slavery is present in a given society, a set of institutions tend to preserve the slave-based economic system to the benefit of slaveholders.

While there is little doubt that the political power of the slave-owning elites contributed to the persistence of slavery over time, profitability was a key element behind it. Fogel and Engerman (1995) seminal work on the slave economy of the antebellum South is devoted to the idea of a "planter capitalist" (Post 2003) who could organize labor and production efficiently to maximize profits while aiming to supply external markets. It directly challenged the long-held idea that slavery in the United States was unprofitable and inefficient (Wade 1967; Genovese 1976; Genovese and Fox-Genovese 1983; Genovese 1989; Ashworth 1995; Oakes 1998).

Persistence of slavery over time, therefore, is intrinsically tied to the profitability of the slave economy. This profitability is usually inferred through slaves' productivity in the agricultural sector (Vedder and Stockdale 1975; Higman 1976; Ransom and Sutch 1988; Attack and Passell 1994; Hatcher and Bailey 2001; Acemoglu and Wolitzky 2011). The bulk of the economics literature on slavery, however, often neglects what Finley (1976, p. 819) calls the "totality of [the slaves] rightlessness". Slaveholders' rights over the slaves were absolute "covering the person as well as the labor of the slave" (Garnsey 1996, p. 1). The relationship of property implies that slaveholders could employ[1] slaves in a multitude of activities *beyond* the agricultural economy which would, in turn, directly influence the profitability of the system.

Modern literature is, in fact, increasingly recognizing the importance of slaves as assets that enabled slaveholders to access capital especially through their employment as collateral for loans. This practice was particularly important during the colonial endeavors of the 17th and 18th centuries when slaves appeared

[1]The author recognizes that slavery represented the most ruthless system of coercion. The term *employment* could very well be replaced by *exploitation* in most cases and will be used interchangeably throughout this work when referring to the enslaved and their plight.

as a suitable alternative in a landscape where property rights to land[2] were weak, due to its abundance, and capital scarcity was chronic, due to the lack of commercial banks. In this scenario, slaves combined both mobility and liquidity which made them more suitable collateral when compared to land, future output, or other non-mobile assets such as housing property. Evidence of this practice is not limited to the slave economies of the Americas such as the United States (Martin 2010; González et al. 2017) and Brazil (Marcondes 2014; Ribeiro and Penteado 2018; Ribeiro and Penteado 2020) but also includes the slave economy of the Cape (Fourie 2013a; Green 2014; Swanepoel 2017). At the Cape these findings are particularly magnified.

Differently than its counterparts in the Americas and the Caribbean, the slave economy of the Cape was significantly smaller considering both the number of slaves per slaveholder as well as the size of the enslaved population.[3] This peculiar setting induced economic historians to analyze the efficiency and profitability of the slave system at the Cape, which often points to the inability of farmers to obtain profits if slaves were exclusively employed in the agricultural sector given the absence of economies of scale (Armstrong and Worden 1989; Fourie 2013a; du Plessis et al. 2015).

Slavery at the Cape lasted for almost two centuries and it is highly unlikely that such a widespread system would persist for so long if it was not profitable to slaveholders. The viability of its slave economy, therefore, is intrinsically tied to the ability of slaveholders to employ slaves effectively but, despite the scattered – yet convincing – evidence that slaves were utilized to supply slaveholders' with capital, very little is known about the importance of this activity within the colony's economy.

Consequently, economic historians are left not only without a clear understanding of the productive processes at the Cape, but also all economic spillovers stemming from it. How does our understanding of agricultural output at the Cape changes once we consider slaves as both suppliers of labor and capital to the production process? How closely associated were slaveholders' living standards to slave ownership? What were the economic effects of the emancipation – a process usually reduced to the effects stemming from labor withdrawal – if we consider potential capital losses?

Further deepening our understanding of that subject allows not only a signif-

[2]See Alston et al. (1998), Libecap (2007), Besley and Ghatak (2010), Galiani and Schargrodsky (2010), and Hornbeck (2010) for the role of land rights in development.

[3]While it was common to find farming units in the United States, Brazil, and Jamaica holding more than 100 slaves, at the Cape slaves were dispersed across several farming units that possessed no more than 6 slaves on average (Worden 1985; Fourie 2013b; Green 2014).

icant contribution to the economic history of the Cape but also enables this thesis to tackle questions of theoretical nature. How does our perception of the emergence, persistence, and decline of slavery changes once we apply this theoretical addition? Can the farmers' demand for capital explain the persistence of slavery in settings where its existence was counter-intuitive?

These are questions that the thesis addresses using a range of newly digitized historical databases covering the financial and genealogical history of the British Cape Colony through the 18^{th} and 19^{th} centuries. Patterns of slave ownership, family size, agricultural output, and related capital are all observed at the household level from a longitudinal perspective. The effects of the Slave Trade Act of 1807 and the Slave Abolition Act of 1834 are analyzed systematically to produce a new perspective on the economic and agricultural landscape of the Cape Colony in the years around the emancipation of the enslaved. The outcome of this endeavor resulted in four papers.

The first paper investigates patterns of acquisition and accumulation of slaves after 1807 in the Cape Colony. The results suggest that the trends observed post the Slave Trade Act were not compatible with an economic system that relied on slaves solely as farmworkers. It suggests that the ability of slaveholders to extract surpluses from the enslaved was not confined to the agricultural economy. Paper 2 explores this research avenue to determine the effects of the emancipation on former slaveholders' living standards. By using inconsistencies on the compensation scheme offered to former slaveholders as a proxy for capital losses, it attempts to indirectly establish the economic significance of slave ownership in the Cape Colony. The investigation reveals that after emancipation, a generalized – although not homogeneous – decline in living standards was experienced by former slaveholders. The ones who reported large agricultural outputs were particularly affected. But what would the transmission mechanisms be? While the generalized decline in the living standards could be attributed to labor withdrawal after emancipation, the ability of slaveholders to raise capital through the enslaved was also paramount to determine the economic viability of a farming operation. The long-term investigation of the Cape's agricultural economy was necessary.

Paper 3, therefore, sets its eyes on the determinants of output at the Cape after emancipation. It demonstrates that while labor withdrawal was an important component behind output declines, capital losses generated by the compensation scheme left a considerable mark on the agricultural landscape of the colony. Among the declines verified on grain output, for example, 70% can be attributed to capital losses as opposed to 30% stemming from labor withdrawal. It indicates that farmers could still procure labor, but could hardly access capital after the liberation of the slaves. Finally, Paper 4 places the empirical contributions of the three aforementioned papers into a broader geographic scope. The Cape's agricultural landscape was significantly different when compared to other economies in the Americas, yet, the employment of slaves was not fundamentally different. While they were primarily agricultural workers, meeting farmers' demands for labor, they were also particularly employed as collateral for loans, meeting farmers' demands for capital. In other words, the profitability of the slave economy was not exclusively dependent on the role slaves played as laborers, but also dependent on the ability of slaveholders to access capital through the enslaved. The advancement towards a comprehensive theory of coercion, therefore, requires considering all activities where slaves were subjected to exploitation, especially the activities that allowed slaveholders to access capital beyond the employment of slaves as agricultural workers.

The contributions of this thesis are threefold. Firstly, to the literature devoted to the economics of coercion (Nieboer 1900; Siegel 1945; Domar 1970; Engerman 1973; Finley 1980; Patterson 1982; Fogel and Engerman 1995; Acemoglu and Wolitzky 2011). It is clear that slaves provided farmers with labor and capital and this activity was significant at the Cape's economic landscape. This statement calls into question the suitability of land-labor ratios as a definitive explanation for the persistence of slavery over time. Scenarios with weak property rights to land and lack of organized means for the provision of credit rendered slaves a suitable financial instrument allowing slaveholders to obtain capital. While it is likely that most of the slave economies in history originally stemmed from farmers' demands for labor, land-labor ratios alone do not provide a sufficient explanation as to why slavery – as opposed to serfdom, for example – would emerge and persist as a viable coercive contract. It is, moreover, important to note that slavery was also widespread in urban areas where slaveholders were hardly invested in the agricultural economy (Goldin 1976; Bank 1991; Dantas 2008). Understanding the proprietary relationship between masters and slaves and, consequently, the mechanisms behind the exploitation of the enslaved aside from the agricultural work is key to develop a comprehensive framework that explains the dynamics of slavery in its entirety.

Secondly, this thesis contributes to the understanding of the productive processes at the Cape during the first half of the 18^{th} century. The dynamics of slavery and agricultural output cannot be comprehensively studied without considering slaves as assets that enabled slaveholders access to capital. It magnifies the importance of slavery in the colony and provides economic historians with another tool through which the profitability and the efficiency of the system can be further interpreted. This thesis, moreover, contributes to the literature studying the economic effects of the emancipation at the Cape (Shell 1994; Dooling 2006; Dooling 2007; Worden 2017) by showing that the effects stemming from capital losses can significantly explain output dynamics after 1834, an event with tangible consequences for the colony's living standards.

Lastly, this thesis contributes to the stream of literature focused on the quantitative history of the Cape. Systematic digitization of records available on South African archives has prompted a "data revolution" (Fourie 2016; Fourie 2018) in the field. Modern literature has contributed to a plethora of subjects pertaining the colonial history of South Africa such as wealth inequality (du Plessis and du Plessis 2012; von Fintel et al. 2013; Fourie 2013b; Fourie and von Fintel 2014), human capital formation (Baten and Fourie 2015), settler's longevity, (Piraino et al. 2014), occupational mobility (Cilliers and Fourie 2018), household composition (Cilliers and Green 2018), credit market (Swanepoel and Fourie 2018a; Swanepoel and Fourie 2018b), Khoisan population dynamics (Green 2014; Fourie and Green 2015; La Croix 2018) and, of course, slavery (Fourie 2013a; du Plessis et al. 2015). This thesis aims to add to this growing list of works by providing a detailed account of the agricultural economy of the Cape in the years surrounding the emancipation of the enslaved. These contributions are also tied to the broader cliometric turn experienced by African economic history in recent years (Hopkins 2009; Fenske 2010; Austin and Broadberry 2014; Fourie and Obikili 2019).

Aside from the motivation of this thesis to contribute to the economics of coercion and the quantitative history of the Cape, it is important to note that the study of slavery is also relevant from a contemporary perspective. In several nations in the Western world, inequality is rooted in the slave system employed during most of their colonial past (Engerman and Sokoloff 1997; Engerman and Sokoloff 2002; Nunn 2008a; Nunn 2008b; Nunn and Wantchekon 2011). The maintenance of this inequality, in turn, can be explained by an extractive institutional framework (Acemoglu et al. 2001; Acemoglu et al. 2002) that despite their adverse effects on aggregate performance, may emerge as equilibrium institutions because they increase the rents captured by the groups that hold political power. The study of slavery and its determinants, therefore, is at the heart of the modern world's income distribution and some of the institutions arising from it. In fact, the slave system left visible spillovers in modern society that can even be verified through simple anecdotal evidence.

On February 9$^{\text{th}}$ 2018, for example, the HM Treasury of the United Kingdom tweeted that in 1833, £20 million had to be borrowed from private banks to cover the compensation costs that were forwarded to former slaveholders fol-

Figure 1.1: HM Treasury surprising #FridayFact. Source: Olusoga (2018)

lowing the terms of the Slave Abolition Act 1833,[4] as Figure 1.1 shows.[5] It is interesting to note that the compensation represented 40% of the British government's yearly income in 1833, the equivalent in purchasing power to about £2.5 billion in 2020. If a similar compensation scheme was produced by the British government in 2019, 40% of its yearly income would amount to more than £300

[4]The name of the act refers to the year the legislation was passed. The effects of the legislation came into force in August 1st 1834.

[5]Even though the tweet says "millions of you helped end the slave trade through your taxes", it is important to remember that the slave trade ended in 1807 and the compensation scheme alluded in the tweet refers to the emancipation of the enslaved in 1834. A misconception that further illustrates that the events leading to the liberation of slaves are still not well understood.

billion.[6] This sum not only displays the firm belief in the property rights of slaveholders harbored by the British government but also evidences the power of the slaveholding elites who could claim a sizeable compensation in exchange for freeing the enslaved. This significant amount was not completely paid off until 2015, suggesting that the legacy of slavery still bears clear repercussions in modern society which, in turn, renders it a subject far from being removed from the present.

2 Historical background

The emergence – and subsequent persistence and decline – of slavery at the Cape cannot be understood without the colonial history of the region. This section, therefore, presents a brief historical background of the Cape with a particular focus on the districts of interest of this thesis, namely Stellenbosch and Graaff–Reinet.

2.1 The Khoisan and the colonization of the Cape

The Khoisan, indigenous to the Cape, have long inhabited the region. Archaeological evidence suggests the continuous presence of foragers and hunter-gatherers in the regions around the Kalahari desert from 30,000 years ago in the Late Stone Age (Barnard 1988; Barnard 1992). The early inhabitants left evidence attesting their knowledge of pottery, agriculture and animal domestication around 2,000 years ago, however, it is not clear if this was the result of a new wave of migrations of East African herders (Deacon and Deacon 1999; Pleurdeau et al. 2012) or if the transition is explained simply by cultural diffusion (Kinahan 1996; Sadr 1998). At the moment, the most commonly accepted explanation divides the Khoisan population between three independent language families – Tuu, Kx'a, and Khoe-Kwadi – and suggests that speakers of Tuu and Kx'a are descendants from the earliest inhabitants of the Late Stone Age while Khoe-Kwadi may have been brought by pastoralist migrants around 2,000 years ago (Elphick 1985; Elphick and Malherbe 1989; Guldemann 2008; Barbieri et al. 2013; Barbieri et al. 2014).

Navigators who docked at the Cape throughout the 16th and 17th centuries, despite the inability to classify different groups of Khoisan based on their language

[6]The total revenue of the British government in 2019 was £792 billion. Based on values retrieved from https://www.ukpublicrevenue.co.uk/.

families, could identify distinct groups of hunter-gatherers and pastoralists, the latter normally organized in *kraals*.[7] The pastoralists immediately sparked great interest due to trading possibilities since Dutch and British ships were eager to trade metal tools for Khoisan's sheep. These were enhanced given the willingness of the Khoisan to obtain iron. Between 1591 and 1610 they often herded to Table Bay a much bigger amount of stock than the Europeans were even capable of purchasing (Marks 1972; Elphick 1977).

Visualizing the economic potential of the Cape as a colonial endeavor, the Dutch East India Company – VOC, hereafter – initiated formal plans to colonize the area. In 1652, an expedition on behalf of the VOC led by Jan van Riebeeck was tasked with setting a small refreshment station consisting of a fort surrounded with gardens where fruits and vegetables could be cultivated to serve the passing ships on their journeys to and from Asia. Animal products were obtained through trade with the Khoisan, which prompted the VOC to demand its employees and colonists to maintain a good relationship with the indigenous people (Fourie 2013b).

Jan van Riebeeck's ideas of a small European community performing intensive farming while trading with the Khoisan to keep the refreshment station functioning, however, did not last long since the intensification of the intercontinental trade rendered the refreshment station insufficient to supply for all ships calling at the Cape. To increase output, a larger territory was needed. In 1657, the VOC decided to liberate some of its employees to become independent farmers while continuously providing incentives for European migration to the Cape (Guelke and Shell 1983; Fourie 2013b; Fourie and von Fintel 2014; Dye and La Croix 2020). Major land allocations initially occurred south of Table Bay in Rondebosch and were far from an orderly endeavor since colonists could "have all the ground which they could bring under cultivation within three years, after which they would be able to sell, lease or alienate their ground" (Guelke and Shell 1983, p. 266). Meanwhile, the VOC guaranteed the purchase of all agricultural output at low predetermined prices while taking advantage of its monopsonistic power (Guelke 1976; Shell 2005).

As lands were claimed further from Table Bay, colonists and Khoisan could not sustain an amicable relationship as the VOC once envisaged. The few water sources in the Western Cape were now subject to intense conflict. Khoisan resistance initially checked the advancement of the colonists by resorting to raids and ambushes (Marks 1972; Newton-King and Malherbe 1981) but as the Dutch subdued the Cochoquas – one of the most powerful Khoisan groups –

[7] A collection of huts placed in a circular shape providing protection for the residents and enclosure for cattle.

Figure 1.2: The southwestern Cape in 1703. Source: Guelke and Shell (1983, p. 267)

in 1677, expansion north and east was fast despite pockets resistance (Elphick 1977). A full colonial enterprise was well underway.

2.2 Slavery at the Dutch Cape Colony

As settlers moved eastwards, the town of Stellenbosch was founded in 1682 in the region nowadays known as the Cape Winelands. This region became Cape Colony's main safe haven for the French Huguenots who were fleeing religious persecution in Europe. The first settlers of the group arrived in the area by 1687 and quickly discovered that Stellenbosch's climate and soil were excellently suited for their viticulture techniques (Fourie and von Fintel 2012; Fourie and von Fintel 2014). Wine, together with wheat, barley, oats, and other labor-intensive crops soon dominated the landscape and quickly turned Stellenbosch into the agricultural powerhouse of the colony, a status that remained intact throughout most of the colonial history of the Cape. This status meant that the colony's labor supply was now under considerable pressure.

As the Khoisan lost their livestock after decades of conflict, the colonists' interests shifted from Khoisan's cattle to Khoisan's labor. The damage to Khoisan's social structures prompted many *kraals* to relocate to the drier interior. The Khoisan who opted to stay in the western Cape, on the other hand, ended as farm laborers within the borders of the European settlement (Fourie and Green 2015; La Croix 2018). While the remaining Khoisan could be employed as seasonal wage workers, labor scarcity was further aggravated by the smallpox outbreak of 1713 that disproportionately affected the indigenous people who had not yet been in contact with the disease. It is possible to find depictions of high mortality rates (Theal 1907; Marks 1972; Worden 1985; Fourie and von Fintel 2012) reaching up to 90% of the Khoisan population (Armstrong and Worden 1989). Other scholars are more inclined to revise these estimates to around 30% (Ross 1977) or, at least, indicate that the smallpox effects could have been overestimated by the previous literature (Green 2014; du Plessis et al. 2015). Disagreements aside, scholars agree that these events strongly influenced the labor supply in the colony and led colonists and VOC officials to intensify the slave trade as a means to keep the fields productive.

Incentives to the employment of slaves in the Cape's early agricultural landscape, however, were not new. Shipments of slaves disembarked in the Cape of the Good Hope as early as 1658. The VOC took advantage of its slave-trading links established across both the Atlantic and the Indian Ocean to sell slaves on credit to independent farmers in the colony (Theal 1907). Initially, this enterprise was not successful as Worden (1985, p. 6) notes that in the early stages of the colonial venture the agrarian labor was a "disaster" and many free farmers returned the slaves to the VOC while claiming that "it would be easier to do without them".

It was not until the smallpox crisis of 1713 that slaves became the main source of labor supply apart from colonists themselves and their families. The population of slaves grew relatively fast and by 1739, the ratio between slaves and settlers rose to 2:1 in Stellenbosch (Worden 1985). The increasing number of slaves, however, did not translate to economies of scale similar to the plantation farms of the Americas and the Caribbean. In 1705, for example, 85% of the farmers of the colony were slaveholders. Evidence suggests that this trend persisted well into the 18th century. Worden (1985, p. 31) suggests that "slaveholding thus continued to be widespread, at least amongst the arable sector, but as contemporary estimates had indicated, it was limited in size, with units of over twenty adult male slaves still being rare by the end of the century". Slaves in the Cape Colony, therefore, were scattered across a large number of small-scale holders. Despite this setting, social stratification increased during the 18th century.

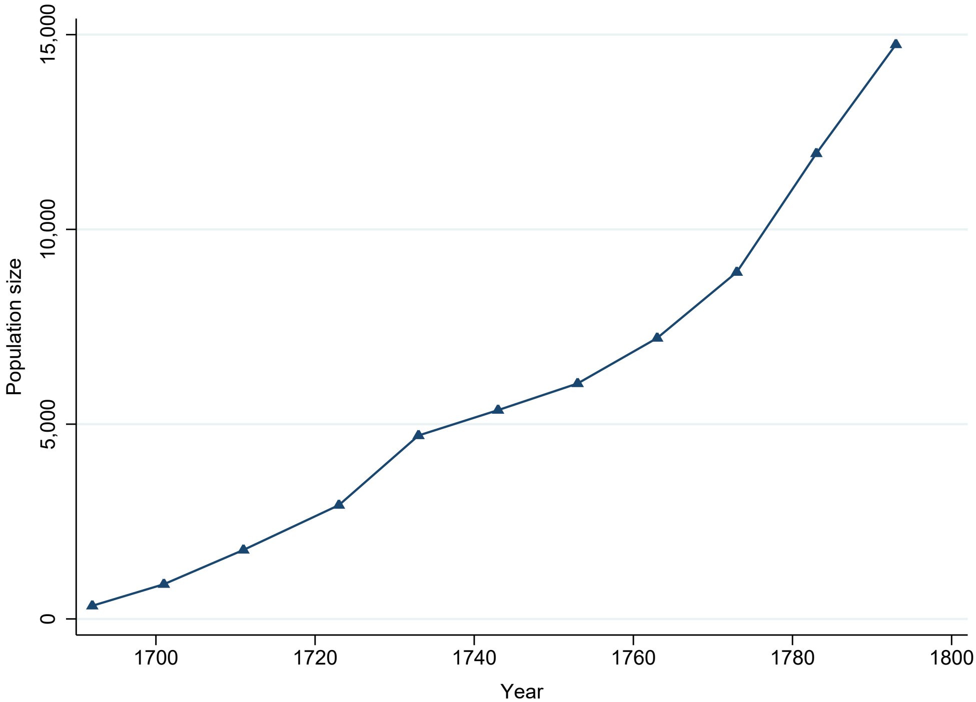

Figure 1.3: Population of slaves, 1692-1793. Source: Worden (1985, p. 11)

Social stratification roughly divided farmers between two types of practices. The first mostly consisted of small-scale farms where farmers employed family labor, Khoisan, and few slaves while specializing in a particular crop. The second consisted of large-scale landowners employing a significant number of slaves while commanding complex farming operations leveraged by considerable debt that occasionally surpassed 160% of the operation's market value (Theal 1891; Hengherr 1953; Ross 1993; Dooling 2007). Over time, labor scarcity coupled with VOC's monopsony placed several smallholders under considerable financial duress. As larger farms consolidated by purchasing smaller surrounding plots, a group of landless settlers became apparent among the colonial society. These circumstances enabled the expansion of the Cape Colony's eastern borders as landless colonists found it increasingly difficult to establish themselves as independent farmers. In 1786, on the periphery of the Colony's eastern border, the district of Graaff-Reinet was founded (Smith 1974; Guelke 1989).

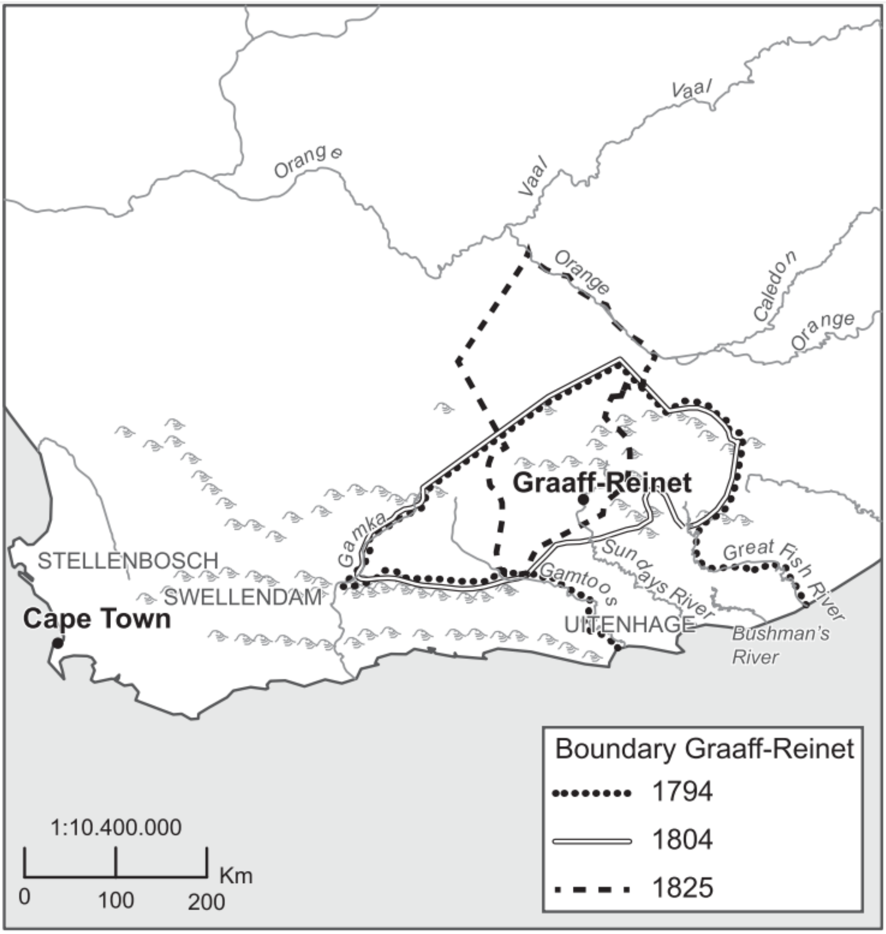

Figure 1.4: The Graaff-Reinet district expansion from 1795 to 1825. Source: Cilliers and Green (2018, p. 8)

Life in the frontier, despite plagued with regular conflict, allowed some of the newly-settled colonists to achieve the much-desired affluence in the colonial society through the accumulation of land and slaves, albeit in a reduced number when compared to Stellenbosch (du Toit and Giliomee 1983; Giliomee 1989; Giliomee 2003). In 1805, for example, tax censuses reveal that 1,465 slaves inhabited Graaff-Reinet and 8,946 in Stellenbosch. At the same time, only 35% of Graaff-Reinet's residents were slaveholders while in Stellenbosch more than half of the inhabitants held at least one slave. It is interesting to note that in both districts more than 50% of all slaveholders had 6 slaves or less, displaying an inability to effectively employ them in economies of scale, an unusual arrangement when compared to the slave economies of the Americas and the Caribbean.[8]

This peculiar nature of the slave economy of the Cape led scholars to question the efficiency and profitability of the system. du Plessis et al. (2015, p. 18), through the employment of a hedonic price model, notes that "it is clear that slavery was an expensive cost to bear for small farmers, and that their attempts to mimic the production process of rich farmers by acquiring more slaves were unsuccessful in agriculture". These findings were in line with Worden (1985) who already noted the difficulty to understand the slave economy of the Cape only through the lenses of agricultural labor, an argument also echoed by Fourie (2013a). These concerns were even expressed by VOC commissioners in the early years of the colonial endeavor as Maurits Pasques de Chavonnes – Cape's governor from 1714 until 1721 – accused settlers of over-investing in slaves, resulting in "dead money" (de Chavonnes 1918, pp. 105–106).

Slavery at the Cape lasted from 1658 until the British effectively emancipated the enslaved in 1834, something that will be further addressed in the next subsection. It is, nonetheless, highly unlikely that a system that was adopted by a wide range of farmers across the entire colonial territory and that survived roughly two centuries was simply unprofitable for slaveholders. To reconcile these views, historians have long hypothesized about the possibilities of Cape's slaveholders to employ slaves as commodities on the credit market such as collateral for loans (Worden 1985; Armstrong and Worden 1989; Dooling 1992; Shell 1994). Very few studies, however,[9] have been done to evaluate the economic importance of slaves as both laborers and assets that could yield returns on top of agricultural gains. This thesis, therefore, aims to explore this gap by investigating the determinants of agricultural output at the Cape once the understanding of the slaves as contributors to both labor and capital requirements for production is considered. Given that living standards in agricultural societies are closely related to agricultural output, answering this question not

[8]By the end of the 18^{th} century, for example, an average plantation farm in Jamaica held 204 slaves (Fourie 2013a; Green 2014).

[9]Swanepoel (2017) is an exception although it is exclusively focused on the Cape's credit market.

only provides a better understanding of the multi-faceted contribution of slaves to production but also enables the assessment of the living standards' dynamics in the years surrounding the emancipation.

The slave economy of the Cape – peculiar as it was – irreversibly changed once the British invasion of the Cape in 1795 took place. While not immediately establishing the Cape as part of the British Empire, the Cape fell under British control in 1805 and, ultimately, was influenced by the amelioration and emancipation laws stemming from London. The next subsection covers the developments in Britain that ultimately led to the Slave Abolition Act.

2.3 Abolishing slavery in the British Empire

The case Somerset v. Stewart in 1772, is usually seen as the first substantial step towards the abolition of slavery in Britain. James Somerset was an enslaved African who had been imprisoned in a ship bound to Jamaica by his master, Charles Stewart. After a lengthy trial, it has been determined that Somerset could not be forced to leave England. Even though the sentence did little to restrict the legality of slaveholding in English territory, it shifted the political momentum irreversibly in favor of emancipation. The positive momentum influenced abolitionist movements in several parts of the British Empire and led to the formation of the Society for the Abolition of the Slave Trade in 1787 (Drescher 1987; Davis 1999; Carey et al. 2004).

After years of denouncing the treatment dispensed to slaves by their masters, the Society finally obtained its first significant success with the approval of the Slave Trade Act 1807. It ruled that all transshipment of slaves intended to be traded was illegal. It, moreover, imposed a fine of £100 per slave captured onboard of British-flagged ships in an attempt to discourage trade. The West Africa Squadron was created as a branch of the Royal Navy with the task to patrol the West African coast to enforce the legislation. While the Slave Trade Act 1807 prevented the import of slaves, internal slave markets were not disallowed.

Abolitionists, by the late 18th century in Britain, were already associated with the cause of justice and humanity. Hundreds of petitions sent to the British Parliament between 1788 and 1792 suggest that the support for the anti-slavery movement was growing (Farrell 2007). The underlying reasons for the success of the abolitionist movement in Britain, however, are still subject to debate among scholars.

Clarkson (1839, p. 5) emphatically points that "the recitals of horror which have been made to Parliament and the country on this dreadful subject, are enough to curdle the blood in the veins and heart of any one endued with the common feelings of humanity". His importance in the movement as one of the most prominent abolitionists of his time strongly shaped the subsequent historical narratives focusing on the humanitarian aspect of the abolitionist movement. This view remained unchallenged until scholars suggested that the British West Indian colonies demonstrated signs of economic difficulties by the 18th century. At the same time, the slave trade and slavery itself were not as economically viable as they once were in the previous decades (Williams 1944; Carrington 2002; Williams 2014). In this case, humanitarian purposes were only a veil through which the economic interests of the slaveholding elites could be channeled.

Alternative explanations suggest that this approach ignores the considerable support that the abolitionist movement enjoyed among the working and middle classes, without which the ban on trade and subsequent emancipation could not be attained (Davis 1999; Drescher 1999; Drescher 2009). This view is best summarized by Farrell (2007, p. 142) who claims that "long-term weight of public hostility to the slave trade (...) had a considerable impact on the abolition movement".

Despite the developments in Britain, it is worth noting that it was neither the first nor the only country to implement legislation to abolish the slave trade as Table 1.1 shows. In terms of success, the Danish suppression was significant since the slave populations on its possessions experienced a steady decline in the subsequent years (Hall 1992). In the USA, on the other hand, the ban was not effective due to the failure in suppressing the entry of slaves in the country (Du Bois 2014) coupled with the size of the North American internal slave market that benefited from population surpluses among the enslaved (Fogel and Engerman 1995).

Table 1.1: The ending of the slave trade and slavery

Country	Ending slave trade	Ending slavery
Sweden	1794	1847
Denmark	1803	1848
England	1808	1834
Unites States	1808	1865
Netherlands	1814	1863
France	1815	1848
Brazil	1830	1888
Spain (Cuba)	1835	1886

Source: Engerman (2008, pp. 280–281)

Difficulties to patrol the entire west African coast and ultimately the Atlantic Ocean were understood by Britain. The West Africa Squadron alone – that started with mere 2 ships – would not be able to enforce such ambitious legislation. Consequently, between 1814 and 1820, Britain sought several diplomatic agreements with the biggest slave traders of the time such as the Netherlands, Portugal, and Spain. Initially, the agreements consisted of restricting trade in a particular area. Portugal, and Spain, for example, agreed to cease their slave trade north of the Equator. After the 1820s, the agreements were expanded to allow the West Africa Squadron to search and detain vessels of other nations (Sherwood 2007).

These endeavors significantly reduced slave imports to the British colonies. Throughout the Caribbean, slave populations experienced its first decline in centuries, especially in Jamaica where the biggest slave economy of the empire was concentrated (Higman 1976; Higman 1984). Even in the Cape Colony, on the outskirts of the Empire, prices rose in response to the ban, and acquiring slaves became significantly harder (Worden 1985; Ross 1988; Shell 1994; Dooling 2007).

With the reasonable success of the Slave Trade Act 1807, the emancipation of slaves was the next item on the abolitionists' agenda. Here, it is important to note that the abolitionist movement was not homogeneous and even its recent successes still sparked controversy among its ranks. While the end goal was the same, abolitionists diverged on the means to achieve the full liberation of slaves. One group advocated a gradual process through the ratification of amelioration laws, while the other called for immediate action. The prevailing views were ultimately defined by Engerman (2008, p. 280) as a "conservative and limited reform, one generally paid for by either those freed or by other members of society". His claims are based on two major points. Firstly, the collection of amelioration laws passed after 1807. Secondly, the Slave Abolition Act 1833 that was devised to compensate slaveholders for the emancipation of the enslaved.

Starting with the amelioration laws, these formed a collection of ordinances that appeared in some British overseas territories allowing slaves to get married, prohibiting the separation of married slaves by sale, preventing children under 10 from being separated from their parents, restricting corporal punishment, regulating the number of working hours among other amelioration requirements (Dooling 2007; Spence 2014). Their goal was to ultimately increase the costs of slaveholding and allow slaves more individual freedom. Amelioration laws coupled with the impossibility to import new slaves were thought to be sufficient to discourage slaveholding which, in turn, would inevitably lead to the end of the system.

The increased number of slave uprisings after 1807 is attributed in part to the amelioration program. Some authors argue that the amelioration program fostered among the enslaved communities the perception that freedom was within reach (Holt 1992; Dunkley 2012; Spence 2014). As meaningful as it may have been, however, most of the enslaved population remained tightly under the control of the slaveholding elites, which prompted more progressive ranks of the abolitionist movement to argue that the amelioration laws merely delayed emancipation proper (Coupland 1933; Lambert 2005; Engerman 2008).

Full emancipation was the only way to placate the public hostility on the subject. The inefficiency of the amelioration program together with the poor economic performance of the British West Indies in the 1820s shaped the political landscape favorably for the proponents of full emancipation to push their demands. It culminated in the Slave Abolition Act of 1833 that came into effect on August 1st 1834.

The Slave Abolition Act of 1833 determined the terms of emancipation even though it was not as immediate as the title of the act suggests. Slaves were subjected to six years of "apprenticeship" while still being bounded to slaveholders. Most significant, however, was the compensation paid to the slaveholding elites. Amounting to £20 million, the reparations were paid to the holders of slaves, but not the slaves themselves. The compensation, as defined by Fogel and Engerman (1974, p. 401), was "philanthropy at bargain prices" since slaveholders saw slaves' freedom as "a commodity they were prepared to purchase only if it could be obtained at a very moderate cost".

The compensation – that represented 40% of the British government's yearly revenues – was distributed among the colonies in proportion to the value of the enslaved population. While most of the money was directed towards the Caribbean, £1,247,000 were apportioned for the Cape Colony. The next subsection discusses the repercussions of the emancipation at the Cape.

2.4 Repercussions at the Cape

While the economic significance of slavery persisted over time and outlived the Dutch rule at the Cape, after the Slave Trade Act 1807 the relationship between masters and slaves changed. Slaves at the Cape incorporated into their expectations and perceptions the discourse of freedom and universal rights (Vernal 2011). Cases of shirking, labor withdrawal, and open resistance increased after 1807. The feeling of unrest grew stronger among the enslaved population during the amelioration program (Dooling 1992; Shell 1994). Yet, despite the increase on slave prices, farmers at the Cape – especially in Stellenbosch – could still accumulate slaves (Worden 1985; Shell 1994). This accumulation, although at a much reduce pace, is a testament to the resilience of the Cape's slave economy. Only emancipation could fundamentally end the system. Emancipation arrived in 1834 but, unfortunately, it was not immediate.

The Slave Abolition Act 1833 determined an "apprenticeship period" that lasted from 4 to 6 years together with financial compensation for slaveholders. The perceived lack of transparency in the compensation process, however, meant that slaveholders hardly had their expectations met. At the Cape, all slaveholding households in the colony had their slaves value assessed in the early stages of the emancipation process. This valuation was carried out by officially designated appraisers under the auspices of the Office of Commissioners of Compensation (OCC). It used private and public sales of slaves between 1823 and 1830 to assess the wealth worth of slaves that were held by each household in the colony. At the Cape, this value was estimated at £2,800,000. Initially, therefore, slaveholders expected the whole sum to be remitted directly to the Cape (Hengherr 1953; Meltzer 1989; Dooling 2007).

Britain apportioned £1,247,000 to be paid to Cape's slaveholders. Instead of using the market prices collected by the appraisers, Britain calculated the claims solely based on the sex and occupation of the slaves. Slaves within the same category were considered homogeneous and interchangeable (Draper 2008). This process generated a gap. Slaveholders who held different wealth worth of slaves despite having the same number of slaves, were eligible for the same compensation if their slaves were classified as having the same sex and occupation.

Compensation, moreover, could only be claimed in London, contrary to the claimants' expectations. The general feeling towards the compensation scheme was negative and former slaveholders used all the means available to criticize the system, saying it was the most "signally unjust, as well as offensively arbitrary, proceedings we ever heard of" and "a transaction discreditable to any government laying claim to fair and honest dealing with the public creditor".[10]

Aside from the cash compensations, slaveholders' dissatisfaction also stemmed from fears that labor withdrawal would lead to an unprecedented economic and social crisis after 1838 when no slaves would be legally bound to their former masters. A letter from the inhabitants of Worcester addressed to Benjamin D'Urban[11] on August of 1834, for example, expresses the fear that if laws to prevent vagrancy were not approved it would permit "wanderers to roam about

[10] Grahamstown Journal, January 19th, 1837 as quoted in Hengherr (1953).

[11] Governor (1834–1838) and commander in chief (1834–1846) of the British Cape Colony.

unpunished" and "may be detrimental to good order, and have a pernicious effect on the minds of the slaves to be emancipated".[12]

As vagrancy laws were not approved, slaveholders adopted stronger language in an attempt to pressure the colonial government to address their fears. *De Zuid-Afrikaan*, one of the most read newspapers of the colony, was slaveholders' preferred outlet to manifest their opinions. On July of 1838, a letter from A.J. Louw, a farmer from Koeberg, to the editor of *De Zuid-Afrikaan* mentions the "fast-approaching moment when the crops on the fields will be exposed to destruction, and thousands of untutored, mostly immoral beings, are incorporated with civil society, without proper laws to check the ungovernable passions inherent to uncivilized beings". On May 3rd 1839, *De Zuid-Afrikaan*'s editorial read "Protect the Blacks, but protect equally the Whites.[13]

While there is evidence suggesting that the labor market at the Cape Colony became under-supplied after 1840 (Shell 1994; Dooling 2007; Worden 2017), the effects of the emancipation on agricultural output at the Cape are still not well understood. Anecdotal evidence points to slaves leaving their former masters "as if by arrangement" (Krauss 1966, p. 42) or "en masse" (Dooling 2007, p. 116), at the same time, it is also possible to find accounts of slaves remaining "on the farms as low-paid laborers" (Worden 1992, p. 20) resulting, if anything, on short-lived agricultural losses (Shell 1994). Conflicting accounts are magnified, as already discussed, by evidence suggesting that the employment of slaves as agricultural workers alone would not be sufficient to ensure the profitability of the system at the Cape (Worden 1985; Fourie 2013a) except for large-scale landowners who could achieve economies of scale (du Plessis et al. 2015).

The idea that slaves mostly remained in the districts they previously resided and still provided former slaveholders with seasonal paid labor has two significant implications. Firstly, slaveholders' fears of labor withdrawal were unsubstantiated. Secondly, divergences among scholars on the effects of the emancipation at the Cape might stem from the excessive attention that was given to the slaves' role as farm laborers while neglecting slaveholders' ability to employ alternative forms of exploitation. This is exactly what this thesis explores. By deepening the understanding of the effects of the Slave Trade and Slave Abolition acts on the economics of slavery at the Cape, this thesis contributes not only to the underpinnings of the economics of coercion but also to the economic history of this particular region of the world. The theoretical framework that guided this thesis' endeavor is presented in the next section.

[12] Extracted from du Toit and Giliomee (1983, p. 72).
[13] Extracted from du Toit and Giliomee (1983, pp. 73–74).

3 Theory

Slavery is a system that follows the history of humankind. The Code of Hammurabi, written around 1750 B.C., regulated the relationship between slaves and masters in 27 of its 282 written laws. Apart from its historical significance, the Code of Hammurabi provides evidence that slavery was an institutionalized and significant part of human society for at least 3500 years. The pervasiveness of slavery throughout history is best summarized by Finley (1976, p. 819) who notes that "in the context of universal history, free labor, wage labor, is the peculiar institution". Finley's statement is a response to Stampp (1956) who brought to light the expression "the peculiar institution" used during the 19^{th} century to refer to slavery and its system in the southern United States.

Finley (1976) alludes to the context of "universal history", however, it is worth reminding the reader that this section has a far diminutive scope in comparison. Firstly, this section by no means aims to cover the entire history of slavery. Secondly, this thesis focuses on the 18^{th} century Cape Colony and the spillovers of its slave system in the years surrounding the process that emancipated the enslaved. To enhance our understanding of such events and the theoretical implications produced by the empirical findings of this work, this section prioritizes the developments of the slave systems in Western Europe, the Americas, and Africa from a historical standpoint.

The timelessness of slavery as a concept – where the slave is the property of the master – has prompted a wide range of social scientists to study the determinants for slavery's emergence, persistence, and decline. Difficulties in this endeavor are magnified by the fact that slavery has been present in many different settings over time and space. Ultimately, it creates theoretical barriers towards a unified and all-encompassing framework since, as defined by Patterson (1982, p. 13), the development of slavery is "not with a static entity but with a complex interactional". Would it be, after all, possible to unequivocally find objective similarities between Ancient Rome, the United States, and the Cape Colony that would explain slavery's dynamics? An interesting point of departure for this discussion is taken from the Athenian historian Thucydides through the Melian Dialogue. In this dialogue, Melian diplomats seek to prevent an Athenian invasion to the island of Melos as part of the Peloponnesian War:

> Melians: (...) as we see you are come to be judges in your own cause, and that all we can reasonably expect from this negotiation is war, if we prove to have right on our side and refuse to submit, and in the contrary case, slavery.

> Athenians: For ourselves, we shall not trouble you with specious pretenses and make a long speech which would not be believed; (...) since you know as well as we do that right, as the world goes, is only in question between equals in power, while the strong do what they can and the weak suffer what they must.
>
> Melians: (...) how could it turn out as good for us to serve as for you to rule?
>
> Athenians: Because you would have the advantage of submitting before suffering the worst, and we should gain by not destroying you.
>
> Melians: So that you would not consent to our being neutral, friends instead of enemies, but allies of neither side.
>
> Athenians: No; for your hostility cannot so much hurt us as your friendship will be an argument to our subjects of our weakness, and your enmity of our power (Thucydides 430 B.C., Chapter XVIII).

Ultimately, the Melians refused to submit to the Athenians who laid siege to the island. The Athenians emerged victoriously and punished the Melians by putting to death "(...) all the grown men whom they took, and sold the women and children for slaves" (Thucydides 430 B.C., Chapter XVIII). In this passage, it is possible to verify that slavery is just a by-product of the war whereby the weak suffered "what they must". The Athenians' views, portrayed by Thucydides, are Aristotelian in nature as the famous philosopher suggested that "some should rule and others be ruled [this is] not only necessary, but expedient; from the hour of their birth, some are marked out for subjection, others for rule" (Aristotle 350 B.C., Book I).

Ancient Rome's views on slavery were not substantially different than the one postulated in Greece, even though enslavement played a significant role in the Roman economy. Estimates suggest that slaves comprised 30% of the population in the Italian Peninsula by the first century B.C. (Finley 1973; Scheidel 2005) and were mostly obtained through warfare where captives were either sold to traders or kept as war prizes (Finley 1980). Slave trade, slavery, and its acceptance were a predominant feature in the Mediterranean world during the classical antiquity.

It is interesting to note that these views changed little over the course of the next 3000 years. Fogel (1994, p. 201) notes that "from the time of Moses to the end of the 17th century, virtually every major statesman, philosopher, theologian, writer, and critic accepted the existence and legitimacy of slavery".

Virtually, says Fogel, because it is possible to find few philosophers who demonstrate sympathy for the enslaved, especially among the Stoics.[14] Lucius Seneca, for example, recognized that the Roman treatment towards slaves was "exceptionally arrogant, harsh and insulting" and advised his followers to "treat your inferiors in the way in which you would like to be treated by your own superiors" (Seneca 1969, p. 93). Despite sympathy, Seneca did not advocate for the emancipation of slaves, and tacitly recognizes its existence.

The same tacit recognition was also present in Christian theology that understood slavery as a condition of the body rather than of the spirit, thus acceptable in the sinful realm of humans. Whether the general quietism derived from the acceptance of Aristotle's views that slavery was just part of the natural order, or from the belief of the Stoics and the Church that physical slavery was not a matter of importance,[15] the fact is that slavery survived the classical antiquity and reached the Middle Ages. During this period, important changes to the system became apparent.

The advancement of Feudalism in Western Europe slowly replaced slavery with a relationship with different contours. Serfs and Lords became connected through a complex bond of vassalage and suzerainty that gradually transformed the concept of slave-object to slave-subject (Rotman 2009; Rayborn 2013). This was a significant change since serfs, regardless of their legal status, enjoyed a greater degree of freedom when compared to slaves. (Bloch 1966; North and Thomas 1973). It is crucial to note that while both servitude and slavery are coercive contracts, servitude is fundamentally different from slavery since the relationship of property – paramount between the master and the slave – is nonexistent.

The reasons for the rise of serfdom at the expense of slavery are subject to considerable debate among early medieval historians. If slaves were mostly a by-product of war, the entire reorganization of the Western European society after the collapse of the Roman Empire should have provided slave markets with a considerable supply of captives. Yet, evidence suggests that slavery entered a period of continuous decline. Medieval historians point to at least two factors that stand out as possible explanations.

Firstly, the Catholic Church made the enslavement of Christians an offense, ultimately changing the dynamics of slave capturing since raids now had to be made far from Western European lands. Secondly, the medieval agricultural and

[14] Stoic philosophy inspired some legal reforms in the Roman system aiming to provide slaves some protection. See Garnsey (1996), McKeown (2010) and Karaboghossian (2014).

[15] See Garnsey (1996) for a thorough discussion on the subject.

political landscape did not make slavery a viable economic option. Bloch (1966), for example, suggests that the former Roman villas became more fragmented as the empire collapsed, which prevented landlords from obtaining economies of scale that justified the employment of slaves.[16] Bloch's argument is partially accepted by Bonnassie (2009, p. 56) who agrees on the importance of the economic environment but notes that the decline of slavery in early medieval Europe was a long process that was not complete until "the second half of the tenth century". He suggests that changes in the justice system and the advancement of technology played a greater role in the process.

The argument presented in Bloch (1966) is of particular interest since it links the dynamics of the slave system to the economic sphere. Bloch, however, mostly echoed arguments already presented more than half a century earlier in Nieboer (1900), who departs from the assumption that slavery would not exist if not by the economic value attached to it. Nieboer (1900) further divides economic systems into open and closed-resource economies. In the latter, all land has been appropriated which would inevitably lead a division between landed and landless individuals. Landless individuals who have nothing to offer to the system but their labor would create the necessary conditions for the emergence of a free-wage labor system. Nieboer carefully points that slavery might still emerge in a closed-resource economy but warns that slavery as an "industrial system" – i.e. a system that seeks output surpluses – is less likely to occur. In open-resource economies, on the other hand, production cannot be expanded on an industrial scale because the abundance of land would prompt individuals to seek subsistence farming. Labor, in these circumstances, can only be obtained through coercion.

Ultimately, Nieboer (1900, p. 348) theoretical approach postulates that "slavery as an industrial system can only exist where there is still free land". This is further developed using the case of Western Europe as an example of "former times, when these countries [in Western Europe] were far less densely peopled than now, slavery and serfdom existed, it does not seem unreasonable to suppose that the appropriation of the soil has had much to do with the disappearance of servile labour". Interestingly, this approach ties the emergence and decline of slavery and serfdom with the "appropriation of land". In other words, land-labor ratios would not only determine the emergence but would also explain how the system is sustained over time until its decline. This mechanism influenced several scholars who link the decline of coercive institutions in Western Europe with the labor scarcity generated by the Black Death and other demographic

[16] For a detailed approach on the Roman villas and its economic importance, see Marzano (2007) and Bowman and Wilson (2013).

shocks (Habakkuk 1958; North and Thomas 1971; North and Thomas 1973; Postan 1973; Le Roy Ladurie 1976). The approach centered on factor endowments were also used to explain slavery in Africa (Lovejoy 2000; Austin 2005; Feinstein 2005; Green 2014), Brazil (Lockhart and Schwartz 1983; Prado Júnior 1983; Schwartz 1985; Klein and Luna 2009) and the United States (Engerman and Sokoloff 2002).

The theoretical foundations proposed by Nieboer (1900), despite being largely intact for many decades, were modified when Domar (1970) proposed a generalizable theoretical model using land-labor ratios in its core. Domar assumes that in an open-resource economy where land and labor are the only factors of production, land quality is uniform and the average and marginal productivity of labor is constant, the development of coercive labor will happen if non-working landowners exist. If the latter is not satisfied, Domar concludes that an open-resource economy could develop into a family farming-based economy. These findings are usually organized as a "trilemma". Free land, free labor, and non-working landowners cannot all co-exist except for two of these conditions which, in turn, would negate the third element. The corollary is that free land would not be sufficient to explain the emergence or even the persistence of coercion.

While Domar (1970) allows scholars to disentangle the emergence of a coercive system from its persistence, it does not provide a meaningful distinction between serfdom and slavery. Criticism of the model also stems from its economic-centered nature which had long been subject to disagreement among scholars. Siegel (1945), for example, claimed that the study of slavery often lacked the inclusion of political and social elements. Patterson (1977, p. 30) follows the same line when proposing that the Nieboer-Domar hypothesis was "vulgar economic determinism" and suggests that economic factors were not as important as cultural ones to explain the existence of slavery. Patterson uses the case of Ancient Greece to illustrate his arguments by suggesting that it was the negative attitude of the Greek peasantry towards manual labor that ultimately forced landowners to employ slaves on their farms. A similar view was also adopted by Finley (1980, p. 143) who claims that the rise of ancient slavery is linked "to the power of the free man", not land-labor ratios.

Aside from the cultural factors, Patterson (1977) suggests that the emergence of slavery stemmed from the ability of farmers to produce surpluses, negating the importance of land-labor ratios itself. Consequently, slavery would emerge if landowners were capable of producing agricultural surpluses so long cultural institutions enabled the social death of individuals. Social death, according to Patterson (1982), starts in the enslavement process. In a scenario where slavery is a by-product of war, for example, a captive would be spared from physical death by accepting enslavement as commutation from the original sentence. Physical death, in this case, was replaced by social death where the captive ceases to be perceived as fully human. Social death could be "intrusive", when rituals are developed for the incorporation of subjects external to the society into the slave culture, or "extrusive" when rituals are developed to exclude subjects within the society into the slave status. In both cases, slavery is defined by "the permanent, violent domination of natally alienated and generally dishonored persons" (Patterson 1982, p. 13). This definition deliberately avoids the understanding of the economic and property-based character of slavery, something shared by Rotman (2009, p. 1) who notes that slavery extends "far beyond the economic context".

The definition in Patterson (1982), therefore, sharply contrasts with the one adopted by scholars more inclined to study slavery through economic lenses. This understanding, however, does not allow any conjectures to be made concerning the decline of the system. Between social death and land-labor ratios, problems formulating a comprehensive "theory of slavery" were already identified by Engerman (1973, pp. 60–62) who claims that "important as the land-labor ratio may seem, much more must be considered before we can satisfactorily develop a theory of the causes of slavery". He draws attention to the idea that once slavery is present in a given society, the "slaveowning class has an incentive to avoid capital losses by perpetuating the system". Understanding the profitability of the system, therefore, is crucial to understand the persistence of slavery. This cannot be done if slaves are not understood as property.

Departing from this definition, slavery is not merely a system that controls labor, such as serfdom. It is a system that provides the slaveholders with complete rights over a mobile property. While agricultural labor – thus, dependent on land – was most frequently used by masters to extract surpluses from serfs and/or slaves, only slaves provide masters with the ability to obtain surpluses from coercion as an asset. Consequently, profitability might not be directly dependent on land availability.

This is an important observation because most of the previous literature on the economics of slavery focused on its profitability exclusively from an agricultural standpoint (Vedder and Stockdale 1975; Higman 1976; Fenoaltea 1984; Higman 1986; Ransom and Sutch 1988; Brenner 1987; Field 1988; Attack and Passell 1994; Fogel and Engerman 1995; Hatcher and Bailey 2001; de Geest and Dari-Mattiacci 2013; Blackburn 2006; Acemoglu and Wolitzky 2011). Despite occasional recognition that slaves could facilitate slaveholders' access to capital (Garnsey 1996; Engerman 2007; Pires and del Nero da Costa 2012) the focus has largely been on profits through the sale of slaves. If slaves were the property of their slaveholders, coercion could be employed in a range of different strategies that exploited the enslaved as an asset that could be leased or even pledged as collateral against loans (Dooling 2006; Martin 2010; González et al. 2017; Ribeiro and Penteado 2018; Ribeiro and Penteado 2020; Swanepoel 2017). Slaveholders, therefore, could raise capital through the enslaved on top of the gains derived from exploiting slave labor.

The theoretical repercussions of the proposition above are significant since it is now possible to challenge the idea that land-labor ratios are necessary and/or sufficient conditions for the persistence or decline of slavery. This is not to say, however, that land-labor ratios cannot explain the emergence of coercion. Coercion does likely emerge from the impossibility to ensure a steady supply of labor in scenarios with an abundance of land. Yet, this explanation is only sufficient if slavery is understood as much of a coercive contract as serfdom. Neither Nieboer (1900), Domar (1970), and Patterson (1982) nor the modern frameworks proposed, for example, by Chwe (1990), Sherstyuk (2000), and Acemoglu and Wolitzky (2011) provide a significant differentiation between these coercive arrangements. This, in turn, limits the scope of slavery as a mere labor relation.

While this thesis recognizes the importance of slaves' role as laborers, it departs from the view that this is only one of the dimensions of the relationship between masters and slaves, a relationship that has to fundamentally include property. As Wright (2006, p. 6) notes slavery was, "a form of wealth and a basis for credit and exchange. Owners were entitled to do many things with their slave property that could not legally be done with free labor".

With this in mind, it becomes easier to observe that farmers' demands for capital were intrinsically connected to the existence – and certainly persistence – of slavery, something that land-labor ratios alone cannot capture. This understanding also enables theoretical endeavors to explain the existence of slavery in urban settings (Goldin 1976; Bank 1991; Dantas 2008) and might also explain as to why slavery, and not serfdom, would emerge in a given society.

Adding capital demands to the economics of coercion, however, does not refute the Nieboer-Domar hypothesis and its focus on factor endowments. It simply shows that farmers' demands for capital in settings with weak property rights – especially on land – can explain the persistence of slavery over time since the ability of slaveholders to access capital is directly tied to the profitability of the slave economy. While land-labor ratios can still explain the *emergence* of slavery, its *persistence* can be explained by the profitability of slavery as a system. In a scenario with weak property rights to land where slaves appear as a significant source of collateral, slavery might persist despite unfavorable land-labor ratios or even lack of economies of scale, as observed in the Cape Colony. The decline of the system, therefore, is naturally connected to the reasons it persisted. If the slave system ceases to be profitable, slaveholders will no longer see slaves as indispensable, acquiescing emancipation.[17] This understanding, moreover, does not conflict with the already established neo-Malthusian explanation where changes in land-labor ratios caused the erosion of manorial institutions in Europe. Serfdom – as the main coercive contract of the time – is a system that only controls labor which, in turn, renders it exclusively dependent on land availability within the medieval agricultural economy.

The economic significance of "extra-agricultural" activities, however, is largely unknown since most evidence is either qualitative or limited in its scope. This thesis, therefore, aims to contribute to the theoretical discussion on the determinants of slavery by demonstrating that access to capital also bore significant repercussions on agricultural output and living standards in the Cape Colony. For this endeavor, exceptionally rich data is needed, something that is described in the next section.

4 Data

This thesis employs novel micro-level data covering important economic historical aspects of the Cape Colony between the 18^{th} and 19^{th} centuries. In this section, four databases will be briefly discussed in terms of coverage, level of detail, and limitations: tax censuses, slave compensation records, farm ownership index (BVOE), and the South African families (SAF) database. The composition of papers in terms of sources used can be found in Table 1.2.

4.1 Tax censuses – *opgaafrollen*

Tax censuses contain information on household size, agricultural output, and related capital at the household level. Archival work reveals the existence of tax censuses from as early as 1663 until 1844. Initially, these records were collected by the VOC and, after 1806, by the British colonial administration. The household-level information included in the tax censuses contain numbers of sheep, oxen, cattle, horses, vines, wagons, and carriages together with the

[17] This view on the decline of slavery has already been expressed by Williams (1944) when referring to abolition within the British Empire. More recently, Wright (2020) suggested the same mechanism for emancipation in the United States.

Table 1.2: Data sources employed per paper

Data source	Paper 1	Paper 2	Paper 3	Paper 4
Tax censuses	X	X	X	
Compensation records		X	X	
SAF		X	X	
BVOE			X	

[Notes] Additional sources were used on Paper 3 such as the Cape Colony inflation index produced by de Zwart (2013) alongside indicators of soil quality produced by the International Soil Reference and Information Centre and topographic information produced by the United States' National Oceanic and Atmospheric Administration.

amount of wheat, barley, rye, and oats sown, and reaped per household. The number of slaves possessed by each household and the number of Khoisan living on the farms is also recorded. Both variables are divided between men and women and further subdivided between adults and children. Households are identified by the name and last name of the household head followed by the partner. Oftentimes, genealogical information is also provided such as the name of the father of the household head. From these records, it is also possible to derive the size of the household in terms of family members since it does not only account for the head but also his/her partner and children. For this thesis, sub-samples from tax censuses of Stellenbosch and Graaff-Reinet districts were selected following the goals of each paper.

Generating a longitudinal database from the tax censuses is possible through the linkage of time-invariant denominators such as the name and last name of the household head and the respective partners using a classifier that was trained on a manually linked subset of the data. Rijpma et al. (2019) discuss this process in detail.

Given its wide temporal coverage, the tax censuses often suffer from inconsistencies. Firstly, not all years between 1663 and 1844 are available, which also render chosen sub-samples incomplete. Secondly, the first half of the 19^{th} century comprise changes from Dutch to British administration in the Cape Colony, the Slave Trade Act 1807, and the Slave Abolition Act 1833. All these events led to changes in data collection. After 1806, for example, English – and not Dutch or Afrikaans – became the language of administration, and the replacement of several Dutch officials by British ones made language barriers increasingly common. This not only influenced the spelling of several last names – e.g. Rous-Roux, Liebentrau-Liebentrouw, Bergh-Berg –, but also led to changes in the information that was considered relevant. The years of 1830, 1832, and 1835, for example, do not account for the number of children in the house, meaning that the census only lists the adults. It is also possible to verify missing data for unknown reasons such as in 1830 when no agricultural produce has been reported in the tax census.

The level of detail on data collection also suffer significant variation over time. While earlier tax censuses usually differentiate between cattle, sheep, and pigs, the tax censuses from 1840 and onward group them under a common denominator. The same situation is verified on the labor composition in the farms, especially after the emancipation of slaves. It is possible to find tax censuses where all workers in a given farm are grouped under one label – e.g. total labor – while other years provide a degree of differentiation between "coloureds" and "whites". All inconsistencies on particular sub-samples are thoroughly discussed in the methodological appendixes at the end of all papers where this database was employed.

4.2 Slave valuation and compensation records

These records contain information on 8,452 slaves who lived in the Stellenbosch district in 1834 when the Slave Abolition Act was devised by the British Empire. These records were transcribed from the sources produced by the Office of Commissioners of Compensation in the Cape Colony found on Western Cape Archives and Records Service in Cape Town. These records contain two documents: slave returns and form of claim. The original transcription is found on Heese (2019) and the digital files were kindly shared with the present author.[18]

The slave returns were produced by officially designated appraisers who covered all slaveholding households in Stellenbosch district collecting information on slaves' age, sex, and place of origin. Based on prices from public and private slave transactions between 1823 and 1830, the appraisers were capable of determining the value of each slave. The form of claim was a much simpler document where the slaveholders were identified as proprietors of the slaves appraised. This document was necessary to ensure the claimants' right to compensation.

The compensation, however, was defined by different guidelines. Britain decided to pay reparations only concerning the sex and occupation of the slaves, meaning that slaves who had the same sex and occupation – despite having different ages, for example – yielded the same compensation despite any potential differences in value.

[18]Nowadays, all files can be found at the Legacies of British Slave-ownership project's website at https://www.ucl.ac.uk/lbs/.

With information on the slave-specific characteristics and their former masters, it is possible to link the outcomes of the compensation scheme to the tax censuses. This linkage was made manually and the resulting database was used on Papers 2 and 3 of this thesis. An important variable derived from this dataset is the average shortfall – i.e. the difference between the value appraised and the compensation received. The enslaved population of the Cape Colony was appraised at £2,800,000 while the compensation received was £1,247,000, meaning that slaveholders generally received a value below their expectations. Both the appraisal and the compensation processes had clear guidelines, yet, the overlay between these processes generated random shortfalls when compared across slaveholders which, in turn, allows this thesis to explore causal links between wealth losses and significant economic and demographic variables. This process is further described in section 5.2.

4.3 Farm ownership index

The farm ownership index derives from the *Bewaarders Van Ons Erfenis* (BVOE), a project led by the Drakenstein Historical Society that digitized land ownership records collected by Cape colonial officials between 1849 and 1850 and published in the Cape Colonial Gazette.

The BVOE contains all registered farms in the Cape Colony in 1850 associated with the name and last name of the owner. Oftentimes, these records are accompanied by the name and last name of the owner's partner, which enables the linkage between the BVOE and the other data sources described in this section. In Stellenbosch, the BVOE displays information from farms belonging to 509 different farmers. The Drakenstein Historical Society also linked the aforementioned information to maps available at the Cape Archives, creating the possibility to assess the size of the farms as well as their geographic placement. With their geographic placement available, farm-specific characteristics can be obtained such as soil quality[19] and topographic[20] information.

Despite the broad coverage of the BVOE, as most historical datasets, information is not complete. In some instances, the entries do not contain the farm owner despite registering the farm. Additionally, the BVOE does not provide the ownership share on farms with multiple owners. Lastly, the BVOE provides

[19] The indicators of soil quality used were clay content (%), cation exchange capacity of soil in cmolc/kg, soil carbon content (fine earth fraction) in g per kg, soil pH x 10 in H2O at https://www.isric.org/explore/isric-soil-data-hub.

[20] Topographic information was obtained through a 1 arc-minute global relief model of Earth's surface available at https://www.ngdc.noaa.gov/mgg/global/global.html.

a picture of farm ownership in 1850, which is presumably not static. The linkage between the BVOE and other data sources, such as the tax censuses, therefore, relies on the assumption that farm ownership remained constant during the period studied. Backward linkages, therefore, are fragile even though they can be informative.

4.4 South African Families (SAF)

The South African Families database is a genealogical record of all settler families in the Cape Colony from 1652 until 1910 containing year of birth, year of death, the number of siblings, rank among siblings and gender of all settlers alongside their marital history containing the year of marriage and the name of the spouse. Identifier codes created by Cilliers (2016) allow matching of offspring to both parents so that families can be traced over multiple generations.

Not only the SAF is important to produce important outcome variables – such as lifespan, used on Paper 2 – but it also increases linkage quality across other datasets especially through its marital information. Afrikaner families tended to name their children after their relatives and usually followed a pattern. If the first-born was male, then he was named after the paternal grandfather. If female, the paternal grandmother. The second-born was named after the maternal grandparents and the third-born was named after the parents conditional, of course, on sex. This pattern was extended to the parents' siblings depending on the size of the family.

Ultimately, this tradition led to several individuals bearing the same names and last names, which renders the marital status – and consequently wife's name – a valuable tool to successfully match individuals within and between tax censuses and other databases. More detail concerning the Afrikaner naming tradition can be found in de Villiers and Pama (1981).

5 Methodology

This thesis departs from a quantitative approach in its three first papers. By utilizing existing theories and challenging them against empirical data, these papers seek to establish the theoretical limitations of the existing frameworks. Once limitations are exposed, the fourth paper attempts to reconcile the current findings while proposing a direction for theoretical developments. While it is not the goal of this section to discuss all empirical strategies adopted in-depth, it is worth elaborating on how the Slave Trade Act 1807 and the Slave Abolition Act 1833 can be used as viable empirical strategies.

5.1 Slave Trade Act 1807: empirical strategy

The Slave Trade Act abolished the transshipment of slaves within the British Empire. Slave ownership was still allowed together with intra-colony slave markets. It presents an opportunity to study the dynamics of coercive systems when faced with significant labor supply shocks.

In the Cape Colony, its significant agro-climatic variation allows the study of the shock on slaveholders who were subjected to considerably different factor endowments and, presumably, operated and approached labor significantly different within their farming units. It is, moreover, relevant to note that slavery in the Cape Colony coexisted with indigenous seasonal wage labor, giving slaveholders a degree of substitution. Lastly, the Slave Trade Act received royal assent in 1807, just a year after the Cape Colony passed to British hands. The Act imposed the Cape's settlers a scenario with low predictability since it is unlikely that slave accumulation trends pre-1807 incorporated the expectations of a sudden import ban.

It is possible to analyze the effects of the Slave Trade Act 1807 on the slave accumulation trends in the Cape Colony by assuming that the demand for slaves (S) is a function of a range of covariates (K), a temporal rate of accumulation (t) the import ban (b) as represented below:

$$S_i = f_i(K, t, b) \tag{I}$$

The function f, therefore, is:

$$f = \sum K_{it} + t + tb \tag{II}$$

Given the ability of slaveholders to buy and sell slaves between districts and to hold on to the slaves in their possession, the effects of the Slave Trade Act influence the trend of slave ownership, but not on its level. In this case:

$$S_{it} = \sum \beta_1 K_{it} + \beta_2 t + \beta_3 tb \tag{III}$$

Since $b = 0$ before the shock, the trend is given by β_2. Alternatively, when $b = 1$, the effects of the trend becomes $\beta_2 + \beta_3$. Given the restrictions imposed by the Slave Trade Act, we should always expect $\beta_2 \geq \beta_2 + \beta_3$. If $\beta_2 + \beta_3 > 0$, it suggests that the slave economy of the Cape was resilient to the ban and kept accumulating slaves despite restrictions. Alternatively, $\beta_2 + \beta_3 < 0$ signifies that slaveholders were shifting away from the slavery mode of production once the effects of the import ban were felt. Ultimately, the variation of β_3 between districts subjected to considerably different factor endowments is of particular significance to understand the dynamics of slavery against the theoretical postulations that consider land-labor ratios crucial for explaining the persistence of the system. It makes the Slave Trade Act 1807 a valuable empirical strategy to tease out the determinants of coercion.

5.2 Slave Abolition Act 1833: empirical strategy

The compensation scheme devised by the Slave Abolition Act 1833 generated differences between the compensation slaveholders expected to receive *vis-à-vis* the actual compensation – i.e. shortfalls – as briefly explained in section 4, subsection 4.2. In short, slaves were first valued by officially designated appraisers who considered market prices from private and public sales of slaves between 1823 and 1830. The process assessed the wealth worth of slaves held by each slaveholder. The compensation scheme, however, assigned the reparations following slaves' sex and occupation, disregarding all other characteristics that composed the value of a slave. The overlay between both processes generate, therefore, the shortfalls.

To visualize the potential of using shortfalls as a valuable empirical strategy, let us assume that the wealth of an individual can be divided into slave (S) and non-slave (W). Additionally, consider an outcome variable y of an individual i. If y can be partially explained by wealth plus an error term μ, then function IV assumes the following form:

$$y_i = f_i(W, S) + \mu_i \tag{IV}$$

After emancipation in 1834, slaveholders were not allowed to access S and, in turn, received a compensation C. The function f, therefore, can be re-written as:

$$f = W + (C - pS) \tag{V}$$

In Equation V, p represents the value assigned to each slave during the appraisal process. C is a direct function of the number of slaves, therefore, the more slaves owned, the bigger C will be. This would not necessarily mean, however, a better compensation deal since pS, in this case, would also be proportionally bigger. Here, it is possible to consider the function g where the outcome variable y is a function of the wealth *per slave*. In this case:

$$g = \frac{W}{S} + \frac{(C - pS)}{S} \tag{VI}$$

The component $\frac{(C-pS)}{S}$ in Equation VI captures the average shortfall per slave holding and represents the capital losses stemming from the compensation procedure devised by the Slave Abolition Act 1833. If a given theoretical framework postulates that variations in wealth can causally explain variations in the outcome variable y, it is possible to speculate that the differences between the slaveholders' compensation shares — provided that they are random — might be the reason behind observable differences in y. In the context of this thesis, y appears as slaveholders' living standards in Paper 2 and agricultural output in Paper 3. In both cases, this empirical strategy is discussed at length together with the potential estimate techniques associated with such a strategy.

Using the *average* shortfall instead of the total shortfall offers some advantages. Firstly, it is important to note that even though the compensation records offer the value appraised for each slave, it only displays the total compensation received by slaveholders. Secondly, measuring the shortfall per slave minimizes the caveat of not having the total net worth of each slaveholder since the tax censuses are not monetized. Ideally, this thesis would benefit from measuring the total shortfalls *vis-a-vis* slaveholders' net worth. Assuming, however, that slaves are a good proxy for wealth, computing the shortfalls per slave provides a value relative to slaveholders' wealth. Thirdly, bigger absolute losses of wealth do not necessarily translate to a worse compensation scheme nor a greater loss proportional to net worth, something that average shortfalls per slave can capture. Lastly, total shortfalls increase proportionately to slaveholders' wealth worth of slaves as Figure 1.5 shows clearly:

Consequently, causal inference is hindered since there is no exogenous wealth variation among slaveholders that can be effectively captured through total shortfalls alone. Using average shortfalls, however, provide a more nuanced perspective of the wealth shock incurred, as Figure 1.6 displays:

By taking the horizontal reference line, it becomes clear the benefits of using average shortfalls to capture the wealth shock. On Figure 1.6, the reference line

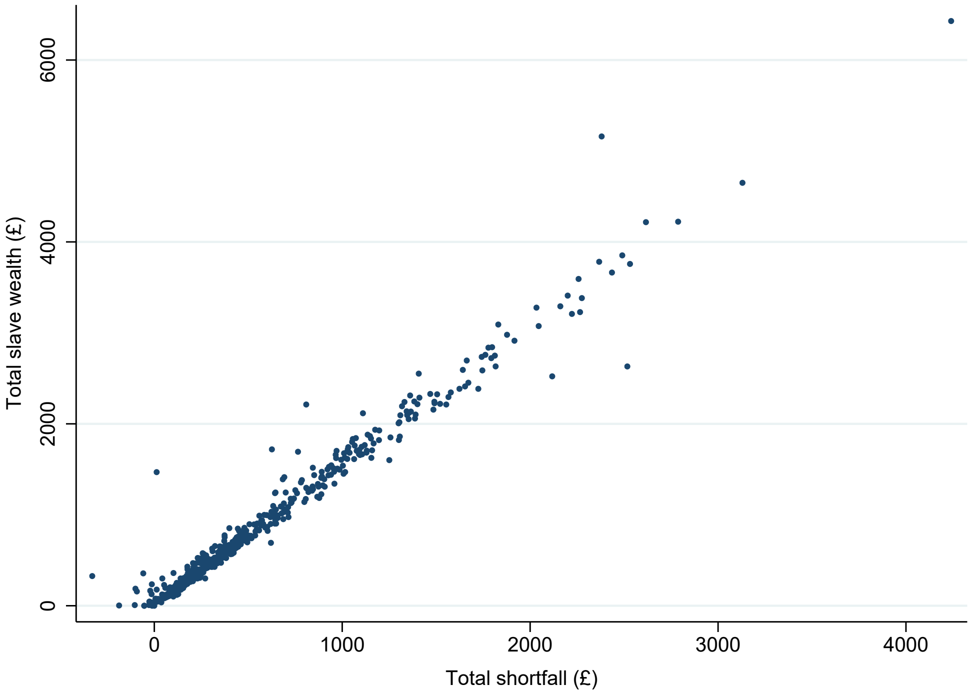

Figure 1.5: Total wealth worth of slaves per slaves versus total shortfalls, in pounds.

represents all slaveholders whose wealth worth of slaves was £250. It is possible to see a wide range of observations where the average shortfalls vary from £10 to £150 showing how the compensation scheme affected different slaveholders disproportionately. We now turn to a summary of each paper.

6 Summary of papers

6.1 Paper 1 – Slave Trade Act 1807: The effects of an import ban on Cape Colony slaveholders

The first paper addresses the effects of the Slave Trade Act 1807 – that outlawed the transshipment of slaves to all territories belonging to the British Empire but did not outlaw the possession either the internal slave markets – on slave acquisition and accumulation patterns in the Cape Colony. The goal of this paper is not only to provide an empirical contribution to a subject that has been largely neglected in the literature but also to confront the empirical evidence against

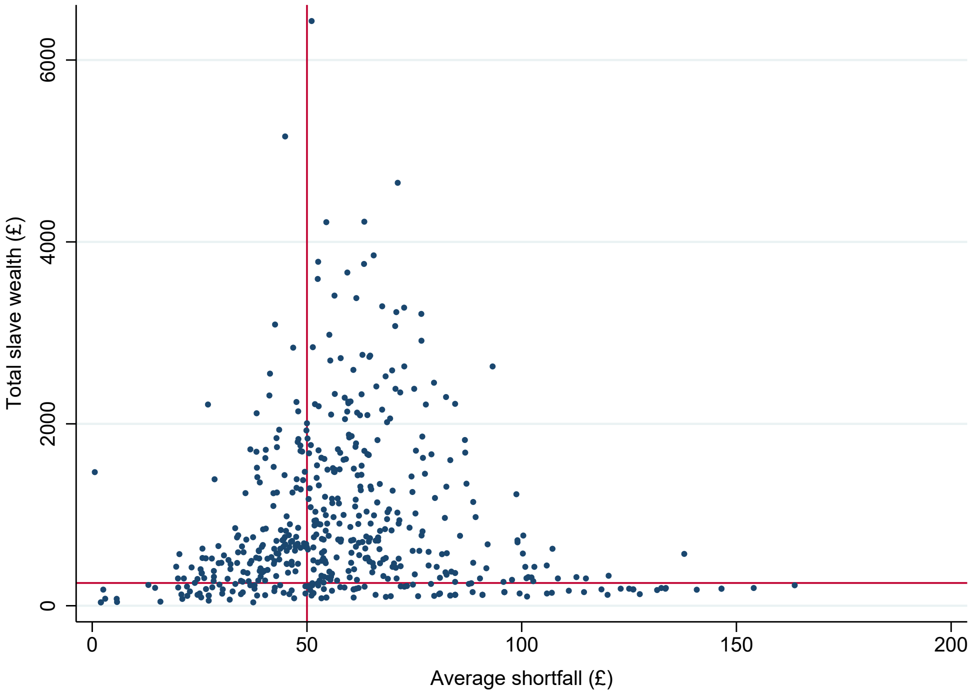

Figure 1.6: Total wealth worth of slaves per slaves versus average shortfalls, in pounds. Reference lines represent a total slave wealth of £250 and a corresponding average shortfall of £50 per slave.

the theoretical postulations concerning the economics of coercion. Within the context of the thesis, the importance of this paper is further magnified by determining the geographic scope of the investigation.

By dividing the Cape Colony into the regions of Stellenbosch – representing the early-settled areas – and Graaff-Reinet – representing the colony's frontier – it is possible to use the Cape as a suitable research setting while taking advantage of its agro-climatic variation that ultimately determined how colonists established, operated, and approached labor in their farms. While Stellenbosch farmers mostly relied on crop farming, Graaff-Reinet farmers showed a preference for livestock. It is, moreover, relevant to note that this division captures the heterogeneity of the Khoisan distribution across the territory since they were present in considerably bigger numbers in the frontier, where they could be used as seasonal paid workers to a far greater extent when compared to Stellenbosch.

This paper used transcribed tax records between 1787 and 1828 for both districts. They allow the analysis of more than 100,000 data points over the course of 40 years where information about labor, production types and family structure can be derived. A model where the demand for slaves is a function of its labor substitutes, wealth – including capital – of each farmer, and the supply shock of 1807 is estimated to cast light on the patterns of acquisition and accumulation of slaves over time.

The results suggest that the slave economy of both districts was resilient to the ban. Interestingly, land-labor ratios alone are not sufficient to explain the dynamics of slavery in Graaff-Reinet. At the same time, this statement cannot be confirmed for Stellenbosch. While the results for Graaff-Reinet are aligned with the point of departure of this thesis – slaveholders could extract surpluses from the enslaved through means that do not necessarily entail their direct employment in agriculture – Stellenbosch needed further investigation, which is deepened on paper 2 and 3.

6.2 Paper 2 – Legacies of loss: Intergenerational effects of slaveholder compensation in the Cape Colony

Paper 2 is coauthored with Jeanne Cilliers and Johan Fourie. The author of the thesis was responsible for the theory, empirical strategy, and results. Jeanne Cilliers and Johan Fourie provided support with access to relevant data sources and framing of the paper.

This paper sets its eyes to the Slave Abolition Act 1833. Slaves were finally freed at the same time that slaveholders were entitled to compensation. This compensation, however, did not amount to the full value of the slaves in their possession. In other words, it is possible to understand this situation as a negative wealth shock. If slaveholders were alienated from a source of wealth, how were their living standards affected, and, more importantly, what are the transmission mechanisms through which wealth losses influenced living standards? The importance of answering these questions is tied to the role of slaves in the farming economy of Stellenbosch. If variations in wealth can causally explain variations in later-life outcomes, this paper speculates that the differences between the slaveholders' compensation shares – provided that they are exogenous – might be the reason for the observable differences in their living standards. By identifying the transmission mechanisms of wealth losses on living standards, this paper seeks to indirectly establish the roles of slaves in this particular setting.

This paper departs from the assumption that health outcomes are a good proxy for living standards and resorts to lifespan as the main outcome variable. Lifespan as a proxy for health offers some advantages since not only longer lifespans can be directly interpreted as improvements in health but also years of life are methodologically constant over time and space, which allows for better comparability between individuals from different generations and/or countries.

The compensation shares paid to each slaveholder were generally well below the aggregated value of the slaves they owned. This difference arises from two processes. Firstly, the slave valuation that took place in the years before the emancipation. Secondly, the compensation scheme that was devised by the British government. While the valuation of slaves followed public and private records of slave sales between 1823 and 1830 – therefore made at market prices – the compensation scheme only attributed value to slaves' sex and occupation. It results in slaveholders who had different wealth worth of slaves receiving the same compensation if their slaves were classified as having the same sex and occupation. The overlay between both processes yields an arbitrary gap that this paper uses to estimate variations in slaveholders' living standards through their lifespans.

Results suggest that two categories of slaveholders experienced particular hardships after 1834: individuals who did not report any farming output – but still possessed slaves, albeit to a smaller degree – and individuals categorized as large-scale producers of grain and wine who, in turn, possessed a significant amount of slaves. While non-producers clearly did not directly employ slaves in farming activities but still experienced a decline in their living standards, it is possible to propose that these slaveholders obtained surpluses from the enslaved other than employing them as farmworkers. For the large-scale producers, on the other hand, labor withdrawal after the emancipation is a potential transmission mechanism through which their living standards declined. While this possibility is certainly part of the explanation, a more nuanced approach is required since a significant number of Cape historians demonstrated that large-scale farmers in Stellenbosch operated their farms as business that were oftentimes leveraged by considerable amounts of debt. Slaves, by constituting a reliable source of collateral, could be exploited by slaveholders to obtain loans to finance their production. Paper 3 explores this research avenue.

6.3 Paper 3 – Raising capital to raise crops: Slave emancipation and agricultural output in the Cape Colony

To determine the role of slaves among large-scale farmers, Paper 3 investigates output patterns after 1834. It was established that this group of farmers experienced a decline in their living standards but, could we simply attribute this loss to issues surrounding labor withdrawal after the emancipation? To answer this question, the period between 1834 and 1844 is thoroughly investigated by an economic and geographic standpoint. Using the negative wealth shocks experienced in 1834 as a proxy for capital losses while, at the same time, controlling for capital and labor employed in the farms over time, it is possible to determine if output changes were derived exclusively from labor withdrawal or if capital losses also played an important role.

The results suggest that after the emancipation of the enslaved, small-scale holders of land and slaves did not face difficulties to keep the same level of output. The wealthiest farmers who possessed the largest estates and held the biggest number of slaves per farm, however, struggled to remain equally productive. Among this group, the inability to use the enslaved to raise capital was responsible for 70% of grain and 20% of wine output reductions. The conclusion, therefore, is that the production processes at the Cape depended ability to exploit the slaves both physically and financially. Historically speaking, the inability to employ slaves as collateral for loans is the most likely explanation for the results observed. The emancipation of the enslaved represented not only slaveholders' loss of control over enslaved labor, but also their inability to exploit slaves to access capital which, in turn, also had consequences in production. These findings are not only important for the understanding of the agricultural economy of the Cape but also allow this thesis to make theoretical contributions. Paper 4 places these findings in a broader context to determine if the ability of Cape's slaveholders to employ alternative forms of exploitation was a unique feature on this slave economy or if this perception merely stems from the systematic neglect that the role of slaves as capital investments received in the literature. Ultimately, Paper 4 seeks to use the slave economy of the Cape to cast light into the limitations of the existing theoretical frameworks attempting to explain the economics of coercion.

6.4 Paper 4 – Capital and labor: Theoretical foundations of the economics of slavery

Paper 4 is coauthored with Erik Green. The author of the thesis was responsible for the empirical cases and framing of the paper. Erik Green contributed to the theory and analysis.

Slaveholders in the Cape Colony could access credit by securing loans against the slaves. This activity had profound impacts on the colony's agricultural production, credit market, and, ultimately, living standards. Slavery was not merely a system that sought to control labor. Slavery signified the control of a human property. Consequently, it enabled slaveholders a degree of exploitation not observable in other coercive arrangements such as indentured labor or serfdom.

The established theoretical frameworks on the economics of coercion fail to consider this flexibility. From the foundations of Nieboer (1900) to the most recent econometric advancements of Acemoglu and Wolitzky (2011), slavery has been largely treated as a labor arrangement in which slaveholders chiefly derived surpluses by exploiting slave labor. The emergence, persistence, and decline of the system have been defined as a response to changes in land-labor ratios. Paper 4, while recognizing that slavery as an economic institution is more likely to emerge in settings with land abundance, proposes that weak *de jure* property rights to land played an important role in the persistence of slavery over time. Given that most slave economies in the early modern era were frontier societies characterized by land abundance and weak *de jure* property rights to land, slaves emerged as the most suitable collateral securing loans since not only they were an asset with high liquidity and mobility, but also because slaveholders enjoyed strong *de jure* property rights to their human property.

This paper advances this possibility by exploring three slave economies: the Antebellum American South, Brazil, and the Cape Colony. Despite significant economic, social, and historical differences between these societies, slavery emerged as a system that provided slaveholders with labor and capital. The sheer abundance of fertile land in North America, the unclear boundaries of land holdings in Brazil, and the imprecisely defined loan-farm system in the Cape Colony all rendered landowners exposed to either low land values or encroachment, conditions that ultimately prevented debts to be secured against land. In this case, changes in factor endowments would not necessarily influence the ability of slavery – as an economic institution – to persist. If the persistence of slavery is tied to the profitability of the system at the same time that this is not exclusively depended on agricultural labor, the ability of slaveholders to access capital by pledging their slaves as collateral would ultimately influence the profitability of the system in a context independently from land-labor ratios.

7 Conclusion

The theoretical section of this chapter started with a reference to the Code of Hammurabi. I ask the reader permission to bring it back to this conclusion. The article 118 of the code reads: “If he [a slaveholder] give a male or female slave away for forced labor, and the merchant sublease them, or sell them for money, no objection can be raised”. One of the oldest deciphered writings of significant length in human history already alludes to the ability of slaveholders to obtain capital through alternative forms of exploitation – sublease, in this case – of the enslaved. Yet, it seems that literature – both empirical and theoretical – has largely neglected this particular element of the slave economies throughout history.

By emphasizing roles different than the backbreaking and often violent labor that slaves provided across history, this thesis does not strive to diminish the importance of slave labor. In fact, it is quite the opposite. Slaves were at the heart of the economic system in the Cape Colony both on their roles as laborers and as capital investments. To understand why slavery emerges, persists, and declines, it is paramount to incorporate the entire range of activities where slaves were subjected to exploitation.

Revising the theoretical framework produced over more than a century of studies on coercive labor contracts is an arduous endeavor that this thesis is, unfortunately, incapable of achieving alone. Studying the slave economy of the Cape Colony, however, provides an interesting point of departure to challenge the existing theoretical postulations. Incorporating slaveholders’ capital demands stands out as the most immediate contribution to be made to the economics of coercion from a theoretical standpoint.

This contribution was born out of a seemingly small inconsistency identified in the first paper of this thesis. While investigating the patterns of acquisition and accumulation of slaves after 1807 in the British Cape Colony, it became clear that the trends observed post the Slave Trade Act were not compatible with an economic system that relied on slaves solely as farmworkers. It was not about the correctness of the existing theoretical frameworks, but much more about their completeness. Further investigation was needed.

Paper 2 explores this research avenue to determine the effects of the emancipation of slaves on former slaveholders’ living standards. By using inconsistencies on the compensation scheme offered to former slaveholders as a proxy for capital losses, it attempted to indirectly establish the economic significance of slave ownership in Stellenbosch, the most important agricultural district in the Cape Colony. The analysis suggests that a marginal, yet generalized, decline in living standards was experienced by former slaveholders. This decline was not homogeneous across different groups of farmers. The hardest-hit slaveholders were the ones who either reported large agricultural output or none agricultural output whatsoever. While the latter could only derive surpluses from the enslaved beyond agricultural work, the first group of slaveholders required even further investigation. The reported decline in living standards could derive from labor withdrawal stemming from the understandable unwillingness of the former enslaved to remain working for their former masters.

The third paper continues the work initiated on the two previous papers by trying to establish the extent through which output in Stellenbosch was determined by the exploitation of slaves as farmworkers *and* capital investments. This difference is relevant since the historiography of the Cape is still unable to determine the full extent of the economic effects that resulted from the emancipation of the enslaved. While output declines were already noticed in earlier works, the nature of the decline was still a matter of speculation. Paper 3 demonstrates that while labor withdrawal was an important component behind output declines, the capital losses generated by the compensation scheme left a considerable mark on the agricultural landscape of Stellenbosch. It finalizes the initial investigation started on Paper 1. The slave economy of the Cape is intrinsically connected to the use of slaves as capital investments and calls for a revision of the theoretical frameworks that seek to explain how slavery emerges and persists over time.

Paper 4 places the empirical contributions of the three aforementioned papers into a broader geographic scope. The Cape's agricultural landscape was significantly different when compared to other economies in the Americas, yet, the employment of slaves was not fundamentally different. While they were primarily agricultural workers, meeting farmers' demands for labor, they also met farmers' demands for capital. In other words, the profitability of the slave economy was not exclusively dependent on the role slaves played as laborers, but also dependent on the ability of slaveholders to exploit the enslaved to raise capital. Access to capital, however, can happen independently from land availability, which allows this thesis to call into question the established theoretical frameworks that reduce the economics of coercion to a ratio of factor endowments, namely land-labor ratios. Advancing towards a comprehensive theory that explains the economic underpinnings of slavery requires considering all activities through which slaves were exploited. Ultimately, Paper 4 is a step towards this goal.

In light of these conclusions, this thesis contributes to three streams of literature. Firstly, to the debate around productive processes in the Cape Colony after the emancipation of the enslaved (Shell 1994; Dooling 2006; Dooling 2007; Worden 2017). By introducing the idea that emancipation did not only represented labor withdrawal but, in fact, also represented capital losses, a new outlook on the colony's agricultural economy is possible. In a productive process determined by labor and capital, it is important to recognize slaves as contributors to both elements in the output composition which, in turn, allows a better understanding not only on the Cape's agricultural landscape but also societal living standards at large.

These contributions are directly tied with a broader debate that this thesis aimed to promote with the theoretical literature devoted to the economics of coercion (Nieboer 1900; Siegel 1945; Bloch 1966; Domar 1970; Engerman 1973; Finley 1980; Patterson 1982; Chwe 1990; Fogel and Engerman 1995; Acemoglu and Wolitzky 2011; Green 2014). Land-labor ratios are still a powerful tool to understand the emergence, persistence, and decline of coercive systems, however, slavery – due to the intrinsic relationship of property between master and slave – cannot be understood similarly to other coercive arrangements such as serfdom. While it is quite clear that the determinants of systems that control labor in an agricultural economy are directly connected to the availability of land (Habakkuk 1958; North and Thomas 1971; North and Thomas 1973; Postan 1973; Le Roy Ladurie 1976), it is important to note that slavery is not merely a labor relation but, in fact, a relation of property. This characteristic enables slaveholders to employ slaves in a multitude of activities that do not necessarily pertain to the agricultural economy *per se* and thus, are less dependent on land-labor ratios. One of these activities is the employment of slaves as collateral for loans, a practice widely reported in the slave economies where weak property rights to land persisted for a significant time such as the United States (Wright 2006; Martin 2010; González et al. 2017), Brazil (Marcondes 2014; Ribeiro and Penteado 2018; Ribeiro and Penteado 2020), and the Cape Colony (Fourie 2013a; Green 2014; Swanepoel 2017). If the persistence of slavery over time derives from its profitability as proposed by Engerman (1973), then analyzing all means where slaveholders exploited slave property is paramount to understand the persistence of the system even outside agricultural settings such as urban slavery (Goldin 1976; Bank 1991; Dantas 2008) or in non-plantation settings such as the Cape Colony. Ultimately, if slaves represented a superior source of collateral when compared to other assets, the persistence of slavery is economically viable even with an unfavorable set of factor endowments such as land-labor ratios or even without economies of scale at all.

Lastly, this thesis contributes to the quantitative history of the Cape. The last decades saw a significant increase in micro econometric studies that benefit from the ample digitization of archival sources in South Africa. Labeled as a "data revolution" (Fourie 2016), this literature is broad and comprise many aspects of the colonial landscape of the Cape such as wealth inequality (du Plessis and du Plessis 2012; von Fintel et al. 2013; Fourie 2013b; Fourie and von Fintel 2014), human capital formation (Baten and Fourie 2015), settler's longevity, (Piraino et al. 2014), occupational mobility (Cilliers and Fourie 2018), household composition (Cilliers and Green 2018), credit market (Swanepoel and Fourie 2018a; Swanepoel and Fourie 2018b), Khoisan population dynamics (Green 2014; Fourie and Green 2015; La Croix 2018) and slavery (Fourie 2013a; du Plessis et al. 2015). This thesis aims to contribute to this growing body of literature by providing a detailed account on the economic landscape of the Cape in the years around emancipation while accounting for changes in living standards, production processes, slave ownership patterns and, ultimately, a better understanding of the last years of the slave economy in the Cape Colony.

The possibilities for future research are numerous. This thesis, by focusing on the productive processes in which slaves were exploited both as labor and capital inputs, entirely skips the economic significance of the freed slaves once the colonial society completed its transition towards free wage labor. Expanding the temporal scope of this work, therefore, allows an inquiry on the importance of freed slaves and former slaveholders on the industrialization process that took place in the Cape Colony during the second half of the 19th century. Linkages between the financial development of the colony and the liberation of slaves are yet another potential benefit that an expansion of the temporal scope of this work could provide to the economic history of the Cape Colony.

Furthermore, the transition to free wage labor meant a profound change in the mode of production that had been adopted in the Cape's agricultural economy. Yet, very little is known about the economic survival of slaveholding estates after the emancipation of the enslaved. While anecdotal evidence suggests that many slaveholders controlled nearly insolvent estates and were leveraged by considerable debt, it is not clear if freeing the enslaved accelerated the demise of these former slaveholding estates and led to a new pattern of landholding in the Colony. Digitizing insolvency records produced by the Government Gazette in the years after the emancipation would be an important addition to the work already produced in this thesis. It is also possible to point a research avenue towards migratory patterns of both freed slaves and former slaveholders after emancipation. Events such as the Great Trek – starting in 1836 – bear immense historical significance for the social and ethnic history of Southern Africa and its linkages with the political developments stemming from the liberation of the enslaved are not yet fully understood.

From a theoretical perspective, future research still needs to provide a decisive contribution to the nature of different coercive labor arrangements. While it is clear that the persistence of the slave system chiefly depends on its profitability –

and this thesis contributes to the understanding that this profitability cannot be exclusively measured through the agricultural economy –, the emergence of the system is less clear. Slavery and serfdom are fundamentally different, although both are coercive arrangements. Current theoretical frameworks, however, do not provide a clear distinction as to when we should expect the emergence of one specific contract to the detriment of the other.

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