

# LIVING STANDARDS IN NEW FRANCE ON THE EVE OF CONQUEST

---

**Abstract :** This paper uses a novel dataset of prices and wages for New France (modern day Quebec) during the 17<sup>th</sup> and 18<sup>th</sup> centuries to create a series of measurements of living standards that can be compared with those observed in other societies. The aim is to introduce French America into the debate about the colonial origins of economic divergence. It shows that the French population of North America enjoyed virtually no substantive growth in living standards from 1688 to 1760. It also shows that it was relatively easy to achieve a basic standard of living in the colony which made the inhabitants of French North America relatively richer than their counterparts back in France. However, moving from bare subsistence consumption to a more respectable level of consumption (which includes more imported and manufactured goods) was much harder in New France than it was in France. Relative to the British colonists to the south of New France, the inhabitants of New France were equally able to meet basic level of living standards but it was harder for them to reach more respectable levels of consumption in terms of imported and manufactured goods. Moreover, there is evidence that the existing gaps between New France and the British colonies of New England and Pennsylvania were actually widening. In short, there are empirical signs of divergence within North America during the colonial era. These results can be integrated within the broader literature on divergence.

## Section 1: Introduction

Development economists attribute great importance to the Americas in their debates over divergence given that North America is markedly richer than Latin America. For economic historians, the question regards whether or not there were any colonial origins to this divergence. In both regions, institutional frameworks (legal and cultural) were markedly different during the colonial era. However, the debate has centered on British North America versus Latin America with little attention being granted to the French colonies. The most important of these colonies, New France (modern day Quebec), was not of a trivial size. The main urban center, Quebec City, was the fourth largest in North America behind Philadelphia, Boston and New York but ahead of Charleston, Newport, Halifax and Savannah. Its overall population at the close of the era of French rule (1760) was close to 70,000, most of which was concentrated along the banks of the Saint-Lawrence River. Additionally, New France never had an extensive slave system and had a largely different institutional framework for settlers. Yet, we know very little about living standards during that era. The prevailing wisdom is that the colony was poor, but little has been said with definite proof of whether it was growing poorer or richer. In fact, evidence of “poverty” often came in qualitative form within the correspondence papers of the royal administrators appointed by Versailles to run the colony. As with the evidence on price data, the evidence on wage data in New France is scarce and scattered. By comparison, scholars of American economic history are swamped with estimates of economic growth for the United States. However, this record of economic growth has rarely been benchmarked against the performance of other colonies in North America because no estimate of economic growth ever existed for other societies. Nowadays, we know that Quebec has had a poor record of economic growth within North America from the mid-19<sup>th</sup> century to the mid-20<sup>th</sup> century and always lagged behind (and the gap likely widened throughout the period).<sup>1</sup> But when did this divergence truly began?

The goal of this paper is to render possible comparisons of living standards by creating datasets about wages and output. The penultimate goal is to include Quebec in the story about divergence by asking the question of whether or not there was divergence within North America as well. Given the large institutional differences between New England and New France and their great geographical similarities, any observed divergence in living standards could be attributable to institutional differences. If no significant differences creep up despite the large institutional differences, other factors would have to be considered.

This paper will try to remedy these gaps in the literature in order to generate measures of comparison with other economies. In section 2, I will overview the literature to better outline how to tackle the issue. Afterwards, section 3 will provide a lengthy discussion of the new source materials used to derive wages which will then be presented. In section 4, I will try to create income figures and compare them with existing estimates. Then, section 5 will use the data presented in part 3 of my doctoral thesis to create a “respectable” basket of goods and a bare bones basket of goods. This section will use

---

<sup>1</sup> Vincent Geloso. 2013. *Une perspective historique sur la productivité et le niveau de vie des Québécois – de 1870 à nos jours*. Montréal : Centre for Prosperity and Productivity at HEC Montréal.

price data collected from the same sources as the wage data but which have been discussed in long details in another paper by the current author.<sup>2</sup> Section 6 will present the evolution of New France's economy over time. Section 7 will provide a long discussion that will lead to numerous comparisons of French America's living standards with other societies, namely France, and the British American colonies. This section, the longest in this paper, will show that, although the inhabitants of New France were able to meet a rudimentary standard of living quite easily, achieving greater levels of consumption was much more difficult than in France, Britain or the American colonies. Four conclusions will emerge from this section of my thesis.

- A) There were no long term sustained improvements in the living standards of the average individual (defined by an unskilled worker) in New France from 1688 to 1760
- B) An unskilled worker in New France was richer than an unskilled worker in France
- C) The average inhabitant of New France had a roughly equivalent standard of living to those observed in New England and Pennsylvania
- D) However, the inhabitant of New France faced a much greater difficulty in terms of consumer goods like manufactured goods or imported goods.

#### 4.2. Literature review

There are (broadly speaking) two views clashing regarding the economic performance of New France. In what has been labelled the "dominant interpretation", the economic system of New France is considered as a dual economy with the fur trade on the one side (the main export of the colony) and the agricultural sector on the other side.<sup>3</sup> These two economies evolved separately and independently of each other.<sup>4</sup> In refutation, the other viewpoint presents the economy of New France as very dynamic and growing fast, especially during the decades of peace between 1713 and 1738.<sup>5</sup> This "dissenting" view has received more empirical support, especially from Morris Altman showing that the economy diversified in the years of peace. None of these sides have marshalled sufficient evidence to support their claims beyond being mere propositions. In short, we need more information to assert the path of living standards. Moreover, we need more information in order to compare living standards.

With regards to wages, there is a dearth of data. One of the most complete studies of wages was that of Cameron Nish who was concerned with the period from 1740 up to 1760. However, this period was one of price instability where nominal wage rates lose

---

<sup>2</sup> See "Prices in New France : Creating a Price Index, 1688 to 1760" which is a part of this author's doctoral dissertation and was also presented as a conference paper at the Canadian Network in Economic History in Peterborough, Ontario under the title "Prices and Markets in New France, 1688 to 1760".

<sup>3</sup> Morris Altman. 1988. "Economic Growth, Economic Structure and Real Gross Domestic Product in Early Canada, 1695-1739" *William and Mary Quarterly*, Vol.45, p.684.

<sup>4</sup> Louise Dechêne.1994. *Le Partage des Subsistances au Canada sous le Régime Français*. Montréal: Éditions Boréal; Louise Dechêne. 1974. *Habitants et Marchands de Montréal au XVIIe siècle*. Paris : Plon; Jean Hamelin. 1960. *Économie et Société en Nouvelle-France*. Québec : Presses de l'Université Laval; Richard Harris. 1966 [1984]. *The Seigneurial System in Early Canada*. Montréal: McGill-Queen's University.

<sup>5</sup> Alice Jean Lunn. 1986 (1942). *Développement économique de la Nouvelle-France, 1713-1760*. Montréal: Presses de l'Université de Montréal

their importance. This makes Nish's data and conclusions somewhat unreliable.<sup>6</sup> Other studies like those of Sylvie Dépatie and Arnaud Bessières concern themselves wage rates for servants over grouped periods of years or with serious annual gaps.<sup>7</sup> Akin to the problem seen in Nish's data, an important part of the period they studied (the late 17<sup>th</sup> and early 18<sup>th</sup> centuries) were periods of price instability in New France. Overall, we have no continuous time series for inflation-adjusted wages. A similar dearth is found with regards to output. In the only attempt to create data for real income per capita, Morris Altman found that between 1695 and 1739, the annual compounded rate of growth of real per capita income stood at 0.42%.<sup>8</sup> In the years of peace from 1713 to 1739, this yields an astounding 0.84% growth rate per annum. It is twice the rate of economic growth observed in southern New England estimated from probate records over a similar period.<sup>9</sup> It is on par with the general rate of economic growth of 0.4% per annum observed by Alice Hanson Jones.<sup>10</sup> It is also in the range of 0.3% to 0.6% estimated by McCusker and Menard for the period between 1700 and 1774.<sup>11</sup> Consequently, it seems that Quebec likely had a roughly parallel path of economic growth to that of the American colonies prior to the War of Austrian Succession. However, Altman's method of estimating a constant measure of purchasing power has attracted criticisms from the historical community. He estimated the value of output by using only prices for the year 1749 – which was the only year for which data was readily available. Hence, all output figures in quantities were measured in prices of 1749 (i.e. the value of a slaughtered pig in 1720 was multiplied by the price of a pig in 1749). This led historians, like Catherine Desbarats, to assert that “weighting all quantities by the price of a single year is a costly short cut”.<sup>12</sup> As mentioned earlier, this should not be considered a problem. Desbarats' criticism should be a moot point given that Altman's method is the equivalent of calculating a volume index. The use of a single year to transform different quantities of outputs into a single unified measure of output (hence a volume index) is not uncommon for economic historians in order to obtain reliable estimations of output.<sup>13</sup> Yet, thanks to such criticisms, Altman's estimates are rarely quoted and the issue is still open.

---

<sup>6</sup> Cameron Nish. 1968. *Les bourgeois-gentilshommes de la Nouvelle-France, 1729-1748*. Montréal : Fides, Chapter 2.

<sup>7</sup> Sylvie Dépatie. 2008. "Maîtres et domestiques dans les campagnes montréalaises au XVIIIe siècle: bilan préliminaire." *Histoire, économie & société* Vol.27, No. 4, pp. 51-65; Arnaud Bessières. 2008. "Le salaire des domestiques au Canada au XVIIe siècle" *Histoire, économie & société* Vol.27, no. 4, pp. 33-50.

<sup>8</sup> Morris Altman. 1988. "Economic Growth, Economic Structure and Real Gross Domestic Product in Early Canada, 1695-1739" *William and Mary Quartely*, Vol.45, p,684-711

<sup>9</sup> Gloria Main and Jackson Main. 1988. "Economic Growth and the Standard of Living in Southern New England, 1640-1774" *Journal of Economic History*, Vol.48, no.1, p.36.

<sup>10</sup> Alice Hanson Jones. 1980. *Wealth of a Nation to Be*. New York: New York University Press.

<sup>11</sup> John J. McCusker and Russell Menard. 1991. *The Economy of British America, 1607-1789*. Chapel Hill, NC: University of North Carolina Press. Note: Given that economic growth seems to have been faster after 1750 in the United States than before, it is quite likely that Quebec's growth rate falls in line with that of the American colonies. It is Marc Egnal who estimates that growth was uneven from 1720 to 1774 and that it was faster after 1750; Marc Egnal. 1975. "The Economic Development of the Thirteen Continental Colonies, 1720 to 1775" *William and Mary Quartely*, Vol.32, no.2 p,191-222.

<sup>12</sup> Catherine Desbarats. 1992. "Agriculture within the Seigneurial Régime of Eighteenth Century Canada: Some Thoughts on the Recent Literature", *Canadian Historical Review*, Vol.73, no.1, p.10.

<sup>13</sup> Nicholas Crafts, and Knick Harley. 1992. "Output growth and the British industrial revolution: a restatement of the Crafts-Harley view." *The Economic History Review* 45, no. 4, pp. 703-730.

In addition, the absence of detailed prices in New France, an issue remedied in the previous section of this thesis, hindered the computation of purchasing power parities or of welfare ratios. Some, like Marc Egnal, believe there were no differences in living standards between French Canada and the American colonies at the time.<sup>14</sup> Cameron Nish supported this hypothesis by comparing New France with Pennsylvania in the 1730s.<sup>15</sup> However, Denys Delâge disagreed with such a statement and counter-argued, relying on imports and exports data, that New France was developing very poorly compared to northern part of the American colonies – chiefly New York.<sup>16</sup> Comparisons with France are also hard to muster. For example, John Dickinson argued that “salaries were higher [in New France] than those common in France”.<sup>17</sup> However, this claim did not account for purchasing power which is problematic.

In short, we cannot know for certain if the French Canadians were richer than the Americans, the British or their brethren in France whilst we are unsure about the true path of the economy at the time.

### 4.3. Wage data for New France

To solve the problem of poor knowledge about wages, I collected observations of wage rates in the account books of the Séminaire de Québec - a religious community located in what is currently the oldest part of Quebec City. This is the same source as in part 1 of this thesis. The accounts books are organized by account and each account is then organized by year of transactions. One of the important advantages of this source is that the Séminaire possessed a wide array of installations that provide us with observations from numerous areas. The most important being wages for farm work. The Séminaire possessed several farms and mills in the area of Quebec City: la Canardière, la Petite Ferme Saint-Joachim, la Grande Ferme Saint-Joachim, le Petit Pré, Saint-Michel and Baye Saint-Paul. It also possessed a large estate north of Montreal on the Isle Jésus. Moreover, it operated several shallow-draft ships which were used to carry goods between the different installations that it owned – providing with wages in the transport sector. To all of these, we must add observations of skilled workers (carpenters who built and repaired buildings) and domestics who are frequently mentioned. The data provided by the Séminaire is rich with information about numerous sectors of activity. Thus, it gives us a glimpse into the labor market of the time.

When I collected the data, I recorded the observation by noting the wage rate per unit of time, and then I took notes about the nature of the trade involved, noted the person’s name and the page within each reference. It is important to indicate that I noted the name in order to make sure I did not count them twice. In numerous accounts, *gages* (wages and earnings) are reported for *journées*, *mois* and *an* (daily, monthly, yearly). In all, I recorded 1119 wage observations. Of those, 584 are observations about daily wages, 133 are on a monthly basis and 402 are annual observations. These observations

---

<sup>14</sup> Marc Egnal. 1996. *Divergent Paths: How Culture and Institutions have shaped North American Growth*. Oxford: Oxford University Press.

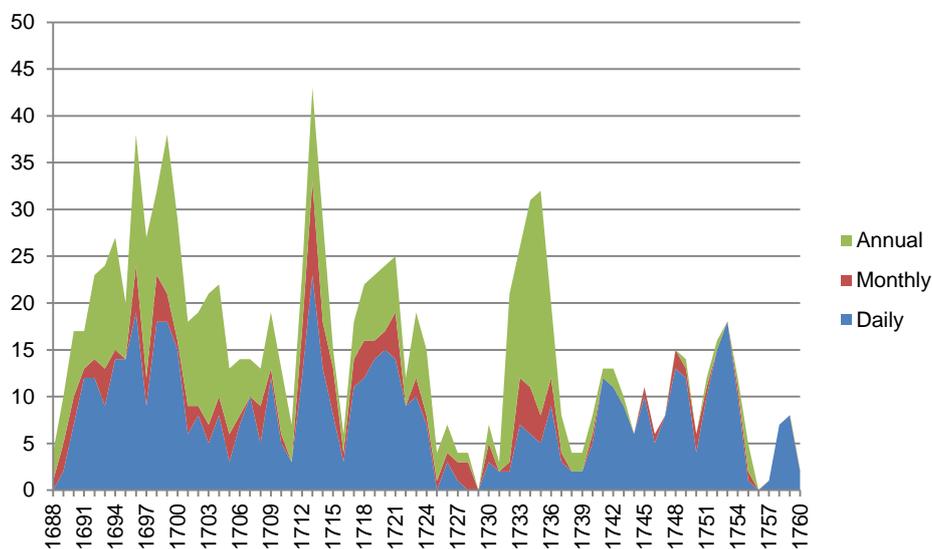
<sup>15</sup> Cameron Nish. 1968. *Les bourgeois-gentilshommes de la Nouvelle-France, 1729-1748*. Montréal : Fides.

<sup>16</sup> Denys Delage. 1970. “Les structures économiques de la Nouvelle-France et de la Nouvelle-York”, *Actualité économique*, Vol.46, No.1, pp.67-118.

<sup>17</sup> John Dickinson. 1996. “New France: Law, Courts and Coutume de Paris, 1608-1760” *Manitoba Law Review*, Vol.23, no.1 p.39.

span from 1688 to 1760. Figure 1 provides the breakdown for each type of wage rate on an annual basis. The period from 1724 to 1730 is somewhat disappointing since the account book that was concerned with that period was very poor with regards to wage information; hence the sample of wages is most problematic in that sub-period.

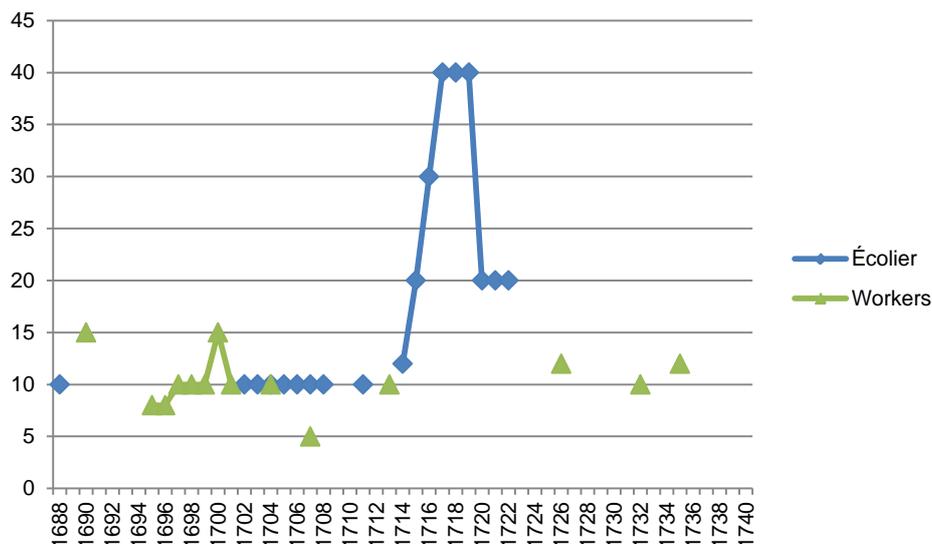
**Figure 1:** Breakdown of wage observations per type of frequency in each year



Daily wages are the most valuable datapoints collected since they are the cleanest. Very rarely were those wages associated with payment in kind, so we have very little problems of underestimated wage levels. When they were, the account books added the notice of “*et nourry*” (and fed) to the wage rate or mentioned a specific item that was offered. In those instances, the Séminaire also reported the value of the payments in kind that were offered. I only collected daily wages when I could surmise or infer with confidence what the nature of the contracted work was. While some occupations remained unspecified however; the rates they report are often the same as some of the same activities reported in a given year. For example, a given individual could be paid 20 *sols* for *travail aux foins* (harvesting) and one line below, he would be paid 20 *sols* for his *journée de travail* (day of work) without specification. In such situations, I made inferences with regards to the nature of the work contracted. The daily wage observations are those that will be the most useful for the purpose of measuring labor productivity. The idea is that the wage rate represents adequately the earnings of a given socio-economic group (that of the farmers) and also provide an indicator of productivity growth.<sup>18</sup> Moreover, as figure 2 indicates, the Séminaire reported rations whose value for pensioners (enrolled students) and workers remained roughly stable with the exception of the high inflation era of 1714-1719. Although these were very rare for daily workers, it is important to note that they were included to the wage rate when necessary.

<sup>18</sup> As Robert Allen and al. put it: “Our knowledge of labour market conditions and the extent of regional migration seem to substantiate the view that wage rates may serve as a reasonable proxy for the average earnings of a particular socio-economic group as well as the marginal productivity of labour in the economy as a whole”. Robert Allen, Jean-Pascal Bassino, Debin Ma, Christine Moll-Murata and Jan Luiten Van Zanden. 2011. “Wages, prices, and living standards in China, 1738-1925: in comparison with Europe, Japan and India”, *The Economic History Review*, Vol.64, no.S1, p.29.

**Figure 2:** *Sols* per day allocated to workers who were fed in addition to their daily wages compared with the pension for young students



Note : *Écolier* were the students who were enrolled that the Séminaire

Annual wages are more problematic. Sometimes, the account books are specific as to the nature of the work that was contracted. However, this was not always the case. Often, the account books would report that an individual had signed a three year contract for a wage rate of 120 *livres* per year without any mention of what he was to do. In some occasions, we find mention of this contract with hints of numerous various occupations from farm work to repairs to carrying wood and wheat. Annual observations are hence very hard to decipher because we do not know what the nature of the work was. Moreover, we do not always know the precise value of the payment in kinds that were associated with these contracts. As a result, I collected numerous unspecified observations about engagement contracts. At the beginning, I collected all engagements contracts that I could find but I reconsidered the value of doing so since the unspecified contracts varied wildly. I have only kept annual observations whose nature could be ascertained. Engagement contracts were not the sole form of labor contract that could exist in New France. As we move further into the 18<sup>th</sup> century, we find mention of annual wages paid to millers, brewers, blacksmiths etc. These wages are well reported with mentions of whether or not the contracting parties agreed to some form of payments in kind.

With regards to the establishment of what was the nature of the work which was exchanged, the surnames sometimes contained the information. Table 1 shows how some surnames were indicative of the trade occupied. In most instances, the wage rates mentioned specify the nature of the trade in which the individual was engaged. It is important to note however that sometimes, a *menuisier* (carpenter) could be hired to work *aux foins* (in the fields) for tasks that had little to do with their area of specialty. Hence, I sometimes recorded more than one wage observation that pertained to one individual in a given year but for numerous different tasks. In some cases, annual wages were mentioned but not the trade. In that instance it was possible to cross-reference with the index of names at the Séminaire in order to pinpoint the trade of the individual. Keeping notes of the names of the individuals also allowed filling in some gaps about

trades and occupations. Table 2 divides all the tasks repertories with their original French designation and how they were considered for the purposes of this thesis.

**Table 1:** Examples of name with trades

Surname	Trade
<i>Masson</i> or <i>Macon</i>	Mason
<i>Charpentier</i>	Carpenter
<i>Meunier</i>	Miller
<i>Charet</i>	Transporter (a <i>charretier</i> was the trade of owning a cart to transport resources)

**Table 2:** Tasks classification

AGRICULTURAL TASKS (UNSKILLED)	
NAME IN FRENCH	WHAT IT MEANT
<i>Récoltes</i>	Harvesting
<i>Foins</i>	Related to feeding livestock
<i>Étable</i>	Stable
<i>Fauchage</i>	Mowing
<i>À la ferme</i>	At the farm
<i>Aux clôtures</i>	Fencing (enclosing)
<i>Défrichages</i>	Land clearing
<i>Aux fossés</i>	Ditch digging
<i>Au vacher</i>	Cowherd
NON-AGRICULTURAL TASKS (UNSKILLED)	
<i>Scieur</i>	Sawmiller
<i>Ouvrier</i>	Workman
<i>Pour peindre</i>	For painting
SKILLED LABOUR	
<i>À la roue du moulin</i>	At the wheel of the mill (miller)
<i>Menuisier</i>	Carpenter
<i>Charpentier</i>	Carpenter
<i>Maçon</i>	Stonemaker (bricklayer)
<i>À la barque / navigation / matelot</i>	Ship operation

One considerable advantage with the Séminaire data is that it is representative. Normally, economic historians tend to be skeptical of how religious account books recorded wages that might have been above the average level of wages because religious estates were more productive. In the case of New France, one could point out that religious congregations held estates that were settled earlier than most farms in the colony. Hence, these estates would have had exhaustive land clearing in the past and be closer to their peak level of productivity. However, the archives of the Séminaire provide us with sufficient information to see that this was not the case and that it is a broadly representative set of lands to be used to mimic the behaviour of wages in the whole of New France. This is mostly because the land-clearing patterns are consistent with what was happening in the colony as a whole. Remember that wages were collected from all the different estates of the Séminaire. For example, waves of concessions to new farmers on the St-Ferréol estate were still being made in the 1750s

and 1780s which indicates that there were still improvements to be made.<sup>19</sup> One of the main estates, the Île Jésus was only conceded to the Séminaire in 1702.<sup>20</sup> And that concession was only finalized in 1704.<sup>21</sup> Additionally, land clearing was very slow. According to Sylvie Dépatie, peasants on the estate of the Île Jésus owned by the Séminaire cleared land at the pace of roughly 2 to 3 *arpents* (1 arpent = 0.845 acre) per year while the average *censive* (farm plot) was roughly 110 to 150 *arpents*.<sup>22</sup> Moreover, a large share of the wage observations collected are related to land clearing tasks like draining ditches, removing the rocks in a newly opened plot, building the fence and removing trees. This provides appreciable assurance about the validity of those wage rates with respect to the economy as a whole.

Another valuable aspect of the wage rates for unskilled tasks is that there were very often paid for occasional work. For example, Jacques Mathieu mentions that most skilled workers would often complement their income performing tasks unrelated to their trade.<sup>23</sup> In the off seasons – since the winters were very long in Canada<sup>24</sup> – peasants would often look for work to complement their income. Some would venture in the fur trade<sup>25</sup>, but one very important activity in winter consisted of cutting down and harvesting wood.<sup>26</sup> There are mentions in the wage data collected of individuals being paid for cutting down trees outside the harvest period. Otherwise, some peasants could work for the Séminaire at a determined wage rate until they had paid off their tithes obligations which they could not meet – something noted by Sylvie Dépatie.<sup>27</sup> In other instances, some peasants would work on the farms of the Séminaire to settle outstanding debts they had with the congregation.<sup>28</sup> In other instances, a peasant would work on the farm of the estates for a short period of time to acquire the capital necessary before settling on his own plot – capital which would be used to finance consumption while the land was being cleared.<sup>29</sup> Others would also combine the activity of land clearing on their own plots with some form of wage earning for the congregation. This is broadly confirmed by the fact that the account books of the Séminaire list creditors and debtors. The debtors were farmers who possessed on the

---

<sup>19</sup> ASQ – *Répertoire des titres, Saint-Ferréol*

<sup>20</sup> ASQ – SMES/1/15e – *Brevet de confirmation de la concession de l'Île Jésus au Séminaire de Québec.*

<sup>21</sup> ASQ – SMES/1/15d – *L'abbé Jean-Frs Buisson de St-Côme demande au Conseil Souverain l'enregistrement de la concession et du Brevet de confirmation de la concession de l'Île Jésus au Séminaire de Québec.*

<sup>22</sup> Sylvie Dépatie. 1988. *L'évolution d'une société rurale : l'Île Jésus au XVIIIème siècle.* Montréal, PhD Thesis, Department of History, McGill University, p.198.

<sup>23</sup> Jacques Mathieu. 2001. *La Nouvelle-France: les Français en Amérique du Nord, XVIe-XVIIIe siècle.* Québec: Presses de l'Université Laval, p.99.

<sup>24</sup> Thomas Wien. 1990. "Les travaux pressants: calendrier agricole, assolement et productivité au Canada au XVIIIe siècle" *Revue d'histoire de l'Amérique française*, vol.43, no.4, pp.535-558.

<sup>25</sup> Morris Altman. 1988. "Economic Growth, Economic Structure and Real Gross Domestic Product in Early Canada, 1695-1739" *William and Mary Quarterly*, Vol.45, p.685.

<sup>26</sup> Jacques Mathieu. 2001. *La Nouvelle-France: les Français en Amérique du Nord, XVIe-XVIIIe siècle.* Québec: Presses de l'Université Laval, p.93.

<sup>27</sup> Sylvie Dépatie. 1988. *L'évolution d'une société rurale : l'Île Jésus au XVIIIème siècle.* Montréal, PhD Thesis, Department of History, McGill University, p.92.

<sup>28</sup> *Ibid*, p.105.

<sup>29</sup> *Ibid*, p.189. Note: It ought to be pointed out that this point is broadly consistent with that made by Frank Lewis concerning the farm economy of Upper Canada in the early 19<sup>th</sup> century whereby individuals would take temporary work in order to finance their consumption once they had acquired a unit of land which needed to be cleared. Frank Lewis. 2001. "Farm Settlement with Imperfect Capital Markets: A Life-Cycle Application to Upper Canada, 1826-1851", *Canadian Journal of Economics*, Vol.34, No.1, pp.174-195.

lands owned by the Séminaire and had to pay the seigniorial dues like the *cens et rentes* and the *lods et ventes* (more on those later). Very often, these same debtors were found as creditors a few pages later or even right on the next page when they were paid for menial tasks related to construction, farming, land clearing and transporting items. Therein lies the second advantage of the Séminaire and Ursulines dataset: the daily wage observations are not associated with a negative premium that workers would have endured in order to have steady employment. The vast majority of work contracted was complementary and represented closely the marginal productivity of labor. This argument does not exclude the possibility that some workers accepted a lower rate in order to become a steady part-time worker for the congregation, but I have found no evidence supporting such a claim. Overall, this implies that we can use wages as an indicator of marginal productivity of labor.

However, these comments apply for daily, workers who were hired on monthly and annual basis are a different topic altogether. Workers hired annually are generally found in the censuses as “domestics” – a broad term that not only encompassed domestics proper but also cooks and farm helps.<sup>30</sup> Outside of these individuals, only colonial administrators would earn wages on an annual basis. The 1762 census of Trois-Rivières district reported that 6.6% of the population of that district was engaged as domestics.<sup>31</sup> That region proposes a distinctively high level and probably represents the highest level of the entire colony. The 1762 census of the Quebec district, in which the Séminaire and the Ursulines were located, reported a much level of domestics relative to the population – 2.83%.<sup>32</sup> Dépatie reported that in the case of Montreal with the census of 1765, domestics represented 4.4% of the population of the 11 concerned parishes.<sup>33</sup> One of the channels to enter into an annualized contract was if one young individual’s father contracted out the work of his son or daughter to support the family income or allow for the necessary capital accumulation needed to open one’s own farm. According to Louise Dechêne, the average age of servants in the late 17<sup>th</sup> century in the Montreal area who were born in Canada stood at 15 years old.<sup>34</sup> A second channel would be through widows who needed an income to support children after the death of a father.<sup>35</sup> Other individuals entering into annual contracts were skilled workers like millers and cooks. However, the vast majority of workers in annualized contracts were immigrants from France. In the 17<sup>th</sup> century, these were known as *engagés* who signed 36 months contracts. The recruiting organization had to pay for the individual’s travel to New France, a cash advance and committed itself to housing, clothing and feeding that individual. In exchange, that individual would work on numerous tasks.<sup>36</sup> Whilst indentured servitude - did play a large role in the settling of America, it failed to attain

---

<sup>30</sup> Sylvie Dépatie. 2008. “Maîtres et domestiques dans les campagnes montréalais au XVIIIe siècle: bilan préliminaire”, *Histoire, économie & société*, Vol.27, no.4, p.52.

<sup>31</sup> Gouvernement du Québec. 1947. *Rapport de l'Archiviste de la Province de Québec pour 1946*. Québec : Bureau de l'archiviste, pp.1-51.

<sup>32</sup> Gouvernement du Québec. 1926. *Rapport de l'Archiviste de la Province de Québec pour 1925-6*. Québec : Bureau de l'archiviste, pp.1-32.

<sup>33</sup> Sylvie Dépatie. 2008. “Maîtres et domestiques dans les campagnes montréalais au XVIIIe siècle: bilan préliminaire”, *Histoire, économie & société*, Vol.27, no.4, p.53.

<sup>34</sup> Louise Dechêne. 1974. *Habitants et Marchands de Montréal au XVIIIe siècle*. Paris : Plon, p.362

<sup>35</sup> Arnaud Bessières. 2008. "Le salaire des domestiques au Canada au XVIIIe siècle" *Histoire, économie & société* Vol.27, no. 4, p.43.

<sup>36</sup> Jacques Mathieu. 2001. *La Nouvelle-France: les Français en Amérique du Nord, XVIe-XVIIIe siècle*. Québec : Presses de l'Université Laval, p.71.

the same role in New France. Most of the settlers were often unwilling participants or deportees or soldiers who chose to remain.<sup>37</sup> In the 18<sup>th</sup> century, the majority of those who came did so unwillingly as *faux-sauniers* – petty criminals who would have been convicted for smuggling, selling of untaxed salt and poaching.<sup>38</sup> Many of these *faux-sauniers* simply escaped thereafter to the American colonies, others were drafted into the defensive military forces of the colony while the remaining individuals signed contracts with the inhabitants to work as farm helps. The vast majority was usually engaged in similar tasks as those they performed on the old continent – cooks, millers, gardeners etc.<sup>39</sup> In general, the annualized data concerned two select demographic groups: young individuals who were native from the colony and migrants (willful or non-willful). The first tended to occupy jobs as farm helps or domestics until they had earned enough capital to finance their consumption for the initial period of farm settlement. The second group was either contracted for skilled trades or had aims similar to the former group. Hence, most annual observations would concern such types of workers. The informational quality of annual wage observations is thus less clear than in the case of daily and monthly wages. The Séminaire data did not always provide the age of an individual with whom it contracted. Nor did it always specify the nature of the annual contract. Sometimes, it would merely write *engagé* or write *pour son travail de l'année* (for his work of the year). Hence it is hard to assert what this wage rate relates to. Hence, it is hard to assert if workers were accepted a negative premium for steady employment. However, one should assume that annual workers did. When we take the annual wages and divide them by the daily wages for similar tasks, in this case the unskilled workers, we end up with between 59 and 160 days of work per year for the period from 1688 to 1760. This should not be seen as a measure of their labor supply, especially since it is hard to assert the value of in kind wages. Merely, it is indicative that hired servants in New France did accept some form of negative wage premium that was worth steady employment. The reader should be more careful when interpreting the annual wage data for it is that data that this author feels the least comfortable with. However, it is not null of value for the research – especially in terms of validation. The annual wage rates follow a similar trend as those found by Arnaud Bessières for domestics.<sup>40</sup> The difference in level stems from the fact that the Séminaire tended to pay individuals in specie while Bessières' sample was derived using notarial records which included private households – households which tended to pay a larger share of wages in kind rather than in specie. As for monthly wages, the reader should also be aware that this author finds them to be of lesser value than the daily wages. The main reason for that is that they appear scantily in the archival documents. However, as we will see below, there are useful in the sense that they confirm the path followed by daily wages.

**Figure 3:** Comparing annual wages of *engagés* collected from the Séminaire with those available from the work of Arnaud Bessières

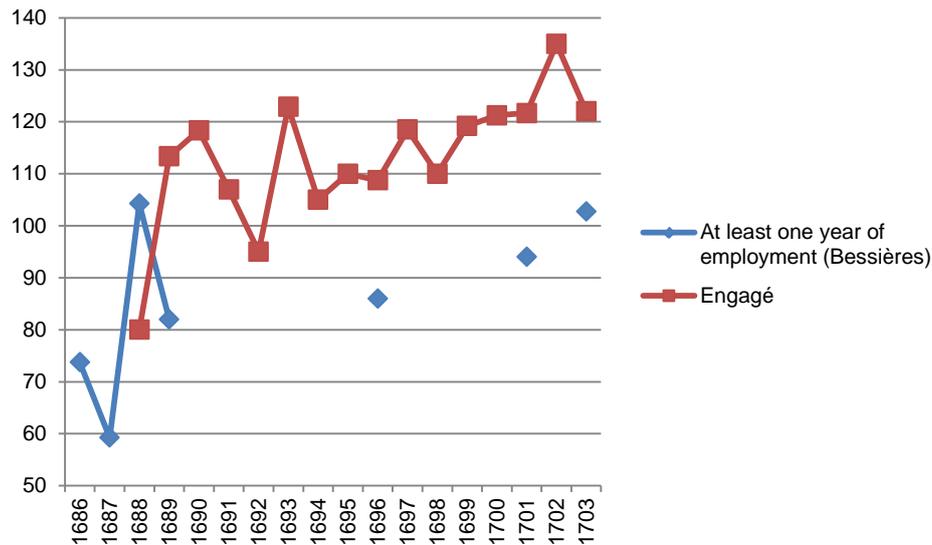
---

<sup>37</sup> Peter Moogk. 1989. "Reluctant Exiles: Emigrants from France in Canada before 1760", *William & Mary Quarterly*, Vol.46, No.3, pp.463-505.

<sup>38</sup> *Ibid*, p.498.

<sup>39</sup> Josianne Paul. 2008. *Exilés au nom du roi: les fils de famille et les faux-sauniers en Nouvelle-France, 1723-1749*. Montréal : Éditions du Septentrion, p. 153.

<sup>40</sup> Arnaud Bessières. 2008. "Le salaire des domestiques au Canada au XVIIIe siècle" *Histoire, économie & société* Vol.27, no. 4, pp. 33-50.



Source: See text; Note: The Séminaire accounts are probably a better source of payment in species than other sources. The work of Arnaud Bessières on domesticity shows that payments in species stood at 57.5% of domesticity contracts in the decade from 1680 to 1690 and 30.5% between 1700 and 1710.<sup>41</sup> However, the sources used by authors like Bessières consider a wide variety of contracting parties – many of which were private households. Such households likely had smaller cash holdings with which to pay domestics. On the other hand, the Séminaire de Québec, by virtue of being a large institution, more often relied with direct payment in specie to pay its workers. Hence, the data – although fraught with complications – is of greater quality than the existing alternatives.

There is also another key feature of the labor market that *must* be mentioned: New France had no guilds.<sup>42</sup> There was an “absence of guilds and an exclusive” that allowed apprenticeship to freely “respond to the needs of the labor market”.<sup>43</sup> There were no prescriptions on the terms of contract, allowing contracts to be individualized. In fact, free apprenticeships were not unheard of.<sup>44</sup> In the absence of guilds, we are hence observing relatively un-distorted wages in which the skill premium is not predicated on artificially-induced scarcity. However, this was true only in skilled trades like masons, carpenters, shoemakers, barrel-makers and joiners.<sup>45</sup> The colonial government created entry restrictions on the trades of butchers and bakers. For example, in the district of Montreal, it is reported that butchers had to pay 50 *livres* per annum for the right to operate as a butcher.<sup>46</sup> But this is not an important point given that we have very few observations for butchers and bakers and most of the observations (as we will see below) are related to river sailors, masons, sawers and carpenters.

<sup>41</sup> Arnaud Bessières. 2008. “Le salaire des domestiques au Canada au XVIIe siècle”, *Histoire, économie & société*, Vol.27, no.4, p.39.

<sup>42</sup> Peter Moogk. 1971. “Apprenticeship indentures : A key to Artisan life in New France” *Historical Papers / Communications Historiques*, Vol.6, No.1, pp.65-83.

<sup>43</sup> *Ibid*, p.65.

<sup>44</sup> *Ibid*, p.67.

<sup>45</sup> Marc Vallières, Yvon Desloges, Fernand Harvey, Andrée Héroux, Réginald Auger, Sophie-Laurence Lamontagne and André Charbonneau. 2008. *Histoire de Québec et de sa région, Tome 1 : Des origines à 1791*. Québec : Presses de l’Université Laval, p.388-396.

<sup>46</sup> Roland Viau. 2012. “Pour qui souffle le vent? Heur et malheur d’une entité coloniale, 1702-1760” in eds. Dany Fougères, *Histoire de Montréal et de sa région, Tome 1, Des Origines à 1930*. Québec : Presses de l’Université Laval, p. 207.

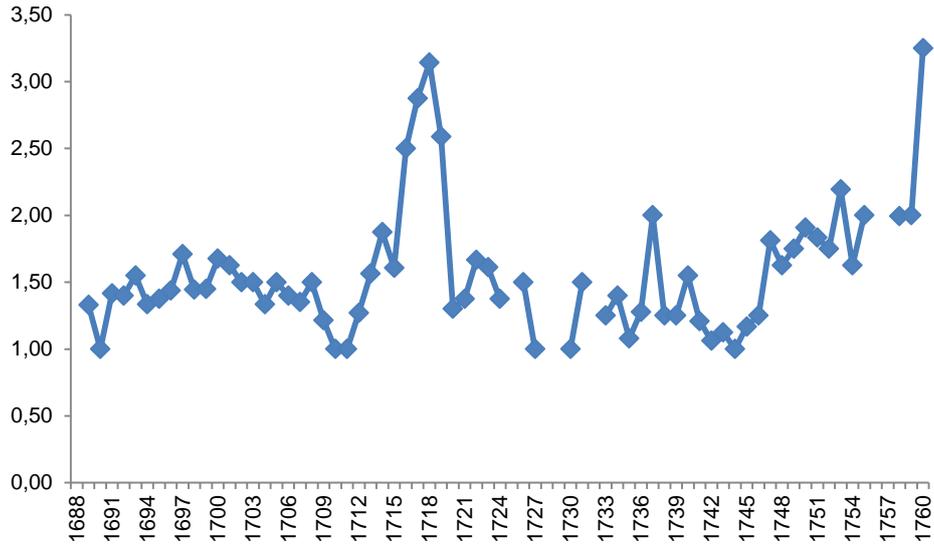
The result of this data compilation yields figures 4 through 10.<sup>47</sup> The most reliable data comes from the daily wage rates for unskilled workers. This data requires very few interpolations and hence any conclusions drawn from this data will rely on fewer assumptions than for other data. Hopefully, the data for the daily wages of unskilled workers is also the one we are really concerned about since the vast majority of the population entered the “unskilled” segment of the labor market. Basically, this paper’s aim is to study the income of the “average” colonist and how much that income would acquire in terms of a defined basket of goods.<sup>48</sup> Thanks to figure 6, we know that the data for daily wages follows a path similar to monthly wages. Unfortunately, the quality of the data for skilled workers is of a lesser quality as they are many gaps. The most reliable are those related to carpenters, but it is reassuring to see that when we have observations for other trades, the evolution of the rates are similar. Figure 7 provides a comparison of wage rates for the navigation sector on both monthly and daily basis – the only of the three trades that has more than just a few observations on an monthly basis. As was the case with unskilled wages, the behavior of the rates observed is similar which is again reassuring with regards to the quality of the wage rates. As for annual wage rates in figure 8, the results are indicative of the fixed nature of contractual terms that were harder to change. The annual wage data will not be useful for the purposes of measuring living standards, but they will become useful in future research, notably in the last part of this thesis. Figure 9 provides the illustration of wages deflated by the price index created in the past section. As one can see, figure 9 shows that real wages for carpenters were steadily increasing – probably reflecting the scarcity of skills in the colony. However, the real wages of unskilled workers did not increase – it followed a pretty flat line although there were ups and downs. The wage rate was deflated using the COLI Geloso-Paterson Shearer Composite which ended in 1740. Figure 10 illustrates what happened to real wages after 1740 using a different price index. However, as we mentioned in part three of my thesis, it is impossible to use the price index used for figure 9 past 1740. Since the 19 goods index derived earlier in my thesis moves in similar magnitudes and direction to the COLI Geloso-Paterson-Shearer Composite, I also present real wages using that index in figure 10.

**Figure 4:** Nominal wages in *livres* per day for unskilled workers

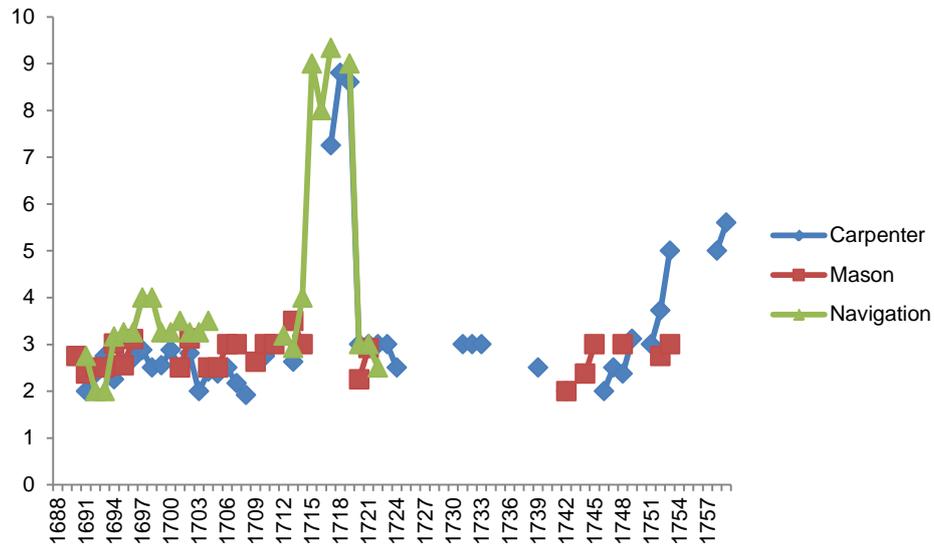
---

<sup>47</sup> The data on the unskilled wages and carpenters contained missing values, which were interpolated using the MATLAB software and the “iterpl” function from the set of the 1-D interpolation methods. The option “spline” was used for the method of interpolation. This option represents the piecewise cubic spline interpolation method as in de Boor using not-a-knot end conditions. The usage of the piecewise treatment helps to avoid the Runge’s phenomenon of oscillation of polynomials of higher degrees and decreases the interpolation error compared to linear or simple polynomial interpolation methods. Carl de Boor. 2001. *A Practical Guide to Splines (Revised Edition)*, New York: Springer, p.23. The interpolation has been kindly provided thanks to the help of Vadim Kufenko of Hohenheim University’s department of economics.

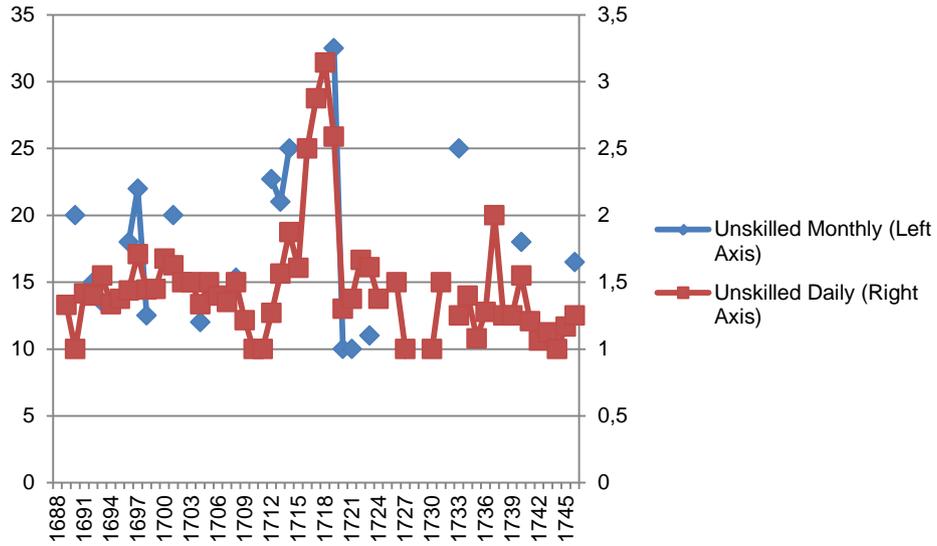
<sup>48</sup> Robert Allen. 2009. “How Prosperous were the Romans?: Evidence from Diocletian’s Price Edict (AD 301)” in eds. Alan Bowman and Andrew Wilson, *Quantifying the Roman Economy: Methods and Problems*. Oxford: Oxford University Press, pp.327-345. This article from Allen provides an efficient of the justification behind the use of welfare ratios, which we will use later in this paper.



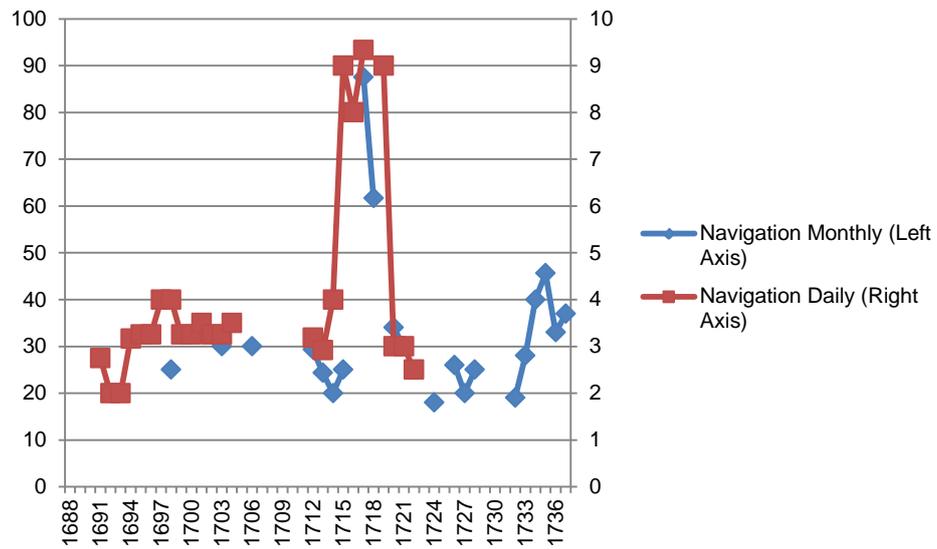
**Figure 5:** Nominal wages in *livres* per day for carpenters, masons and navigation workers



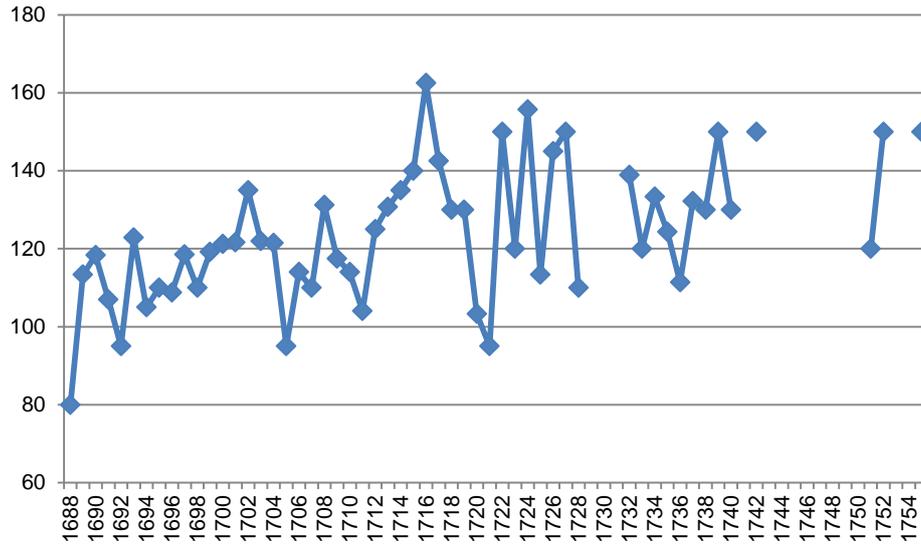
**Figure 6:** Monthly wages in *livres* per month (left axis) compared with daily wages (right axis) for unskilled workers



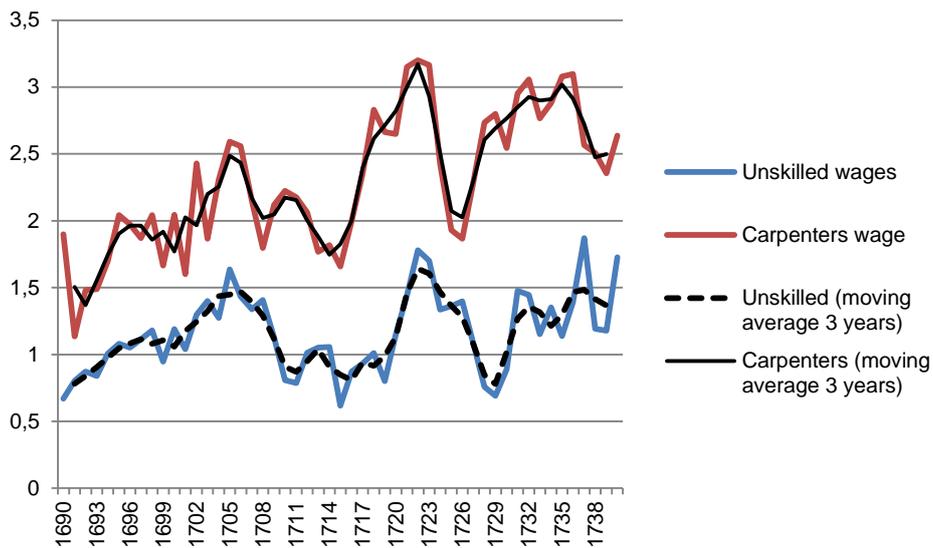
**Figure 7:** Monthly wages in navigation within the colony in *livres* (left axis) compared with daily wages (right axis)



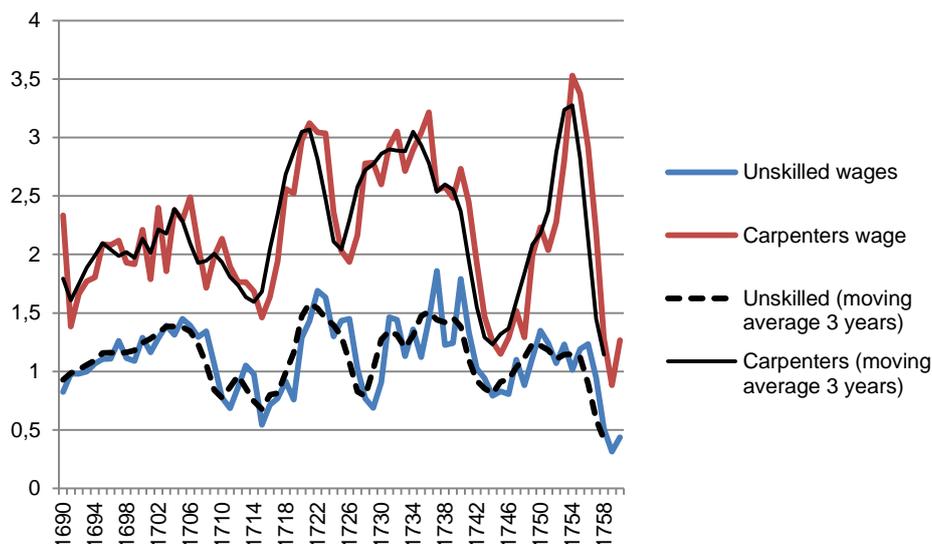
**Figure 8:** Annual wages for *engagés*, domestics and servants at the Séminaire



**Figure 9:** Real wages for unskilled workers and carpenters with a three years moving average (in black) in *livres* per day from 1690 to 1740 using the COLI Geloso-Paterson-Shearer Composite Index



**Figure 10:** Real wages for unskilled workers and carpenters with a three years moving average (in black) in *livres* per day from up to 1760 using the 19 goods index



#### Section 4: Deriving Income Estimates

Ultimately, our goal is to create welfare ratios as is commonly used by numerous economic historians. The problem is that we must further assert the quality of wages as a proxy for overall income. In short, the question of the current section relates to whether or not we can safely make inferences about incomes on the basis of wages. Economic historians like Paul Bairoch tend to believe that we can use wages as an indicator of Gross National Product (GNP).<sup>49</sup> However, this claim can be disputed on the basis that pre-industrial economies have wage rates that are not fully representative of the broad economy.<sup>50</sup> And indeed, in the case of New France, some could make the claim that wages are not fully representative and might induce a wrong representation of the economy. Alan Greer pointed out that the average worker “with earnings coming in during only part of the year, would be hard-pressed to maintain himself at the even most basic level in the long run”.<sup>51</sup> Summarizing the seminal works of Richard Harris and Louise Dechêne, Greer points out that since self-employment as a farmer was the dominant choice, there would have been no such thing as a “free market” for labour.<sup>52</sup> In the previous section, I have outlined why I believe that the wage statistics collected from the Séminaire are broadly correct and that the wage rate should be seen as the marginal productivity of labour and representative of average earnings.<sup>53</sup> Moreover, it would be shortsighted to consider that peasants were working exclusively in one sector.

<sup>49</sup> Paul Bairoch. 1989. “Wages as an Indicator of Gross National Product” in eds. Peter Scholliers, *Real Wages in 19<sup>th</sup> and 20<sup>th</sup> century Europe: Historical and Comparative Perspectives*. New York: Berg Publishing, pp.51-60.

<sup>50</sup> Dietrich Ebeling. 1989. “Some Remarks on the Relationship between Overall Economic Output and Real Wages in the Pre-Industrial Period” in eds. Peter Scholliers, *Real Wages in 19<sup>th</sup> and 20<sup>th</sup> century Europe: Historical and Comparative Perspectives*. New York: Berg Publishing, pp.61-66.

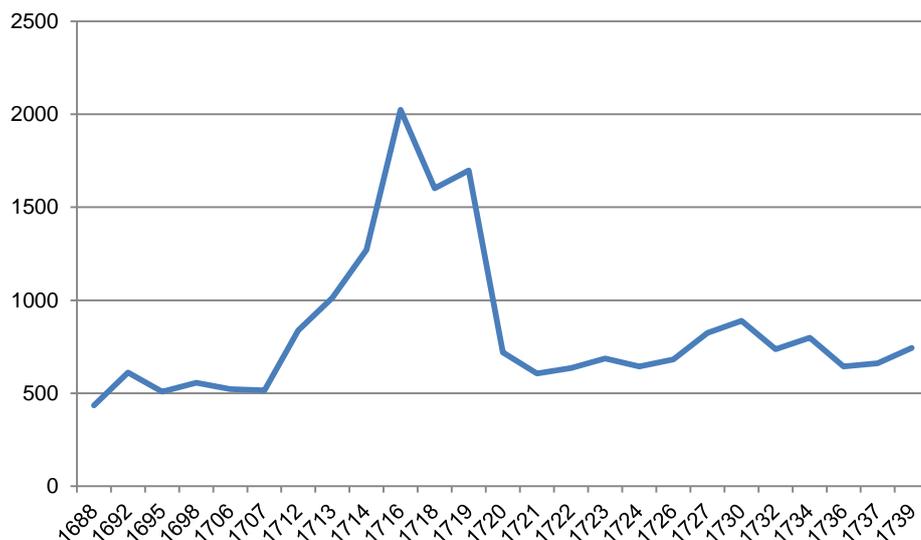
<sup>51</sup> Alan Greer. 1997. *The People of New France*. Toronto: University of Toronto Press, p.56.

<sup>52</sup> *Ibid*, p.56.

<sup>53</sup> In this work, Robert Allen and al. offer justification of such a claim : Robert Allen, Jean-Pascal Bassino, Debin Ma, Christine Moll-Murata and Jan Luiten Van Zanden. 2011. “Wages, prices, and living standards in China, 1738-1925: in comparison with Europe, Japan and India”, *The Economic History Review*, Vol.64, no.S1, p.29.

Market exchanges were always an open option the *habitant* farmer. Even if he chose not to trade his labor on the market, he could always do so at the prevailing price – which was reflective of the marginal product of labor. However, some readers might still be left unconvinced by my theoretical claim. I can try to alleviate any potential qualm by comparing unskilled wages with the measurement of agricultural income as produced by Morris Altman based on census data. His measure of Gross Domestic Product provides us with the measurement of income per capita. However, the main criticism laid at Altman’s feet was that his method of multiplying all census quantities by 1749 prices was a costly shortcut. This criticism might lead some to be skeptical of any comparisons I provide between my statistics and his. As a result, I recalculated the output measures proposed by Altman but with one major specification change – I used prices related to the year of each census to calculate the value of total output. Skeptical readers are invited to consult Altman’s methodology and bear in mind that the only difference is that I calculated output on the basis of annual prices. Since we are concerned with the income of the “average individual”, we are basically talking about the income of a farm owner. Consequently, I only took agricultural production plus the value of land clearing, plus the value of firewood output and divided it over the non-urban share of the population of New France. The result, in nominal terms, is illustrated in figure 11 below.

**Figure 11:** Farm Income per Household Using Altman’s Methods with Improvements (in current *livres*)



The problem for us is that Altman’s measure is one of overall production which includes the contribution of wives and older children. This means that we must approximate the total number of days provided by a household. The following issue is to derive a measure of income year round based on wages. Basically, we want to have an estimate of how many days of work an individual performed in a year. The main problem is that, given Canada’s harsh weather, it was impossible for a worker to only work in harvest time. According to Thomas Wien, the season in which one could work his farm only lasted 150 days – and sometimes even less.<sup>54</sup> Obviously, it would be foolish to assert

<sup>54</sup> Thomas Wien. 1990. “Les travaux pressants: calendrier agricole, assolement et productivité au Canada au XVIIIe siècle” *Revue d’histoire de l’Amérique française*, vol.43, no.4, p.556.

that 150 days of work per year was sufficient to assure a reliable standard of living. Male farm workers could complement their income by providing timber and firewood for urban markets and providing some work while in the city.<sup>55</sup> However, this would still have been very far from sufficient to provide subsistence to a household – especially given the large size of households in New France. In general, the studies of the families of New France all tend to point towards a modal household size of 6 individuals.<sup>56</sup> It is worth noting that a similar figure was observed for the American colonies – at 5.85 members per household on average.<sup>57</sup> Moreover, most authors note that the French Canadians were appreciably well-off. The most striking example comes from the work of Martin Fournier who documents the dietary habits of the French Canadians. By contemporary standards, these were very rich diets. In fact, Fournier provides a series of “popular recipes” which were very rich in fats, salts and starches.<sup>58</sup> Another striking feature is that oats were used to feed animals.<sup>59</sup> In his own work, Robert Allen that oats were qualified as grain in England but it was given to animals to feed them while in Scotland, it was the diet of the people.<sup>60</sup> Given such observations, it is doubtful that an individual working only during the harvest would have fared well. Other sources of income were needed. In great part, these additional sources would

---

<sup>55</sup> Richard Harris. 1966 [1984]. *The Seigneurial System in Early Canada*. Montréal: McGill-Queen's University, p.114. Later in this book, Harris (p.162) documents how income could be complemented through the provision of wood products to the urban markets. Donald Paterson and William Marr also pointed out how important the timber trade would have been in the early days of land clearing for any new farm household. The main advantage from these operations as Paterson and Marr pointed out was that “cutting timber was generally carried out at the time of the year when no major farming effort was necessary” (p.65). Eventually, the sale of the timber products – which were a byproduct of land clearing – would serve to finance consumption in the early years of settlement. William Marr and Donald Paterson. 1980. *Canada : An Economic History*. Toronto: Gage Publishing.

<sup>56</sup> Louise Dechêne. 1992 [1974]. *Habitants and Merchants in Seventeenth Century Montreal*. Montreal and Kingston : McGill-Queen's University Press, p.238. As Dechêne points out in her work : “the modal structure was four children, or six people per household”. She added that “rough calculations based on later aggregate censuses, indicate that that the number of children per family remained more or less stable until the beginning of the eighteenth century”. For the 18<sup>th</sup> century, the data provided by George Langlois confirms that Dechêne's family structure did not evolve considerably. Collecting mortality, nuptiality and baptisms statistics from the different parishes of Quebec, Langlois managed to recreate our modern estimates of mortality, nuptiality and fertility in the colony up to the formation of the Canadian Confederation. His figures suggest that for each marriage being sanctified in the colony between 1700 and 1760, there were 5.78 births. Georges Langlois. 1935. *Histoire de la Population Canadienne-Française*. Montréal : Éditions Albert Lévesque, pp.255-262. Marilyn Gentil of the University of Montreal has compiled infant mortality quotient for the 18<sup>th</sup> century which allow us to correct this figure. Throughout the 18<sup>th</sup> century up to 1760 (but not thereafter), the infant mortality rate (below one year of age) increases steadily from 15% of all births to roughly 30% of all births. This brings the figure much closer to four children left on average per family. Adding mortality of other children who were above the one-year old threshold, the figure of four children per set of parents seems to hold in the 18<sup>th</sup> century. Marilyn Gentil. 2009. *Les Niveaux et les Facteurs Déterminants de la Mortalité Infantile en Nouvelle-France et au début du Régime Anglais (1621-1779)*. PhD thesis, department of demography, Université de Montréal, p.145.

<sup>57</sup> Jean-Louis Flandrin. 1979. *Family in Former Times : Kinship, Household and Sexuality*. Cambridge: Cambridge University Press, p. 55.

<sup>58</sup> Martin Fournier. *Jardins et Potagers en Nouvelle-France : Joie de Vivre et Patrimoine Culinaire*. Montréal : Éditions Septentrion.

<sup>59</sup> Morris Altman. 1988. “Economic Growth, Economic Structure and Real Gross Domestic Product in Early Canada, 1695-1739” *William and Mary Quarterly*, Vol.45, p.684.

<sup>60</sup> Robert Allen. 2009. “How Prosperous were the Romans?: Evidence from Diocletian's Price Edict (AD 301)” in eds. Alan Bowman and Andrew Wilson, *Quantifying the Roman Economy: Methods and Problems*. Oxford: Oxford University Press, p. 342.

have come from the output from women. Few authors give attention to this topic, but it is often mentioned in passing that women were given piece-rates work to complement the family income. In fact, my own collection of data from the Séminaire yielded numerous piece-rates observations to wives of some workers. For example, 1 *livre* was paid for *la façon d'une culotte* (making pants) in 1723 while the *blanchissement de quatre chemises* (cleaning shirts) was remunerated at 4 *sols* per shirt. Children were also appreciable contributors to family income. For example, they could be used as field hands,<sup>61</sup> but also as producers of fruits. An early 19<sup>th</sup> century guide for emigrants to Canada noted that families around Québec City sent their children to gather small fruits and then sell them to city dwellers at a moderate price.<sup>62</sup> From this we can gain an image of all the potential earnings sources of households. However, it is not sufficient for us to estimate the exact number of days worked in total. More importantly, we don't know the "wage rate" actually paid to women and what was their contributory share of household income.<sup>63</sup> As a result, we must rely on a plausible range estimate. When calculating welfare ratios, economic historians simply assume that a male worked provided 250 days of work in order to measure the purchasing power of his work relative to a fixed a basket of goods. However, this would not be representative of the level of income enjoyed by the household as it would yield an income considerably lower the requirements of the average six-person household. A reliable method to estimate the total number of days worked in a year is to use data from America. In the American colonies, the adult male worked 312 days per year according to numerous authors.<sup>64</sup> In their work estimating welfare ratios for pre-revolution America, Lindert and Williamson postulated that they believed that "for those days or months in which a person did not hold his or her main stated job, he or she nonetheless filled in with other productive work, like weaving and farming at home, and some of this output was traded on the market".<sup>65</sup> While Lindert and Williamson were making this argument to the calculation of a welfare ratio – which only requires an adult male – we can still apply this logic to the household contribution of women. However, it is hard to find how many days per year a women did work in terms that are equivalent to a male. However, in the course of my work, I did collect some wage observations that concerns female workers.<sup>66</sup> They were not included in our wages data above, but they were collected nonetheless for the purpose of comparing male and female wages. The data points (there are very few sadly) I have for female wages tend to indicate that for similar jobs, they earned a steady 42% less (sadly, no econometric control is possible) than their

---

<sup>61</sup> André Lachance. 2000. *Vivre, aimer et mourir en Nouvelle-France: La vie quotidienne aux XVIIe et XVIIIe siècles*. Montréal : Éditions Libre Expression, pp.60-66.

<sup>62</sup> No author specified. 1820. *The Emigrant's guide to the British settlements in Upper Canada and the United States of America*. London : T. Keys, p.90.

<sup>63</sup> This point is well argued by Alan Greer who points out that "women made an incalculable contribution to the early Canadian economy, 'incalculable' if only because it cannot be measured". Alan Greer. 1997. *The People of New France*. Toronto: University of Toronto Press, p.67.

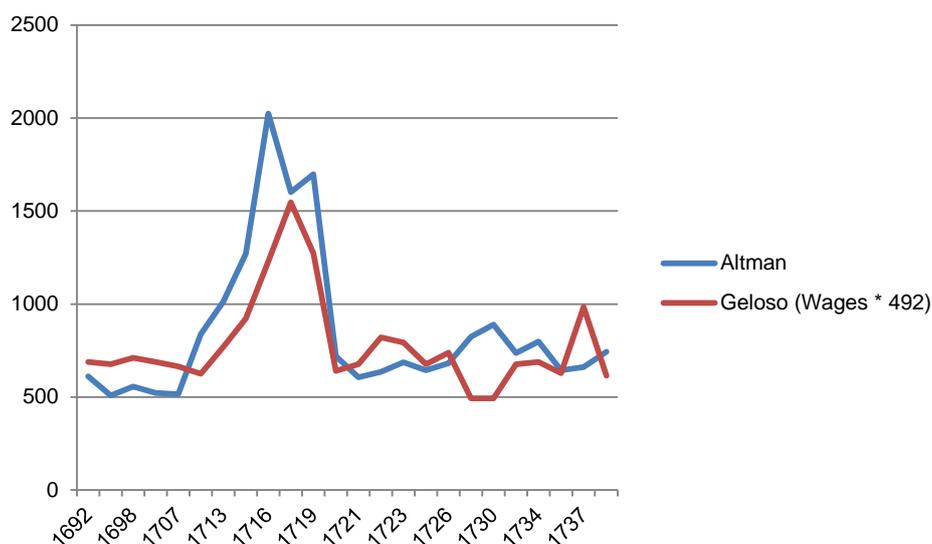
<sup>64</sup> Donald Adams. 1986. "Prices and Wages in Maryland, 1750-1850", *Journal of Economic History*, Vol.46, No.3, p. 635; Jeffrey Williamson and Peter H.Lindert. 2013. "American Incomes Before and After the Revolution", *Journal of Economic History*, Vol.73, No.3, p.736.

<sup>65</sup> *Ibid*, p.736.

<sup>66</sup> Wages for women that were recorded were rarely for the same tasks as males and very often, when they were hired under *engagements* contracts, the nature of their skills was not specified. Hence, I am left with a very small number of observations that compare reliably males and females for the same trades. However, it is sufficient for the purposes of this paper as it merely attempts to approximate how large the contribution of female workers would have been if measured in terms of "male-day" equivalents.

male counterpart.<sup>67</sup> Assuming that they worked full time (also 312 days) but that these days provided an income 42% inferior to those of male workers, we can add a total of 181 days as “male-worker” equivalent. Overall, this suggests that households provided altogether 492 days of adult “male-worker” equivalents. Figure 12 shows how this measure of income compares relative to the Altman figures. As we can see, the estimate is not relatively similar to the same level as the farm household income derived from Altman, but the evolution is strikingly similar. This offers great reassurance with regards to the capacity of wages to represent living standards truthfully.

**Figure 12:** Farm Income per Household Using Altman’s Methods with Improvements (in *livres*) compared with wages multiplied by 492 days of work to derive household income.



## Section 5: The “Respectability Baskets” and “Bare Bones Baskets” for welfare ratios

As stipulated earlier, one of the goals of this thesis is to provide a comparison of living standards both across time for Quebec and across societies at different point in times. The intent of collecting prices and wages was ultimately to construct welfare ratios akin to Robert Allen’s work.<sup>68</sup> Welfare ratios are constructed first by creating a basket of goods and services that households would need to achieved an objective standard of living. Then, one calculates the number of times an average-sized family was able to buy that basket given the prevailing wages, on the assumption of 250 days of work per annum. It is with this work that Allen managed to create comparisons of French and

<sup>67</sup> In 1699, Catherine (with an unreadable surname) was paid 70 *livres* while Jérémie Auger was paid 120 *livres*; In 1703, Françoise Brassard was also hired as a domestic for 70 *livres* per year while Jérémie Auger, Claude Sembela and Jean Falardeau received 120 *livres* also as domestics; In 1704, one women (unnamed) was hired as an *engagée* paid 70 *livres* per year while all the other male *engagés* received 120 *livres* per annum with one earning 135 *livres*. Overall, this suggests that they earned 41.67% less than men – which I rounded up to 42%. This seems high, but this author feels safer with a high estimate which acts against his principal claim.

<sup>68</sup> Robert C.Allen. 2001. “The great divergence in European wages and prices from the Middle Ages to the First World War” *Explorations in economic history*, Vol.38, No.4, pp.411-447.

British living standards during the 18<sup>th</sup> century. It is also with such ratios that Peter Lindert and Jeffrey Williamson derived their comparisons of American and British living standards prior to the War of Independence.<sup>69</sup> Other authors have used welfare ratios to measure living standards in medieval Byzantium<sup>70</sup>, late 19<sup>th</sup> century to mid-20<sup>th</sup> century British Africa<sup>71</sup> and 18<sup>th</sup> century to 20<sup>th</sup> century China.<sup>72</sup> Readers should be aware that this author expects to find a high standard of living in Quebec relative to other societies at the time. This is because most authors of have written about the living standards of French Canadians have tended to described them as such. Although examples are numerous, the best example supporting this expectation is that of Richard Harris who asserted “there can be little doubt that his [the French Canadian’s] standard of living was substantially higher than that of most of the peasants in France, or that it compared favorably with living standards in rural New England”.<sup>73</sup>

Hence, the computational exercise of welfare ratios requires a lengthy discussion on what the basket of goods ought to be. There are two definitions of a basket that we ought to consider. The first is meant to include the impact of the introduction of new goods that came with the colonization of the Americas – tobacco, tea and coffee – and is meant as a basket of goods that represents a “respectable standard of living”. Basically, this means a basket that would reflect consumption the mere satisfaction of basic needs.<sup>74</sup> The second basket is one which aims to measure how well one could satisfy his basic needs. In his works, Robert Allen cites that the English “respectability basket” provided roughly 2500 calories per person and 112 grams of protein per person.<sup>75</sup> As for the subsistence (also known as “bare bones”), he considers that it yielded 1938 calories and 89 grams of protein.<sup>76</sup>

In the case of New France, it is quite likely that the respectability threshold was close to what could be achieved by households. According to Richard Harris, each person required 6 *minots* of wheat per year (one minot = 1.107 bushels).<sup>77</sup> This translates into 1593 calories per day per person.<sup>78</sup> This is obviously not a sufficient diet for people living in an agricultural economy like the one in New France and it could not have been

---

<sup>69</sup> Peter Lindert and Jeffrey Williamson. 2014. *American Colonial Incomes, 1650-1774*. Cambridge, MA : National Bureau of Economic Research.

<sup>70</sup> Branko Milanovic. 2006. “An estimate of average income and inequality in Byzantium around year 1000”, *Review of Income and Wealth*, Vol.52, no.3, pp.449-470.

<sup>71</sup> Ewout Frankema and Marlous Van Waijenburg. 2012. “Structural impediments to African growth? New evidence for real wages in British Africa, 1880-1965”, *Journal of Economic History*, Vol. 72, No.4, pp.895-926.

<sup>72</sup> Joerg Baten, Debin Ma, Stephen Morgan and Qing Wang. 2010. “Evolution of living standards and human capital in China in the 18<sup>th</sup>-20<sup>th</sup> centuries: Evidences from real wages, age-heaping and anthropometrics”, *Explorations in Economic History*, Vol.47, No.3, pp.347-359.

<sup>73</sup> Richard Harris. 1966 [1984]. *The Seigneurial System in Early Canada*. Montréal: McGill-Queen’s University, p.166.

<sup>74</sup> Robert C.Allen. 2001. “The great divergence in European wages and prices from the Middle Ages to the First World War” *Explorations in economic history*, Vol.38, No.4, pp.420.

<sup>75</sup> Robert C. Allen. 2009. *The British Industrial Revolution in Global Perspective*. Cambridge: Cambridge University, p.36.

<sup>76</sup> *Ibid*, p.37.

<sup>77</sup> Richard Harris. 1966 [1984]. *The Seigneurial System in Early Canada*. Montréal: McGill-Queen’s University, p.160.

<sup>78</sup> Christian Dessureault. 2005. "L'évolution de la productivité agricole dans la plaine de Montréal, 1852-1871: grandes et petites exploitations dans un système familial d'agriculture." *Social History/Histoire Sociale*, vol.38, no.76, p.265.

the sole item in their diets. Thanks to the work of Donald Fyson, we are aware that grains represented 56% of all the calories consumed by workers in the early 19<sup>th</sup> century.<sup>79</sup> We can infer that the 1593 calories per day represented only 56% of the energy intake of workers which means that adding the remaining 44% translates into a total intake of 2845 calories per day.<sup>80</sup> This total amount of calories is roughly comparable to the totals proposed by other sources on Quebec history (see Table 3).

**Table 3: Calories in food components**

Geloso (1688-1740)	2845 calories / day
Rousseau (1704-1713)	2632 calories / day
Rousseau (1714-1723)	2628 calories / day
Rousseau (1724-1733)	3504 calories / day
Lachance (mid-18 <sup>th</sup> century soldiers in New France)	2958 calories / day

François Rousseau. 1983. *L'œuvre de Chère en Nouvelle-France : Le régime des malades à l'hôtel-Dieu de Québec*. Québec Presses de l'Université Laval, p.340; André Lachance. 2000. *Vivre, Aimer et Mourrir en Nouvelle-France : La Vie Quotidienne au XVIIe et XVIIIe siècles*. Montréal : Éditions Libre Expression, p.148.

It is generally accepted that wheat represented close to three quarters of all grain output in the colony of New France.<sup>81</sup> As a result, three quarters of -the 56% of the energy needs of workers that came from starches will be allocated equally between wheat and flour while the remaining quarter will be divided equally between oats and peas. Again, according to the data collected by Donald Fyson, meat and alcohol represented respectively 21% and 10% of calorie intake (597 calories and 284 calories).<sup>82</sup> Fyson also mentions that sugar and dairy products represented 8% and 6% of calories. Sadly, I don't have sufficient data points regarding sugar, so I had to scale down the measures over all non-sugar items. In addition to this, I was not able to find any mention of how many eggs were consumed annually. I added three dozen eggs per year which represents 34 calories per day per person. Finally, the work of Allan Greer provides us with an estimate of 30 pounds of salt per adult per year – 13,608 grams per year.<sup>83</sup>

With regards to the non-food components, one of the larger items in terms of expenditures for households was firewood. Quebec is an especially cold area of North America which means that fuel was likely to have commanded a larger share of a household's expenditures than would have been the case elsewhere in the world. In the

<sup>79</sup> Donald Fyson. 1992. "Du pain au madère: L'alimentation à Montréal au début du XIXe siècle", *Revue d'histoire de l'Amérique française*, vol.46, no.1, p.74.

<sup>80</sup> Agricultural work, as pointed out by Craig Muldrew, tended to require much larger quantities of calories. However, these calories were disproportionately expended during the harvest. In New France, activity dropped importantly in winter – winters which were considerably longer than those experienced in Europe. See: Craig Muldrew.2011. *Food, Energy and the Creation of Industriousness: Work and Material Culture in Agrarian England, 1550-1780*. Cambridge: Cambridge University Press, p.131

<sup>81</sup> Morris Altman. 1983. "Seignorial Tenure in New France, 1688-1739: An Essay on Income Distribution and Retarded Economic Development". *Historical Reflections / Réflexions historiques*, Vol.10, No.3, pp.335-375.

<sup>82</sup> Donald Fyson. 1992. "Du pain au madère: L'alimentation à Montréal au début du XIXe siècle", *Revue d'histoire de l'Amérique française*, vol.46, no.1, p.74.

<sup>83</sup> Allan Greer. 1985. *Peasant, Lord and Merchant: Rural Society in Three Quebec Parishes, 1740-1840*. Toronto: University of Toronto Press, p.35.

18<sup>th</sup> century, it was estimated that a priest required 25 cords of wood per year.<sup>84</sup> In the late 17<sup>th</sup> century, it was estimated that a widow required 20 cords of firewood without any specification of the period for which they were required.<sup>85</sup> As for lighting and heating, it is hard to know the per capita level of candle consumption. The best starting point with regards to constituting a basket is from the work of Allan Greer.<sup>86</sup> In his work, Greer manages to provide us with a basket of consumption for a peasant family in the plains of Montreal. As a young man, Joseph Blanchard and his wife (unnamed) promised a pension to his father (also named Joseph) and mother who had given him their lands. The son was to provide 5 kg of Candles or 3 pots of burning oil for his parents. At this ratio, this meant that 0.6 pots of burning oil was considered equivalent to 1 Kg of candles. In order to include some form of oil in the basket, I included one pot per year and excluded 1.2 kg of candles. Finally, with regards to cloth, there is little data about the French era, but we know that in 1827, Lower Canadian families produced, on average, 8.3 yards of cloth per person – a figure that we will apply here and which will be transferred from the French measure of *aune* (1.30 yards per *aune*).<sup>87</sup>

Taken altogether, this suggests that New France probably could acquire many times the bare bones basket. Yet, one should be careful to not go too far. Most of the data mentioned above stems from work drawn either from probate records, religious congregations or from travellers recounting their tales. The former type of source is apparently concentrated in the upper echelons of society. This is because those who signed probate records in Quebec tended to be richer individuals, or at the very least were individuals that were more educated. They also tended to concern older individuals which imply a selection bias. Individuals who got around writing a testament were individuals who had managed to live past a point that many did not manage to reach. Hence, the poorer levels of the New France society were not well represented.<sup>88</sup> Secondly, religious congregations like that of the Augustines studied by Rousseau offer very rich consumption diets. But these are very likely non-representative of overall trends and levels. The calories consumption reported by Rousseau, which are very high and reported in table 12, were for patients of the hospital – one fifth of which were women and who would have required fewer than the more 2500 calories per day reported by Rousseau.<sup>89</sup> And these were calories for workers who were ill and needed to recover from different types of illness and injuries – some of which were of a military nature. Indeed, one third of all male admissions at the end of the 17<sup>th</sup> century were officers, sub-officers, soldiers and sailors. In other years like those

---

<sup>84</sup> Marcel Mousette. 1983. *Le chauffage domestique au Canada: des origines à l'industrialisation*. Québec : Presses de l'Université Laval, p. 35

<sup>85</sup> *Ibid*, p.37.

<sup>86</sup> Allan Greer. 2000. *Habitants, Marchands et Seigneurs : la Société Rurale du Bas Richelieu, 1740-1840*. Montréal : Éditions Septentrion, p.54-55.

<sup>87</sup> David Thiery Ruddel. 1990. "Domestic Textile Production in Colonial Quebec, 1608-1840", *Material Culture Review / Revue de la culture matérielle*, Vol.31, No.1, p.42.

<sup>88</sup> Peter Russell summarizes this point nicely when he surveys a debate between Jean-Pierre Wallot and Gilles Paquet on the one hand with Yves Morin on the other hand. In the early 1980s, Wallot and Paquet produced a breathtaking sample of probate records for Lower Canada (as it was known when under British rule) from 1792 to 1835 which showed positive wealth growth rates throughout the period studied. Morin questioned the validity of those statistics indicating that they represented mostly upper class, richer and literate individuals. See Peter Russell. 2012. *How Agriculture Made Canada: Farming in the Nineteenth Century*. Montreal and Kingston: McGill-Queen's University Press, p.61-62.

<sup>89</sup> François Rousseau. 1983. *L'œuvre de Chère en Nouvelle-France : Le régime des malades à l'hôtel-Dieu de Québec*. Québec Presses de l'Université Laval, p.40-41.

between 1747 and 1751 – more than half (54.3%) of the 3242 admissions were for soldiers and officers.<sup>90</sup> Finally, contemporary observers like the often quoted Pehr Kalm (a Swedish botanist who visited the colony in the 1740s) actually spent very little time with the common inhabitants. Numerous authors have quoted Kalm<sup>91</sup> who often described the richness of the diets of the inhabitants like his assertion “French-Canadian meals, if I may say so, are usually overabundant; they are served numerous dishes: soups as well as a variety of meat (...)”<sup>92</sup> That latter quotation did not refer to the French-Canadians *per se* but rather to members of the French-Canadian clergy – hardly a representative group. Although there is much to keep from his observations, one should be careful. Lot of this skepticism stems from the reading of the work of Serge Lambert that studied institutions aimed at helping the poor in New France. His work, concentrated on urban centers, suggests very low living standards which are fairly generalized in the form of high vulnerability to small economic shocks.<sup>93</sup> All things considered, it is likely that the French-Canadians enjoyed a level of living standards many times above the bare bones basket.<sup>94</sup>

At this point, we must derive a basket of consumption. Testing only one basket might be problematic however. Consequently, we will attempt numerous different specifications. What will be designated below as “bare bones basket 1a” and “respectable basket 1a” and will be the ones used for comparisons with other societies in the Americas and Europe. However, the other baskets are created in order to test the robustness of the results to difference specifications change. The hope is that by testing with alternative specifications, we will be able to assert the robustness of the estimates provided in this paper. As we will see, these alternative specifications do not change the general behavior or alter significantly the level of the cost of the baskets. Here are the baskets that we will generate:

- 1) Bare bones basket 1a: a basket which relies on oats and where firewood will be represented by white oak
- 2) Bare bones basket 1b : a basket which relies on oats and where firewood will be represented by Canadian pine
- 3) Bare bones basket 2a : a basket which relies on wheat and where firewood will be represented by white oak

---

<sup>90</sup> *Ibid*, p.42-44.

<sup>91</sup> Richard Harris. 1966 [1984]. *The Seigneurial System in Early Canada*. Montréal: McGill-Queen's University, p.165.

<sup>92</sup> Quoted in in Paul-Louis Martin. 2002. *Les Fruits du Québec: histoire et traditions des douceurs de la table*. Montréal : Éditions Septentrion, p.49.

<sup>93</sup> Serge Lambert. 2001. *Entre la crainte et la compassion : les pauvres à Québec au temps de la Nouvelle-France*. Sainte-Foy, Les Éditions GID.

<sup>94</sup> Volume 1 of the *Histoire de Québec et de sa région* provides a long discussion on the issue of popular gastronomy in the colony. The authors illustrate that there is a great demand, illustrated from import data, for olive oil, olives, rum, coffee, and chocolate. Although it is possible that some of these were the adage of the richest, but olive oil is indeed commonly reported as a “popular item” found in rural households. Proteins also seem to be consumed in large quantities via eels, codfish, beef and lard. Animal bones found in archaeological dig sites also suggest a large consumption of meat items. Overall, this is suggestive of the applicability of the “respectability basket”. Marc Vallières, Yvon Desloges, Fernand Harvey, Andrée Héroux, Réginald Auger, Sophie-Laurence Lamontagne and André Charbonneau. 2008. *Histoire de Québec et de sa région, Tome 1 : Des origines à 1791*. Québec : Presses de l'Université Laval, p.503-536.

- 4) Bare bones basket 2b: a basket which relies on wheat and where firewood will be represented by Canadian pine
- 5) Bare bones basket 3a : a basket where candles and lamp oil are eliminated and white oak firewood becomes the sole of heating and lighting
- 6) Bare bones basket 3b : a basket where candles and lamp oil are eliminated and Canadian pine firewood becomes the sole of heating and lighting
- 7) Respectable basket 1a: a basket of respectable consumption where firewood will be represented by white oak
- 8) Respectable basket 1b: a basket of respectable consumption where firewood will be represented by Canadian pine

In his work, Robert Allen creates a basket where maize was the dominant grain for the bare bones subsistence basket of goods, providing 1655 calories. The other items are straightforward and may very well apply to Quebec in the 17<sup>th</sup> and 18<sup>th</sup> centuries. However, maize is a not a good item to use for New France. According to census data, it did not appear as a common farm product until the 19<sup>th</sup> century. One could fall back on oats as a reliable source of calories. However, this is potentially problematic point. It should be pointed that oats were primarily used to feed animals according to Morris Altman who computed their production in censuses as an input for feeding stock.<sup>95</sup> They would have rarely appeared in the diets of the *habitants*. However, that is not the issue at hand – the issue is: was it a cheap source of calories and hence a good than can be included in the bare bones basket as the cheapest alternative possible. We know that one *minot* of oats provided only 62% of the calories of a *minot* of wheat.<sup>96</sup> The physical weight of a *minot* of oats was 34 pounds while a *minot* of wheat weighed 60 pounds. This lower caloric output was more than compensated by the differential in yields per unit of land. According to Marvin McNinnis, who used mid-19<sup>th</sup> century data, one acre could yield either 9.2 bushels of wheat or 18.6 bushels of oats.<sup>97</sup> This means that one acre of land under oats yielded 26% more calories than wheat. This suggests that oats was an available way to obtain calories – without making too large a sacrifice elsewhere. Implicitly, it also suggests that if the French-Canadians desired the cheapest source of calories, they would have opted for oats but they went rather for wheat which suggests that they could assume the “caloric cost” of their preference for wheat. Moreover, if we look at the cost of a calorie from oats relative to the cost of a calorie from wheat (see figure 13), we can see that it was cheaper in most years – with some exceptions. This suggests that oats could be a good item for a bare bones basket of goods.

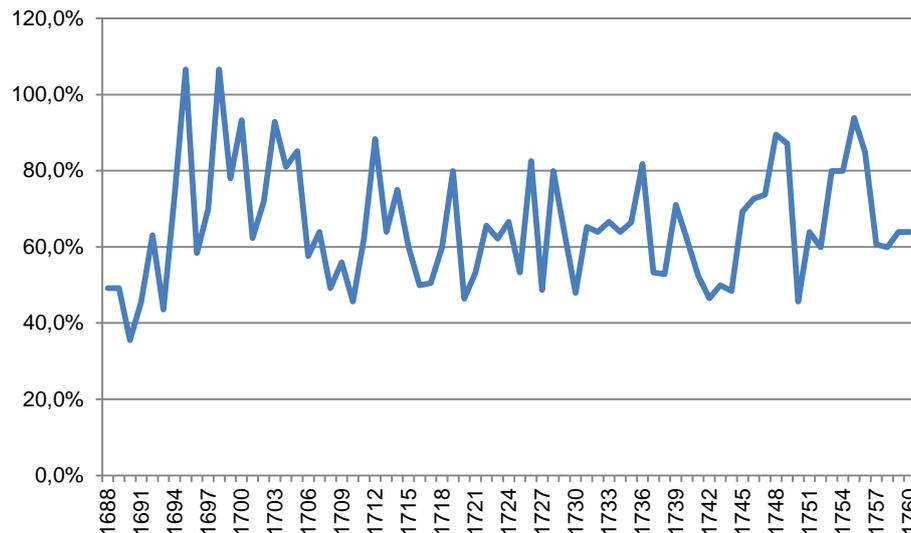
**Figure 13:** Relative price of oats to wheat based on calories provided, 1688 to 1760

---

<sup>95</sup> Morris Altman. 1988. “Economic Growth, Economic Structure and Real Gross Domestic Product in Early Canada, 1695-1739” *William and Mary Quarterly*, Vol.45, p.684.

<sup>96</sup> Christian Dessureault. 2005. "L'évolution de la productivité agricole dans la plaine de Montréal, 1852-1871: grandes et petites exploitations dans un système familial d'agriculture." *Social History/Histoire Sociale*, vol.38, no.76, p.265.

<sup>97</sup> Marvin McNinnis. 1981. “Some Pitfalls in the 1851-1852 Census of Agriculture of Lower Canada”, *Social History / Histoire Sociale*, vol.14, no.27, p. 227.



A second important problem is the type of firewood that was used to obtain heating. Baskets of goods conceived to allow the construction of welfare ratios are generally centered on a common standard of wellbeing – the energy derived in terms of BTUs. In his work, Robert Allen and his co-authors attribute a value of 2 million BTU per person per year in North America.<sup>98</sup> The problem in our case is that Canada is filled with different types of firewood. According to the history of the timber trade in Canada from 1763 to 1867 written by Arthur Lower, the colony of Quebec was filled with both pine and oak<sup>99</sup> – two trees whose combustion yield different quantities of energy (24.2 million BTU per cord and 14.8 million BTU per cord of 128 cubic feet).<sup>100</sup> Consequently, the cost of the basket will depend greatly on the type of firewood selected. This is why each basket has a variant in terms of the type of firewood used. Finally, given the large abundance of firewood in an economy where land clearing was an important activity, lamp oil and candles could have been easily substituted by a greater amount of firewood. Hence, it would be advisable to eliminate these two and increase the amount of firewood consumed. However, there is a specification in the Allen et al. basket for subsistence that is questionable. According to Allen, one person consumed 2 MBTU in fuel per annum. In terms of French cord of firewood (which stood at 48 cubic feet), this represent less than 1 cord of firewood per person (5.55 MBTU per cord of pine and 9.075 MBTU per cord of white oak). Assuming a consumption of less than one cord of firewood per annum is questionable given that this is very far from all the estimates found in the literature that place consumption somewhere between 20 and 25 cords for

<sup>98</sup> Robert Allen, Tommy Murphy and Eric Schneider. 2012. “The Colonial Origins of the Divergence in the Americas : A Labor Market Approach”, *Journal of Economic History*, Vol. 72, No. 4, pp.863-94.

<sup>99</sup> Arthur R.M. Lower. 1973. *Great Britain's Woodyard : British America and the Timber Trade, 1763 to 1867*. Montreal and Kingston: McGill-Queen's University Press.

<sup>100</sup> This is for a cord which stands at four feet high, four feet deep and eight feet long (128 cubic feet). According to Gilles Paquet and Jean-Pierre Wallot (1998. “Some Price Indexes for Quebec and Montréal (1760-1913)”, *Histoire Sociale / Social History*, vol.31, no.62, p.311), the common cord of firewood in Quebec was of dimensions of six feet high, four feet deep and two feet long (48 cubic feet). This means that the Quebec cord of firewood was only 37.5% that of the one for this measured. This paper has adjusted the values appropriately. To make the adjustments, I computed the price of firewood per cubic feet, and then I adjusted this measurement to make it so that the cord has a volume of 128 cubic feet and then divided by the BTUs for each type of firewood. The amount of MBTU per type of wood was derived thanks to the computations made available on the website of <https://chimneysweeponline.com/howood.htm> (consulted November 4th 2014).

households which were typically composed of six individuals. This means that 3.33 cords (in French measure) were consumed per person at the very least – much more than what Allen et al. attribute (see table 4 for calculations). This adjustment is crucial in attempts to compare New France and France together, and also to compare New England with other societies other than New France. Given the geographic and climatic similarities between New England and New France, it is not surprising to find that the American colonists consumed firewood in similar quantities as the inhabitants of the French colonies to the north. Indeed, Robert Gordon identified colonial households in Boston as requiring 30 cords of firewood per year in terms of consumption.<sup>101</sup> Thomas Purvis echoes this measurement adding that “about 80% of all warmth generated was wasted” due to open air chimneys.<sup>102</sup> Even by the mid-19<sup>th</sup> century when fireplaces became more efficient, the consumption in New England remained high at between 10 and 20 cords of firewood.<sup>103</sup> In his own work, Arthur Cole also confirms a high consumption of firewood similar to that of New France pointing out that students at Harvard and Princeton in the early 19<sup>th</sup> century were allotted 3 cords of firewood each.<sup>104</sup>

**Table 4:** MBTU produced for fuel consumption reported in literature

	Cubic feet per cord (each French cord was 48 cubic feet)	MBTU provided by French measure if Canadian pine	MBTU provided by French measure if white oak
3.33 cords per year per person (20 cords divided by six household members)	159.84	18.482 MBTU	30.219 MBTU
4.17 cords per year (25 cords divided by six household members)	200.16	23.145 MBTU	37.842 MBTU

Note: The estimates of energy provided by different types of wood I used allow for a degree of humidity in the wood which reduces the energy output. They also consider a less than perfect combustion where a sizeable energy output is wasted by poor extraction capacity. The source I used computes that only 71% of total energy available when wood contains 0% moisture and is combusted in a pure oxygen environment is extracted. The amount of MBTU per type of wood was derived thanks to the computations made available on the website of <https://chimneysweeponline.com/howood.htm> (consulted November 4th 2014).

<sup>101</sup> Robert Gordon. 2005. “Technology in Colonial North America” in *A Companion to American Technology* eds. Carroll Pursell, Malden, MA: Blackwell Publishing, p.25.

<sup>102</sup> Thomas L. Purvis. 1999. *Almanacs of American Life : Colonial America to 1763*. New York, NY: Facts on File, p.10.

<sup>103</sup> Gordon Whitney. 1996. *From Coastal Wilderness to Fruited Plain: A History of Environmental Change in Temperate North America from 1500 to the Present*. Cambridge: Cambridge University Press, p.210.

<sup>104</sup> Arthur H. Cole. 1970. “The Mystery of Fuel Wood Marketing in the United States”, *Business History Review*, Vol.44, No.3, p.340.

Hence, I have quintupled the per person consumption of firewood to 10 million BTU. This is closer to the estimates provided by the literature, but it is markedly lower to reflect a certain level of scarcity. As for the basket that excludes candles and lamp oil, I have attributed 20 MBTU to compensate for the elimination. In the respectable basket, I increased that quantity to 25 MBTU. Table 5 illustrates the different bare bones baskets while table 6 illustrates the Allen respectability basket in comparison with ours. Figures 14 and 15 illustrate the resulting baskets with the respectability baskets on the right axis.

**Table 5: Bare bones basket (1688 to 1740)**

	Allen, Murphy and Schneider	Bare bones basket 1a and 1b	Bare bones basket 2a and 2b	Bare bones basket 3a and 3b
Maize	165 Kg			
Oats		153.96 Kg		153.96 Kg
Wheat			169.96 Kg	
Peas	20 Kg	20 Kg	20 Kg	20 Kg
Meat	5 Kg	5 Kg	5 Kg	5 Kg
Butter	3 Kg	3 Kg	3 Kg	3 Kg
Soap	1.3 Kg	1.3 Kg	1.3 Kg	1.3 Kg
Cloth	3 meters	3 meters	3 meters	3 meters
Candles	1.3 Kg	1.3 Kg	1.3 Kg	
Lamp oil	1.3 liters	1.3 liters	1.3 liters	
Fuel	2 MBTU	15 MBTU	15 MBTU	20 MBTU

Note: Some readers might find strange that wheat, a more expensive item per calorie yielded, is only a few kilograms more to provide the same 1655 calories proposed by Allen, Murphy and Schneider. The reason for this difference is that the physical weight of a *minot* of oats was 34 pounds while a *minot* of wheat weighed 60 pounds. But a *minot* of wheat yielded 96,728 calories and one of oats yielded 60,509 calories. These statistics come are found in Christian Dessureault. 2005. "L'évolution de la productivité agricole dans la plaine de Montréal, 1852-1871: grandes et petites exploitations dans un système familial d'agriculture." *Social History/Histoire Sociale*, vol.38, no.76, p.265

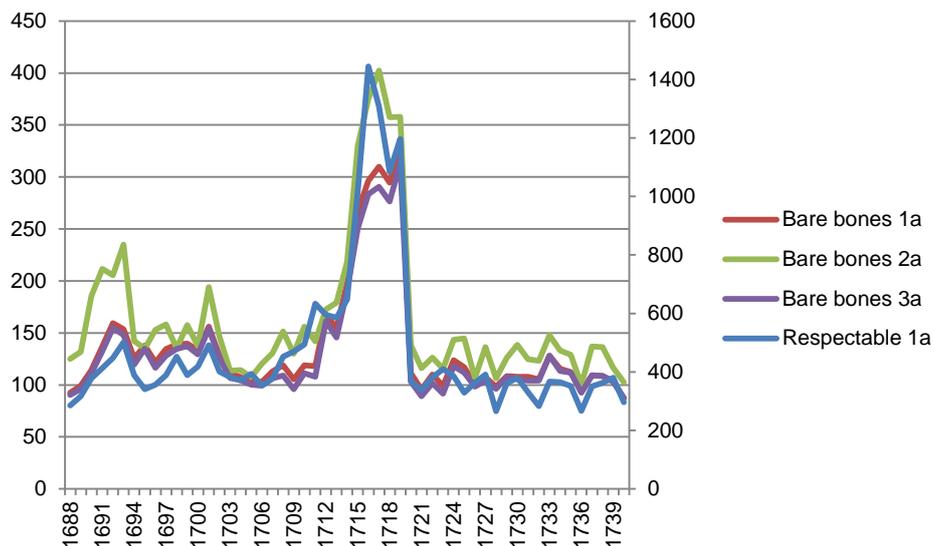
**Table 6: Respectability baskets (1688 to 1740)**

	Allen	Respectable Basket 1a and 1b
Bread (wheat)	234 kg	201.35 kg
Beans (peas)	52 l	39.45 kg
Meat (beef)	26 kg	26 kg
Butter	5.2 kg	10.4 kg
Cheese	5.2 kg	
Eggs	52 eggs	52 eggs
Wine		68.25 l
Beer	182 l	
Soap	2.6 kg	2.6 kg
Linen	5 m	5 m
Candles	2.6 kg	2.6 kg
Lamp oil	2.6 l	2.6 l

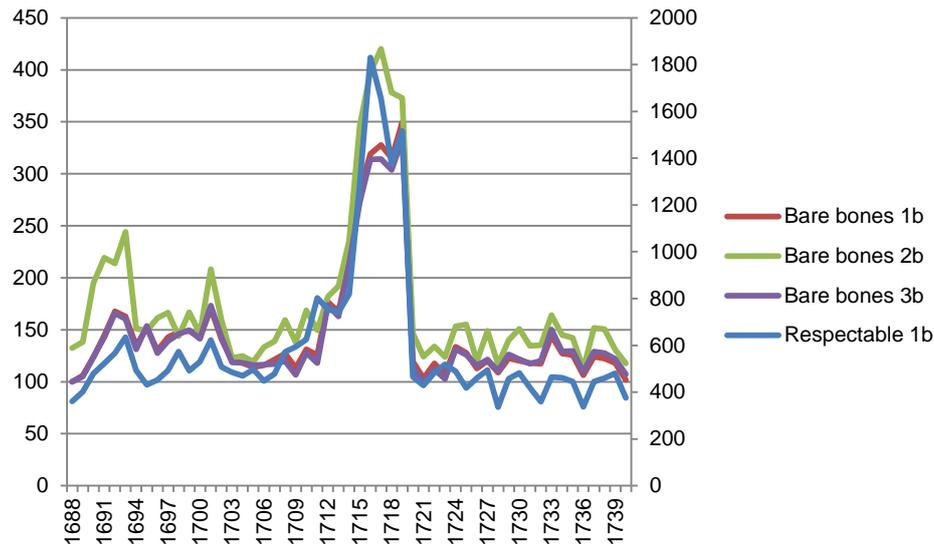
Fuel	5.0 MBTU	25 MBTU
------	----------	---------

.Note: In his work, Robert Allen replaced beer by 68.25 liters of wine. Robert C. Allen. 2009. *The British Industrial Revolution in Global Perspective*. Cambridge: Cambridge University, p.36. Note 1: Baskets 2a and 2b will simply be multiplied by 3.99 to include the premium of 5% per adult-equivalent in rent and the two additional children at 50% of the consumption of adults. Note 2: If households used only pine as firewood, the 3.33 cords per person would have provided 18.48 MBTU per person and if it was white oak, 30.22 MBTU would have been provided per person. I chose 25 MBTU because it was roughly between these two possibilities. Note 3 : Using the Dessureault (Christian Dessureault. 2005. "L'évolution de la productivité agricole dans la plaine de Montréal, 1852-1871: grandes et petites exploitations dans un système familial d'agriculture." *Social History/Histoire Sociale*, vol.38, no.76, p.265) statistics for calorie per type of grains in Canada, I obtained 161.34 kg if all the calories from wheat were captured. However, since François Rousseau reports that 24.8% of a *minot* was lost in processing from wheat to flour. Hence I boosted the 161.34 kg by 24.8% for the losses incurred in processing (François Rousseau. 1983. *L'œuvre de Chère en Nouvelle-France : Le régime des malades à l'hôtel-Dieu de Québec*. Québec Presses de l'Université Laval, p.395).

**Figure 14:** Baskets with white oak as source of fuel, respectable basket on the right-axis



**Figure 15:** Baskets with pine as source of fuel, respectable basket on the right-axis

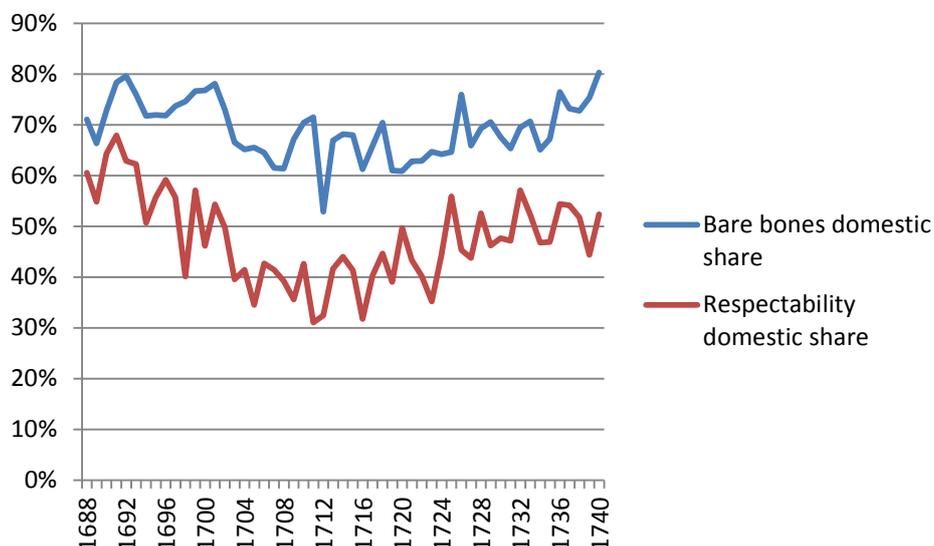


As one can see from figures 14 and 15, the importance given to the type of wood has an effect that increases the price of the respectability basket by 4.2% and the bare bones basket by 8.2% over the period from 1688 to 1740. Shifting between different forms of fuels thus seems to have an impact. However, shifting from one type of fuel to another does not seem to have any impact on the trend and direction of the costs of the baskets. Hence, the difference is mostly at a steady level. Between the different bare bones basket, those which had oats as the primary source of calories rather than wheat were 15.3% cheaper over the period from 1688 to 1740. However, the difference is steady – not a surprising observation given the relatively stable relation between oats and wheat prices displayed in figure 35. Finally, if households were to abandon candles and lamp oil and substituting them by firewood, the result is also not dramatically changed: over the entire period of 1688 to 1740, the basket without oil and candles is only 3% cheaper than the one that includes them. Overall, the bare bones baskets are resistant to very large specification change. Changing the types of goods used, the type of firewood and the amount of firewood does not seem to generate any substantial impacts on the movements and prices of the baskets.

However, the respectability baskets are a different matter. In the bare bones basket, only lamp oil, soap and cloth tended to be import products. In the respectability basket, there are more imported goods namely wine and all other imported products are found in greater quantity. The cost component of the total basket that comes from imported products is thusly quite important. One way to illustrate the importance of this point is to take the share of the total cost of the bare bones (1a) and respectability basket (1a) that was represented by expenditures on goods produced within the colony. The idea is that the difference between those two shares will illustrate how expensive it was to acquire the respectability basket given that it required more imports in order to be achieved. Figure 16 illustrates this result and as we can see, the total share of costs that stems from domestic goods is very often below 50% in the case of the respectability basket but rarely below 60% in the case of the bare bones basket. This hints at a first suggestion, on which we will elaborate later in section 7, by which the inhabitants of New France did not find very hard to meet basic needs which relied on domestically produced goods, but that increasing consumption into the realm of imported goods was

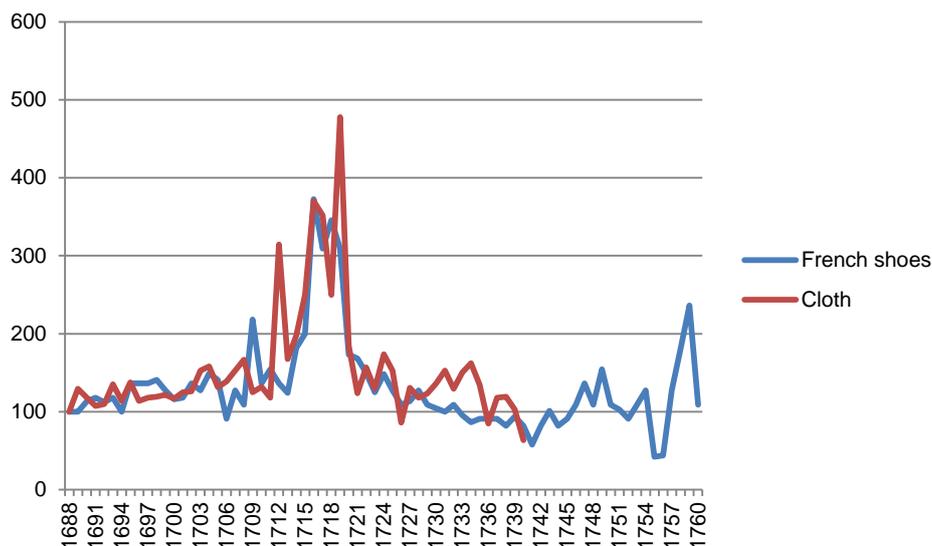
very expensive. This observation will be crucial into any attempt to compare the inhabitants of New France with those of France.

**Figure 16:** Share of the total costs of baskets that come from domestically produced goods



Finally, before we move on to section 6 it is necessary to mention that in order to extend comparisons of economic performance over time, another set of baskets must be constructed. Two key elements, cloth and candles, are only available sporadically and prevents us from establishing a welfare basket which includes those items. To minimize this problem, I have decided to create bare bones basket 1a and 1b as well as respectability basket 1a and 1b only that I have eliminated candles altogether and assumed that cloth followed the same price behaviour as imported shoes. Figure 17 illustrates how the price index (1688=100) for French shoes evolves relative to imported cloth. They evolve very closely together thereby justifying that indexing nominal prices of cloth to the price of shoes will provide a reasonable approximation. I fully understand that this is not optimal, but it does provide us with information necessary to obtain an image of what happened to living standards in Quebec in the 20 years from 1740 to 1760 in which all but 5 full years were marked by disastrous warfare (the siege of Louisbourg, the Acadian upheaval, the Conquest).

**Figure 17:** Price of French shoes and cloth (1688=100)



## Section 6: Welfare ratios New France over time

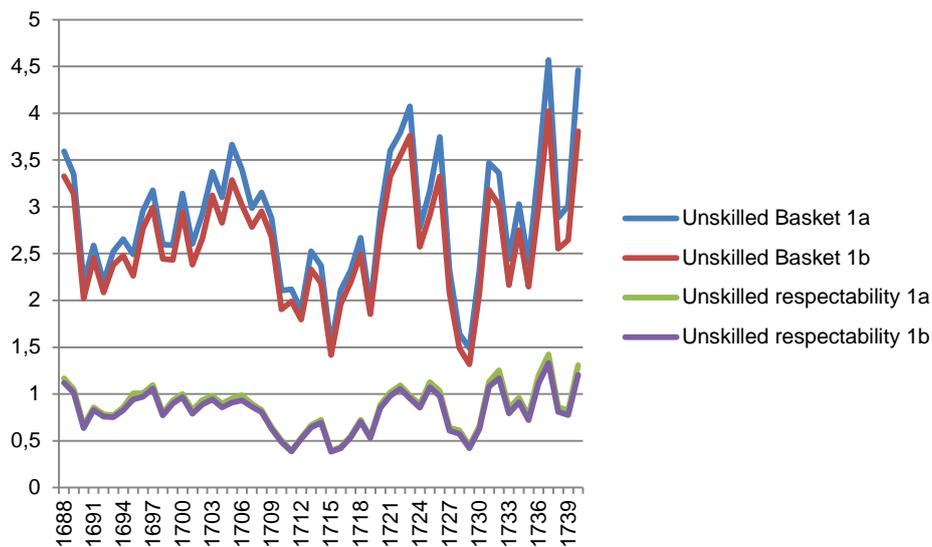
Combining the basket created in section 5 with the wages described in section 3, we can produce welfare ratios for New France at the time. Normally, some would tend to create figures of average wages by weighing the different observed wage rates by the occupational structure of the population.<sup>105</sup> However, the detailed censuses of occupations in New France do not allow making inferences that would be reliable with regards to the occupational structure. Consequently, we are forced to concentrate on unskilled workers. But this is not a costly problem since the vast majority of the population was unskilled. Moreover, as pointed out above, there were important scarcities of skilled workers in New France. Additionally, these are the wage rates used by Allen and his coauthors in their comparison of living standards in the Americas during the colonial era.<sup>106</sup> However, we will also present welfare ratios for the skilled workers like carpenters. The first test is to measure how living standards evolved over time in the colony of New France. The first approach used to compute the welfare ratio is merely to multiply the wage rate by 250 days and then dividing this by the cost of the two different baskets. Whenever the result of such a computation is above one, it means that at 250 days of work per year, the worker is able to acquire the full basket specified and has some income left to spend on other goods and services. Likewise, if the result is below one, the worker is unable at 250 days of work per year, to acquire such a basket. This first measure, seen in figure 18, will be used below as the first comparison of living standards across the Americas but it is mostly important to evaluate Quebec's economic performance over time. As one can see, the level observed with regards to the bare bones basket is generally high (above one except in two years over the period). However, the level with regards to the respectability is much lower. Both these measures of welfare exhibit no steady improvement throughout the period. On the other hand, figure 19 shows that this stagnation was not shared amongst the overall population. Skilled workers, approximated by carpenters' wages, had higher welfare

<sup>105</sup> Tomas Cvrcek. 2013. "Wages, Prices and Living Standards in the Habsburg Empire, 1827-1910", *Journal of Economic History*, Vol. 73, No.1, p.22.

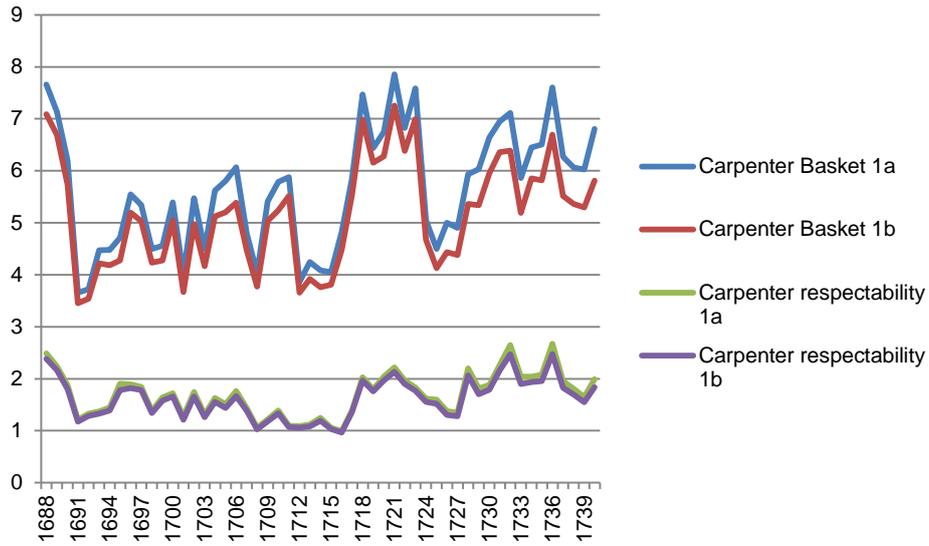
<sup>106</sup> Robert C. Allen, Tommy E. Murphy and Eric B. Schneider. 2012. "The Colonial Origins of the Divergence in the Americas: A Labor Market Approach", *Journal of Economic History*, Vol.72, No.4, pp.868.

ratios but they were also slightly increasing overtime. Figure 20 shows that past 1740, the living standards of unskilled workers are declining. Figure 21 shows the same thing but for carpenters. These latter two figures should be understood as extending our idea of living standards in the unstable period of 1740 to 1760. As one can see, living standards did not increase significantly – they remained at their plateau. However, there was a large collapse in the two wars that marked the two decades prior to the Conquest. Moreover, readers should observe that regardless of the basket assumption selected, the results are very similar. This reinforces the earlier claim that alternative specifications will not alter the results in any meaningful way.

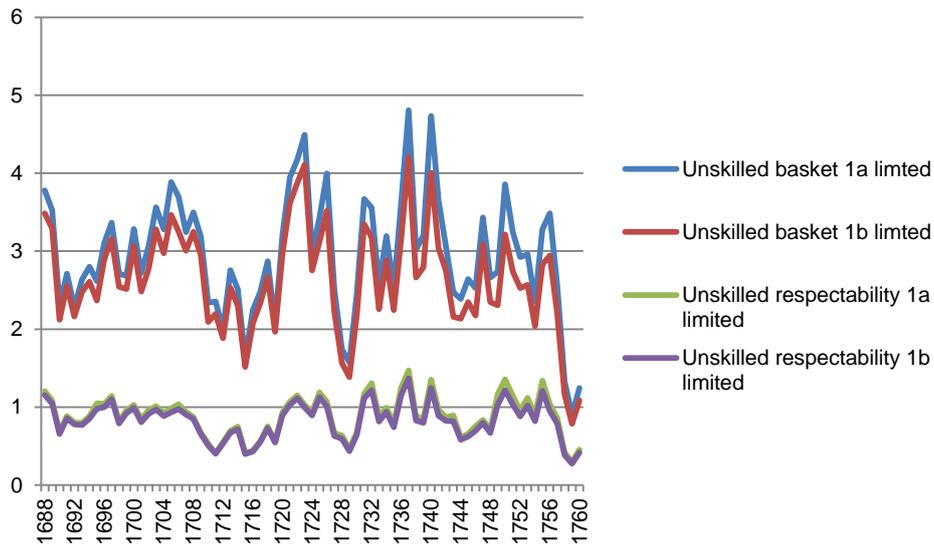
**Figure 18:** Welfare ratios at 250 days per year with both baskets (unskilled workers)



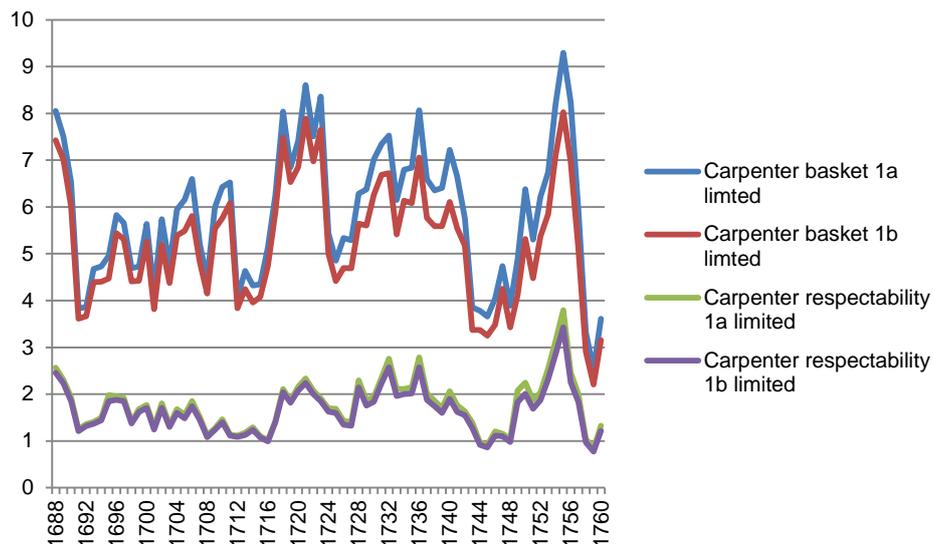
**Figure 19:** Welfare ratios at 250 days per year with both baskets (carpenters)



**Figure 20:** Welfare ratios at 250 days per year with both baskets (unskilled workers) using the limited basket (no candles; cloth interpolated)



**Figure 21:** Welfare ratios at 250 days per year with both baskets (carpenters) using the limited basket (no candles; cloth interpolated)



**Section 7: Comparing welfare ratios from 1688 to 1760**

The first step of our comparisons is to use the data made available by Robert Allen for Paris for the period of our interest.<sup>107</sup> Benchmarking the living standards of the inhabitants of New France against living standards in Paris is probably biasing the comparison against New France as Philip Hoffman has documented how the Paris basin was one of the most dynamic economic regions of France during the 18<sup>th</sup> century.<sup>108</sup> It is generally admitted that the inhabitants of France had a low standard of living during the 18<sup>th</sup> century. Robert Allen put the welfare ratios of building laborers, using a basket between the bare bones and respectable baskets, at 0.8 in 1700-49 (read: a laborer’s work year could buy him 80% of the respectable basket of goods) well below the level enjoyed in London.<sup>109</sup> Jacob Weisdorf and Paul Sharp also point to a similar conclusion with regards to the standing of France relative to Britain.<sup>110</sup> It is important to note that while it is normal to multiply total expenditures by 5% to add the importance of rent in total expenditures, rent was a rare phenomenon in New France as most households owned their own houses in rural areas and the sole expenditure related to housing were for maintenance, light and fuel. Although I did include it in the creation of the basket, this likely plays against the relative position of New France to France. Tables 7 and 8 show the resulting baskets for comparisons. Tables 9 and 10 present the resulting welfare ratios.

**Table 7: Comparison of bare bones basket for New France and France (1688 to 1760)**

	Bare bones basket 1a and	Bare bones basket 1a and 1b	Bare bones basket (full only)	Bare bones basket (limited –
--	--------------------------	-----------------------------	-------------------------------	------------------------------

<sup>107</sup> The data is available online on the website of Robert Allen : <http://www.nuffield.ox.ac.uk/People/sites/Allen/SiteAssets/Lists/Biography%20Sections/EditForm/Laborers.xls.xls>

<sup>108</sup> Philip Hoffman. 1996. *Growth in a Traditional Society: The French Countryside, 1450-1815*. Princeton, NJ: Princeton University Press.

<sup>109</sup> Robert C.Allen. 2001. “The great divergence in European wages and prices from the Middle Ages to the First World War” *Explorations in economic history*, Vol.38, No.4, pp.428.

<sup>110</sup> Paul Sharp and Jacob Weisdorf. 2012. “French revolution or industrial revolution? A note on the constrating experiences of England and France up to 1800”, *Cliometrica*, Vol.6, No.1, pp.79-88.

	1b for New France (full – only until 1740)	for New France (limited – goes to 1760)	until 1740) for France	goes to 1760) for France
Oats	153.96 Kg	153.96 Kg	153.96 Kg	153.96 Kg
Peas	20 Kg	20 Kg	20 Kg	20 Kg
Meat	5 Kg	5 Kg	5 Kg	5 Kg
Butter	3 Kg	3 Kg	3 Kg	3 Kg
Soap	1.3 Kg	1.3 Kg	1.3 Kg	1.3 Kg
Cloth	3 meters	3 meters	3 meters	3 meters
Candles	1.3 Kg		1.3 Kg	
Lamp oil	1.3 liters	1.3 liters	1.3 liters	1.3 liters
Fuel	15 MBTU	15 MBTU	2 MBTU	2 MBTU

Note: In Allen's dataset, oats for Paris is missing observations between 1700 and 1704; I have merely imputed the average values for 1699 and 1705. Additionally, observations were also noted in *setiers* which had to be converted in Kg. As for peas, there were also problems of missing data, I opted for a similar method as for oats but the gaps in data were much greater. Hence, the periods from 1696 to 1701 and from 1703 to 1728 provided non-moving datapoints.

**Table 8:** Comparison of respectability basket for New France and France (1688 to 1760)

	Respectability Basket for France (full – only until 1740)	Respectability Basket for France (limited – goes to 1760)	Respectability basket 1a and 1b for New France (full – only until 1740)	Respectability basket 1a and 1b for New France (limited – goes to 1760)
Bread (wheat)	201.35 kg	201.35 kg	201.35 kg	201.35 kg
Beans (peas)	39.45 kg	39.45 kg	39.45 kg	39.45 kg
Meat (beef)	26 kg	26 kg	26 kg	26 kg
Butter	5.2 kg	5.2 kg	10.4 kg	10.4 kg
Cheese	5.2 kg	5.2 kg		
Eggs	52 eggs	52 eggs	52 eggs	52 eggs
Wine	68.25 l	68.25 l	68.25 l	68.25 l
Soap	2.6 kg	2.6 kg	2.6 kg	2.6 kg
Linen	5 m	5 m	5 m	5 m
Candles	2.6 kg		2.6 kg	
Lamp oil	2.6 l	2.6 l	2.6 l	2.6 l
Fuel	5.0 MBTU	5.0 MBTU	25 MBTU	25 MBTU

**Table 9:** Welfare ratios in France and New France (bare bones basket 1b with Paris representing France) for unskilled workers

	France (Full)	New France (Full)	Ratio NF/F	France (Limited)	New France (Limited)	Ratio NF/F
1688-1698	2.20	2.58	117.3%	2.27	2.70	118.9%
1699-1708	2.29	2.67	116.6%	2.37	2.81	118.5%

1709-1718	2.23	2.48	111.2%	2.30	2.63	114.1%
1719-1728	1.76	2.76	157.2%	1.81	2.97	163.8%
1729-1740	1.72	2.72	158.6%	1.79	2.86	160.1%
<b>1688-1740</b>	<b>2.03</b>	<b>2.60</b>	<b>128.3%</b>	<b>2.10</b>	<b>2.76</b>	<b>131.5%</b>
1741-1750	-	-	-	1.94	2.56	131.8%
1751-1760	-	-	-	1.80	2.09	115.8%
<b>1740-1760</b>	-	-	-	<b>1.87</b>	<b>2.32</b>	<b>124.1%</b>
<b>1688-1760</b>	-	-	-	<b>2.04</b>	<b>2.64</b>	<b>129.6%</b>

Note : For the wage dataset, I have relied on Philip Hoffman's dataset - Available online at the Global Price and Income History Group, *Paris 1380-1870*, <http://gpih.ucdavis.edu/Datafilelist.htm>. Note: I have also produced this basket, in an attempt to do sensitivity analysis, with basket 1a (relying on White Oak), the overall conclusion is still the same. From 1688 to 1740, the NF/F ratio for the full basket is 139.5%. For 1688 to 1740 with the limited basket, it is 143.6% and for 1688 to 1760, it is 143.4%. Consequently, this table should be read as saying: *at the very least*, the inhabitants of New France were 29% richer from 1688 to 1760. At the *very best*, they were 43.4% richer. Readers should also remember that I am attributing a considerably larger fuel requirement for New France than for France. Any reduction in this requirement would widen New France's lead over France considerably.

**Table 10: Welfare ratios in France and New France (Respectability basket 1b with Paris representing France) for unskilled workers**

	France (Full)	New France (Full)	Ratio NF/F	France (Limited)	New France (Limited)	Ratio NF/F
1688-1698	0.82	0.88	107.2%	0.84	0.91	107.9%
1699-1708	1.02	0.87	85%	1.06	0.90	85.1%
1709-1718	0.95	0.77	79.8%	0.98	0.79	80.2%
1719-1728	0.73	0.84	115.8%	0.75	0.88	117.9%
1729-1740	0.72	0.91	126.9%	0.74	0.94	126.8%
<b>1688-1740</b>	<b>0.84</b>	<b>0.82</b>	<b>96.9%</b>	<b>0.87</b>	<b>0.85</b>	<b>97.5%</b>
1741-1750	-	-	-	0.82	0.81	99%
1751-1760	-	-	-	0.80	0.78	96.7%
<b>1740-1760</b>	-	-	-	<b>0.81</b>	<b>0.80</b>	<b>97.9%</b>
<b>1688-1760</b>	-	-	-	<b>0.85</b>	<b>0.83</b>	<b>97.6%</b>

Note: I have also produced this basket, in an attempt to do sensitivity analysis, with respectability basket 1a (relying on White Oak), the overall conclusion is still the same. From 1688 to 1740, the NF/F ratio for the full basket is 99.8%. For 1688 to 1740 with the limited basket, it is 100.6% and for 1688 to 1760, it is 101.6%. Consequently, this table should be read as saying: *at the very least*, the inhabitants of New France were 4% poorer richer from 1688 to 1760. At the *very best*, they were 1.6% richer. Readers should also remember that I am attributing a considerably larger fuel requirement for New France than for France. Any reduction in this requirement would lead to an important appreciation of New France's position relative to France.

The results seen in tables 9 and 10 tell us that the inhabitants of New France were very well able to meet their basic needs than the inhabitants of France. The differences in welfare ratios at the bare bones level of subsistence are stark and very clearly in favour of New France. Not only that, the advantage it possessed over France does not seem to evaporate over time. However, if it was easy to achieve a basic level of living standards, going further was harder relative to France. This can be seen in table 18 where the

welfare ratios at the respectability level are presented. As can be seen, the inhabitants of New France have a much smaller edge over their counterpart in France and only in some period. Overall, the inhabitants of France seem much more at ease in terms of acquiring items like wine, cloth and soap. This will be the subject of further elaboration later in this section. Skilled workers in New France also enjoyed a considerable edge over their counterparts in France with regards to the bare bones basket (table 11). That edge was substantially larger (51%) over the period from 1688 to 1760 than it was for unskilled workers (29%). However, like it was with the case with the “respectability basket” for unskilled workers, the gap is much smaller between France and New France for skilled workers when it comes to comparing respectable living standards (table 12). At the very least, the gap between France and New France was roughly 11% (relying on the assumption that Canadian pine was the firewood used) and at the very best, it was 17% (if we rely on the assumption that White oak was the firewood used). To test for sensitivity, I reduced the fuel requirement in all the baskets (from 15 to 5 MBTU in the bare bones baskets and from 25 to 15 MBTU in the respectable basket). By reducing the fuel standard to these levels for bare bones basket 1b, the 27% gap in favor of Canadian unskilled workers jumps to 49.4% while the gap for skilled workers jumps from 49.7% to 74.9%. However, these adjustments do not have any large effects on the respectability basket 1b. Indeed, the respectable welfare ratio of French-Canadians unskilled workers stood at 95% of the level observed in France before changes in fuel requirements and stood at 99.98% after the changes. The basic observation that achieving a basic level of living standards was easy but that achieving a more respectable living standard was more arduous thus seems resistant to specification changes.

**Table 11:** Welfare ratios in France and New France (Bare bones basket 1b with Paris representing France) for skilled workers

	France (Full)	New France (Full)	Ratio NF/F	France (Limited)	New France (Limited)	Ratio NF/F
1688-1698	3.95	4.88	123.3%	4.09	5.11	124.9%
1699-1708	3.30	4.63	140.5%	3.41	4.87	142.9%
1709-1718	3.88	4.69	120.7%	4.01	4.97	123.9%
1719-1728	3.17	5.61	176.8%	3.28	6.04	184.2%
1729-1740	2.90	5.80	199.7%	3.02	6.09	201.6%
<b>1688-1740</b>	<b>3.43</b>	<b>5.16</b>	<b>150.3%</b>	<b>3.55</b>	<b>5.47</b>	<b>154.1%</b>
1741-1750	-	-	-	3.21	4.13	128.7%

1751-1760	-	-	-	3.12	5.11	163.8%
<b>1740-1760</b>	-	-	-	3.17	4.62	146%
<b>1688-1760</b>	-	-	-	<b>3.45</b>	<b>5.24</b>	<b>152%</b>

Note: I have also produced this basket, in an attempt to do sensitivity analysis, with respectability basket 1a (relying on White Oak), the overall conclusion is still the same. From 1688 to 1740, the NF/F ratio for the full basket is 163.3%. For 1688 to 1740 with the limited basket, it is 168.3% and for 1688 to 1760, it is 168.2%. Consequently, this table should be read as saying: *at the very least*, the inhabitants of New France were 51.4% poorer richer from 1688 to 1760. At the *very best*, they were 68.2% richer. Readers should also remember that I am attributing a considerably larger fuel requirement for New France than for France. Any reduction in this requirement would lead to an important appreciation of New France's position relative to France. The skilled workers are represented by carpenters.

**Table 12: Welfare ratios in France and New France (Respectability basket 1b with Paris representing France) for skilled workers**

	France (Full)	New France (Full)	Ratio NF/F	France (Limited)	New France (Limited)	Ratio NF/F
1688-1698	1.47	1.66	112.6%	1.51	1.71	113.4%
1699-1708	1.47	1.52	102.8%	1.52	1.57	103%
1709-1718	1.66	1.42	85.6%	1.70	1.47	86.1%
1719-1728	1.31	1.72	131.3%	1.35	1.80	133.6%
1729-1740	1.22	1.94	159.3%	1.26	2.00	159.2%
<b>1688-1740</b>	<b>1.42</b>	<b>1.61</b>	<b>113.6%</b>	<b>1.46</b>	<b>1.67</b>	<b>114.3%</b>
1741-1750	-	-	-	1.36	1.33	97.4%
1751-1760	-	-	-	1.40	1.92	137.6%
<b>1740-1760</b>	-	-	-	1.38	1.62	117.7%
<b>1688-1760</b>	-	-	-	<b>1.44</b>	<b>1.66</b>	<b>115.2%</b>

Note: In New France, the skilled workers are still being represented by the carpenters. However, for Paris, I have relied on Robert Allen's series for masons. I have also produced this basket, in an attempt to do sensitivity analysis, with respectability basket 1a (relying on White Oak), the overall conclusion is still the same. From 1688 to 1740, the NF/F ratio for the full basket is 17%. For 1688 to 1740 with the limited basket, it is 18% and for 1688 to 1760, it is 20%. Consequently, this table should be read as saying: *at the very least*, the inhabitants of New France were 11% poorer richer from 1688 to 1760. At the *very best*, they were 17 % richer. Readers should also remember that I am attributing a considerably larger fuel requirement for New France than for France. Any reduction in this requirement would lead to an important appreciation of New France's position relative to France. The skilled workers are represented by carpenters.

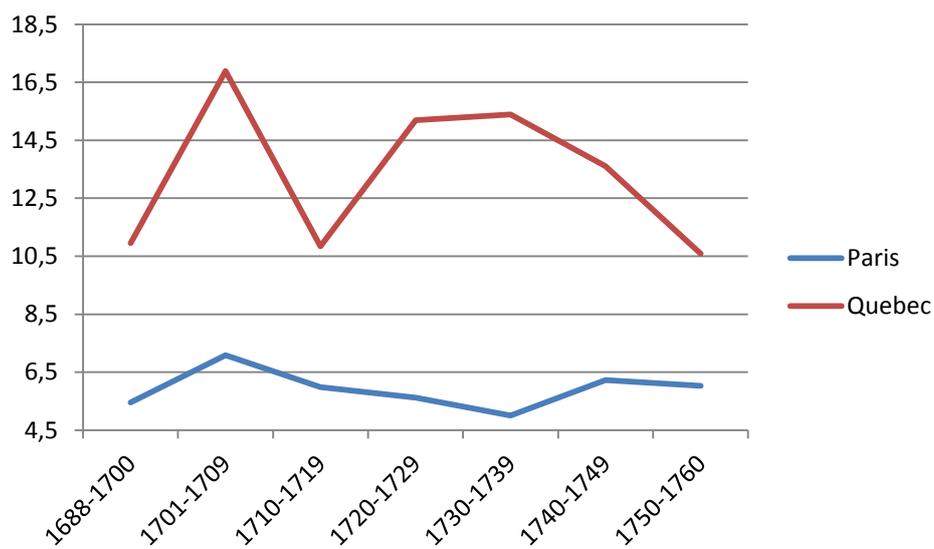
The gap between France and New France is likely appreciably larger than those presented in tables 9 and 10. One of the main reasons for this refers to our discussion in section 4.4 of the current thesis: the families of New France were *appreciably* larger than they were in France – roughly six members per household. By comparison, Jean-Louis Flandrin reports that the average French household had 5.05 members<sup>111</sup> Its worth noting that this difference in family size is in-existent between New France and New England as families in both areas were roughly similar in size.<sup>112</sup> The reason that these differences would increase the lead of New France relative to France is that economies of scale in heating and fuel would have meant that the total costs of the

<sup>111</sup> Jean-Louis Flandrin. 1979. *Family in Former Times: Kinship, Household and Sexuality*. Cambridge: Cambridge University Press, p. 55.

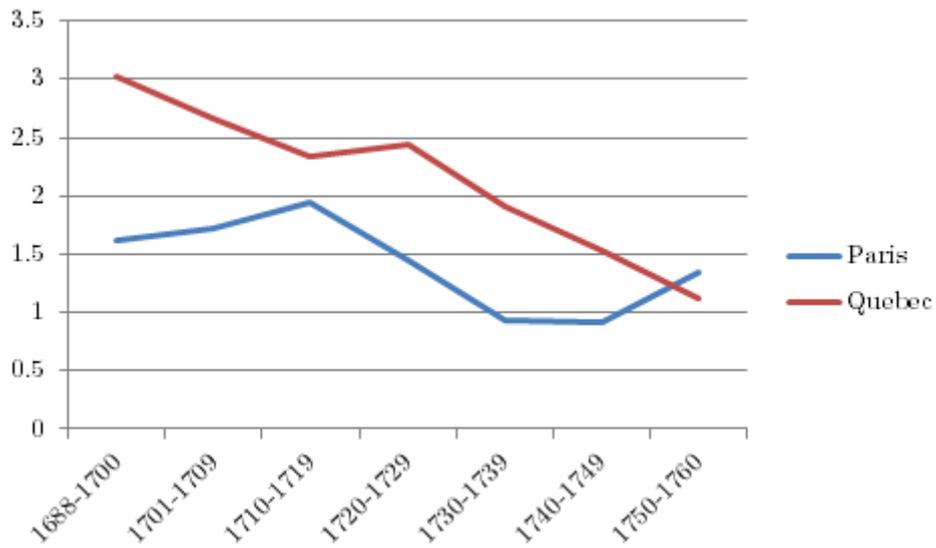
<sup>112</sup> *Ibid*, p.55.

basket of goods would have proportionally less than the size of the household. Moreover, this would likely have been compensated by the ability of older children to contribute to family income and hence increase incomes more than the cost of the basket. Finally, it is also of importance to highlight the key point of the tables above: each day of work yielded larger quantities of domestically produced goods (see figure 22 and 23 for wheat and firewood as examples) than in France but fewer imported goods like wine (figure 24) or cloth (figure 25).

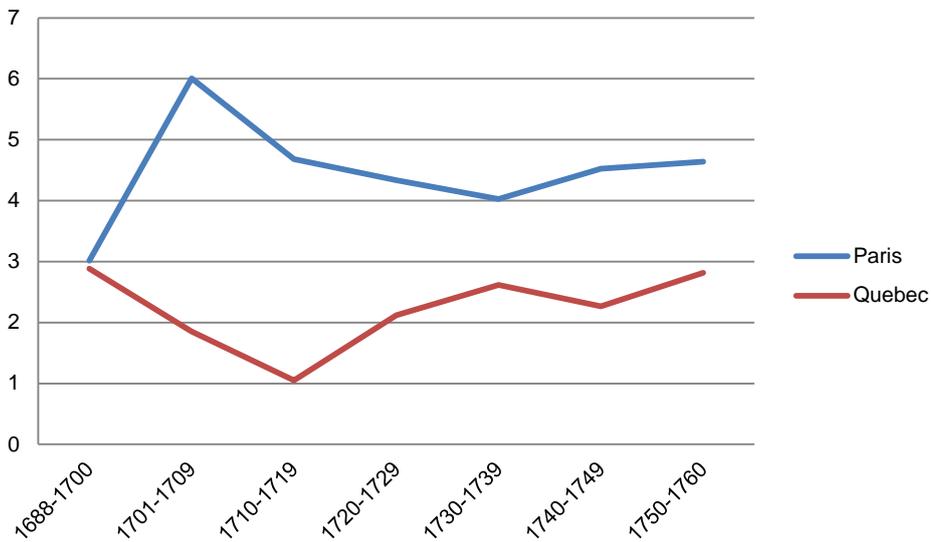
**Figure 22:** Quantity of wheat (kg) that could be purchased with one day's work in Paris and Quebec.



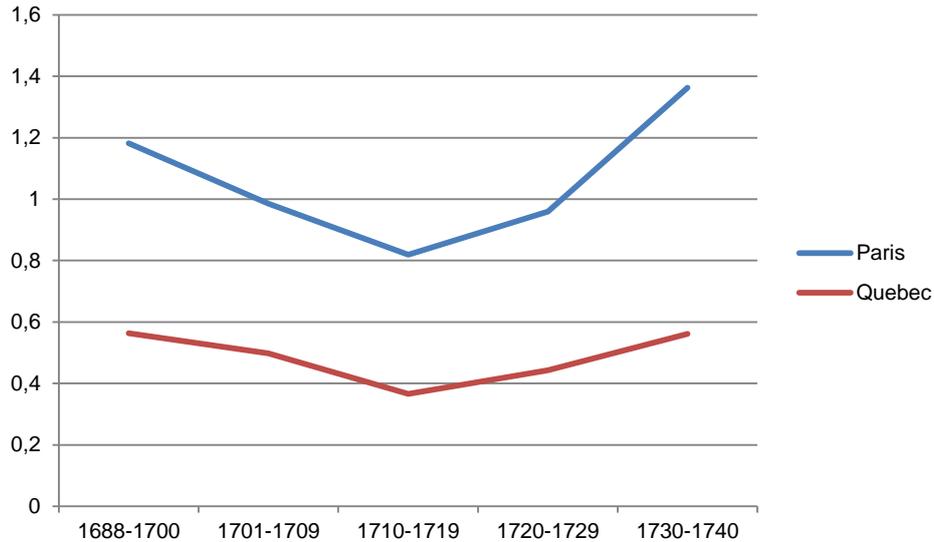
**Figure 23:** Quantity of firewood (MBTU) that could be purchased with one day's work in Paris and Quebec.



**Figure 24:** Quantity of wine (liters) that could be purchased with one day's work in Paris and Quebec.



**Figure 25:** Quantity of cloth (meters) that could be purchased with one day's work in Paris and Quebec.



The comparisons with the American colonies are less flattering for New France than the comparison with France. Using the same bare bones basket as Allen and his co-authors shows that New France had bare bones living standards lagging slightly behind those experienced in Boston but were markedly below those observed in Philadelphia.<sup>113</sup> These regions are easily comparable, especially Boston and Quebec given the similar climate. There are no reasons to find large differences in diets and calories consumption. For example, John Komlos has found that slaves in colonial America consumed roughly 2800 calories per day – a “low intake by subsequent standards reached in America”.<sup>114</sup> Sarah McMahon on the other hand used wills to see the average food allowance provided to widows and found estimates ranging between 2386 and 2831 calories per day between the periods of 1654-1698 to 1740-1759.<sup>115</sup> James Lemon reports that Pennsylvania between 1740 and 1790, the daily intake stood at 2877 calories.<sup>116</sup> These reports are very similar to the ones discussed above for New France. Additionally, firewood consumption is also similar in terms of cords burnt per year. Moreover, it should be pointed out that Allen et al. designed their basket to make it comparable across societies in the Americas. Using their basket seems warranted. The results can be seen in table 13. However, readers should be aware that when Allen et al. relied on Gloria Main’s work for wages in New England, they unexplainably used the wage rates for farm boys. I thought it was preferable, in order to make Quebec, Boston

<sup>113</sup> The wage rates for New England come from Gloria Main. 1994. “Gender, Work and Wages in Colonial New England”, *William & Mary Quarterly*, Vol.51, No.1, p. 48. The wage rates for Philadelphia come from Gary B. Nash. 1979. *Urban Crucible: Social Change, Political Consciousness, and the Origins of the American Revolution*. Cambridge, MA: Harvard University Press, p.392-394. As for the bare bones baskets, they are available online – see: Robert Allen. 2013. *Allen subsistence bundle costs, colonial America versus England, as of 2013*. Available online at [http://gpih.ucdavis.edu/files/Allen\\_colonial\\_CPIs\\_Am\\_vs\\_Eng\\_2013.xlsx](http://gpih.ucdavis.edu/files/Allen_colonial_CPIs_Am_vs_Eng_2013.xlsx).

<sup>114</sup> John Komlos. 1994. “The height of Runaway Slaves in Colonial America” in *Stature, Living Standards and Economic Development: Essays in Anthropometric history* eds. John Komlos, Chicago : University of Chicago Press, pp. 93-116.

<sup>115</sup> Sarah McMahon. 1985. “A comfortable subsistence: the changing composition of diet in Rural New England”, *William & Mary Quarterly*, Vol. 42, No.1, pp.26-65.

<sup>116</sup> James Lemon. 1972. *The Best Poor Man’s Country: a Geographical Study of Early Southeastern Pennsylvania*. Washington D.C.: Johns Hopkins University Press, p.155.

and Philadelphia as comparable as possible, to use the adult wage rates reported by Main.

**Table 13:** Welfare ratios in Boston, Philadelphia and New France (bare bones basket 1b) for unskilled workers

	<b>Boston</b>	<b>Philadelphia</b>	<b>New France (Full)</b>	<b>New France (Limited)</b>
1688-1698	3.69	-	3.01	-
1699-1708	3.80	-	3.48	-
1709-1718	3.27	-	2.48	-
1719-1728	3.94	5.14	3.37	-
1729-1740	3.87	5.06	3.65	-
<b>1688-1740</b>	<b>3.72</b>	<b>5.09</b>	<b>3.21</b>	-
1741-1750	3.73	4.58	-	3.64
1751-1760	3.36	5.44	-	3.04
<b>1740-1760</b>	<b>3.60</b>	<b>5.03</b>	-	<b>3.47</b>
	<b>Ratio NF Full/Boston</b>	<b>Ratio NF Full/Philadelphia</b>	<b>Ratio NF Limited/Boston</b>	<b>Ratio NF Limited/Philadelphia</b>
1688-1698	81.6%	-	-	-
1699-1708	91.6%	-	-	-
1709-1718	75.7%	-	-	-
1719-1728	85.6%	65.6%	-	-
1729-1740	94.4%	72.1%	-	-
<b>1688-1740</b>	<b>86.4%</b>	<b>63%</b>	-	-
1741-1750	-	-	97.4%	79.4%
1751-1760	-	-	90.5%	55.8%
<b>1740-1760</b>	-	-	<b>96.5%</b>	<b>69%</b>

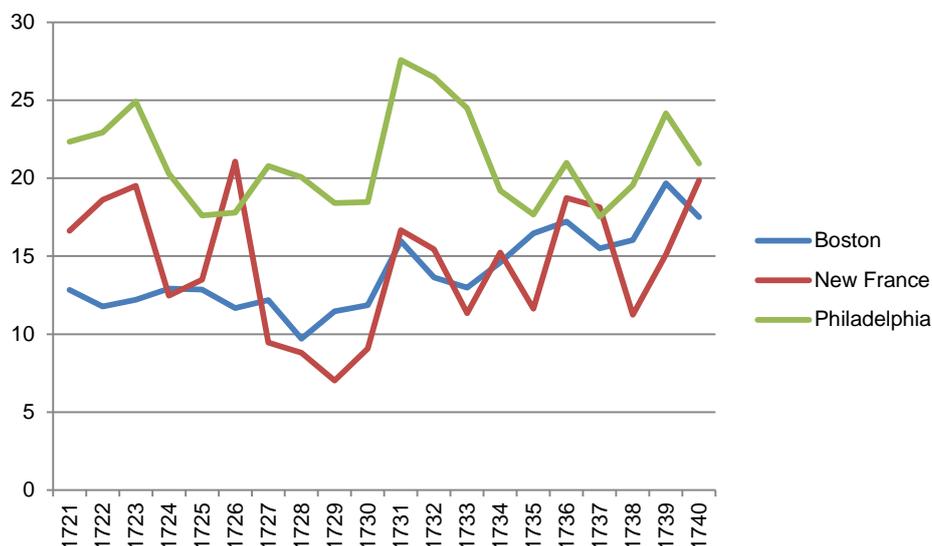
Note: To make the baskets comparable, I had to revert to 2 MBTU per basket in the case of New France since the original data advanced by Allen et al. is not available. Regardless, this would not have changed the results given that if the harsh winters of Quebec required an increase in the fuel consumption standard, Boston would have required similar upward adjustments. As for Philadelphia, the lead it enjoyed over Quebec would probably be widened if we were to compensate for the differential in consumption in the two regions (Quebec requiring a much larger increase than Philadelphia). Readers should also note that shifting between basket 1a and basket 1b (assuming that the firewood consumption was composed white oak rather than pine) does not alter the gap in any significant way.

As one can see, Quebec is poorer in terms of the bare bones basket of goods in comparison to the main British colonies of interest in North America at the time (the most interesting one is Boston as it is meant to represent New England which shares the greatest similarities with New France). However, the gap with New England is relatively small and is thus very sensitive to specification changes. One way to see this is to look at the grain-wage – the amount of grains that daily wages could buy.<sup>117</sup> Figure 26 below shows that the inhabitants of New France were able to acquire quantities of

<sup>117</sup> This approach is used notably by Stephen Broadberry and Bishnupriya Gupta. 2006. “The Early Modern Great Divergence : Wages, Prices and Economic Development in Europe and Asia”, *Economic History Review*, Vol. 59, no.1, pp.2-31.

wheat roughly equivalent to those observed in Philadelphia and Boston. Figure 26 reinforces this author's belief that the bare bones basket is a necessary but not a sufficient indicator of living standards across the Americas.

**Figure 26:** Kg of wheat that could be purchased with one day's wages in Boston, New France and Philadelphia.



If we concentrate on imported and manufactured goods, we can see that there is an appreciable gap in living standards between Quebec and Boston and an even larger gap between Quebec and Philadelphia. The method used to observe this gap consists of dividing wages by the price per unit of different goods which are manufactured. With regards to the gap between Boston and Quebec, I have used price data collected in the work of William B. Weedon.<sup>118</sup> In his late 19<sup>th</sup> century work, Weedon assembled a dataset of scattered prices – most of which are not continuous – that can be combined with Gloria Main's wage data<sup>119</sup> to collect the time needed to buy these commodities. In the case of Philadelphia, the wages will be derived from the work of Gary Nash<sup>120</sup> and combined with the price data of Pennsylvania prices available at the Global Price and Income History Group.<sup>121</sup> The key commodities of interest are similar to those used in the case of France and need to be internationally traded or be the result of the non-agricultural sector within the colonies. Amongst these commodities are rum, sugar, salt, tobacco, cloth and codfish.

These have been selected for the reason that they were either imported into the colonies or were produced within the colony and tended to be exported on foreign markets. This implies that prices for these internationally traded goods would have

<sup>118</sup> William Babcock Weedon. 1890 [2011]. *Economic and Social History of New England, 1620-1789*. London: British Library Historical Print Editions, pp. 887-903.

<sup>119</sup> Gloria Main. 1994. "Gender, Work and Wages in Colonial New England", *William & Mary Quarterly*, Vol.51, No.1, p. 48.

<sup>120</sup> Gary B. Nash. 1979. *Urban Crucible: Social Change, Political Consciousness, and the Origins of the American Revolution*. Cambridge, MA: Harvard University Press, p.392-394. Note: The value of 1727 was used as wages for all years from 1720 to 1726. All other gaps were interpolated using the average of the two closest years between which the missing years were situated.

<sup>121</sup> Available online at the Global Price and Income History Group, *Pennsylvania spliced series, 1720-1896*, <http://gpih.ucdavis.edu/Datafilelist.htm>

been roughly similar while non-traded goods would have had lower prices in less productive economies (this discussion will be expanded upon later in my thesis).<sup>122</sup> Rum and sugar, in both the American colonies and in Canada, tended to be imported from the Caribbean region.<sup>123</sup> Salt tended to be an imported good as well, especially in the case of New France where it was required both for food conservation but also as an input for the production of salted cod to be exported in France.<sup>124</sup> Cloth also tended to be imported, although households could fabricate clothing with flax and wool.

As for tobacco and codfish, these were products whose supply would have depended on productivity elsewhere in the economy. All of these items, unlike rum, sugar and salt, could be produced locally. However, their production required sacrifices in terms of production elsewhere – namely agriculture – thanks to the reallocation of factor inputs. Output of these sectors would have depended in large part upon productivity improvement in other agriculture. If labor and capital employed in agriculture became more productive, this would have liberated resources for exports-oriented industries.<sup>125</sup> Tobacco was produced locally in both New France and in the mid-Atlantic colonies, but in the latter case it was an export product as well as a locally consumed product. The inhabitants of New France, although production in the 1734 census reached 4.4 pounds per capita<sup>126</sup>, did not export tobacco elsewhere. With regards to codfish, New France did develop an export industry in that area but it was nowhere as large and extensive as that developed in the Northern American colonies.<sup>127</sup>

For all of these products, the wages of New France commanded very little quantities compared with the quantities observed in Boston and Philadelphia. Figure 27 illustrates how many liters could be acquired in all years when Boston yielded price observations for rum. While the inhabitants of Philadelphia and Boston were able to acquire roughly similar quantities of rum at the level of wages observed, the inhabitants of New France lagged considerably behind up to 1747. If we expand, in figure 28, to continuous comparisons between Philadelphia and New France, we can see that this reality extends up to 1760. Figure 29 confirms this judgement with regards to sugar, but only with Philadelphia. It is hard to obtain a reliable image of sugar prices in Boston because William Weedon did not specify clearly if he was reported prices of brown or white sugar, whose prices were considerably different. Consequently, it is hard for us to compare New France with New England for sugar. However, figure 29 confirms that the wages of New France commanded much smaller quantities of sugar (brown sugar) than did wages in Philadelphia. Figure 30 shows that a similar logic applied in comparisons

---

<sup>122</sup> Bela Balassa. 1964. "The Purchasing-Power Parity Doctrine: A Reappraisal", *Journal of Political Economy*, Vol. 72, no.6, pp.584-596.

<sup>123</sup> John J. McCusker. 1970. "The Rum Trade and the Balance of Payments of the Thirteen Continental Colonies", *Journal of Economic History*, Vol.30, No.1, pp.244-247; Jacques Mathieu. 1972. "La balance commerciale : Nouvelle-France – Antilles au XVIIIe siècle", *Revue d'histoire de l'Amérique française*, Vol.25, no.4, pp.465-497.

<sup>124</sup> Bernard Audet. 2001. *Se Nourrir au Quotidien en Nouvelle-France*. Sainte-Foy : Les Éditions GID.

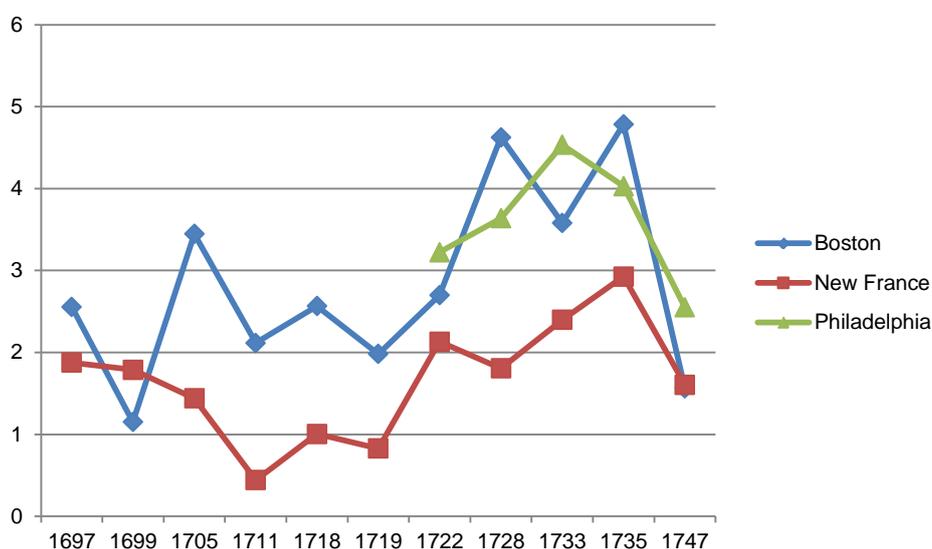
<sup>125</sup> This supply-side view is best expounded in the work of Morris Altman. 2003. "Staple theory and export-led growth: constructing differential growth", *Australian Economic History Review*, Vol.43, No.3, pp.230-255 and in the work of Irving Kravis. 1970. "Trade as a handmaiden of growth: Similarities between the nineteenth and twentieth centuries." *Economic Journal*, Vol.80, no.323, pp.850-872.

<sup>126</sup> Department of Agriculture of Canada. 1874. *Censuses of Canada, 1665 to 1871, Vol. 4*. Ottawa: Department of Agriculture, p.57.

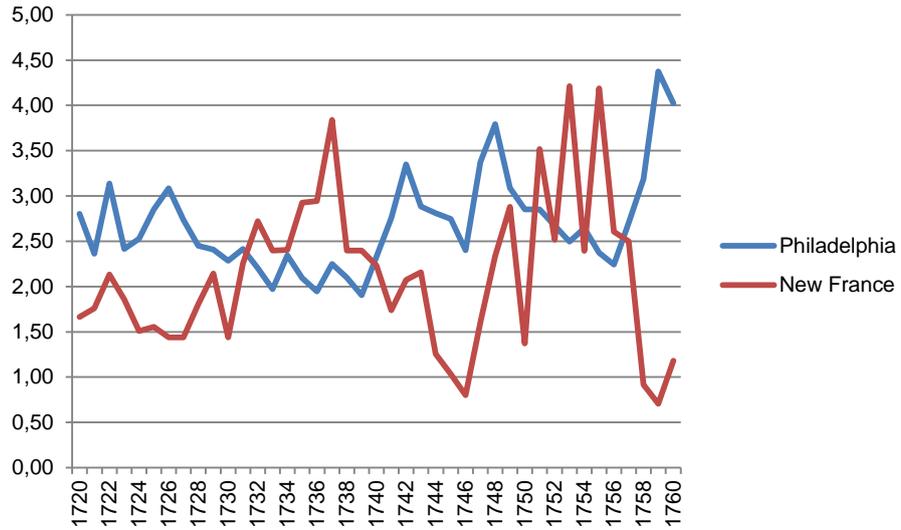
<sup>127</sup> James Lydon. 2008. *Fish and Flour for Gold, 1600-1800: Southern Europe in the Colonial Balance of Payments*. Philadelphia, PA: Library Company of Philadelphia.

of purchasing power of wages in terms of salt in Boston, New France and Philadelphia. Figure 31 concentrates on the comparison between Philadelphia and New France. As one can see, the same is true for salt as for sugar: New France inhabitants have a harder time acquiring those goods than the inhabitants of the American colonies. Finally, figure 32 compares cloth in New France and Philadelphia (no moving cloth prices exist for Boston) and shows that the inhabitants of New France also had a harder time acquiring clothing items. However, it should be noted that this is not the most robust of the figures computing wages in terms of meter of cloth. First of all, the data past 1740 in New France was interpolated for the welfare baskets on the basis of how imported French shoes prices moved. Secondly, the only comparison of clothing in Philadelphia that was available concerned cotton which was not imported from Europe as was the case for clothing in France but imported from other American colonies. Regardless, the gap is sufficiently large to claim that the inhabitants of New France had a harder time acquiring cloth than the inhabitants of Philadelphia.

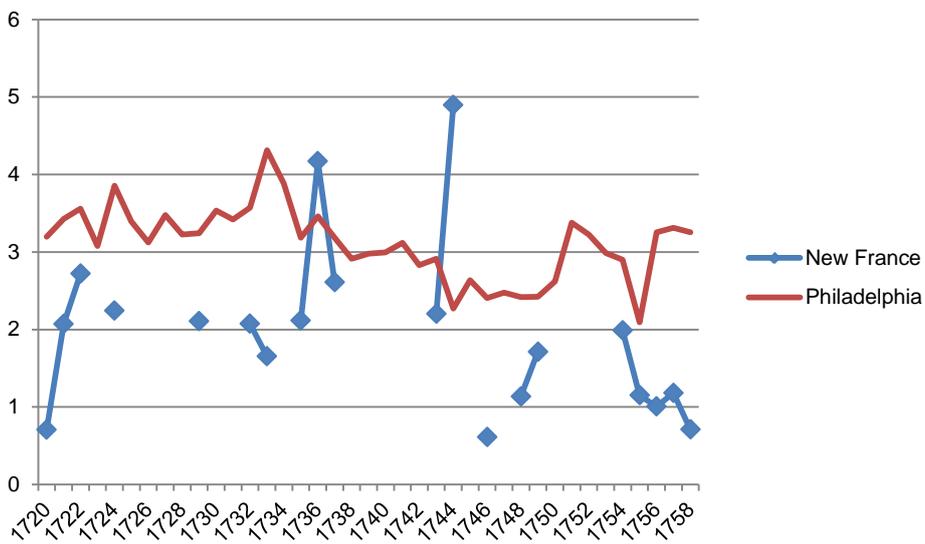
**Figure 28:** Liters of rum that could be purchased with one day's wages New France and Philadelphia.



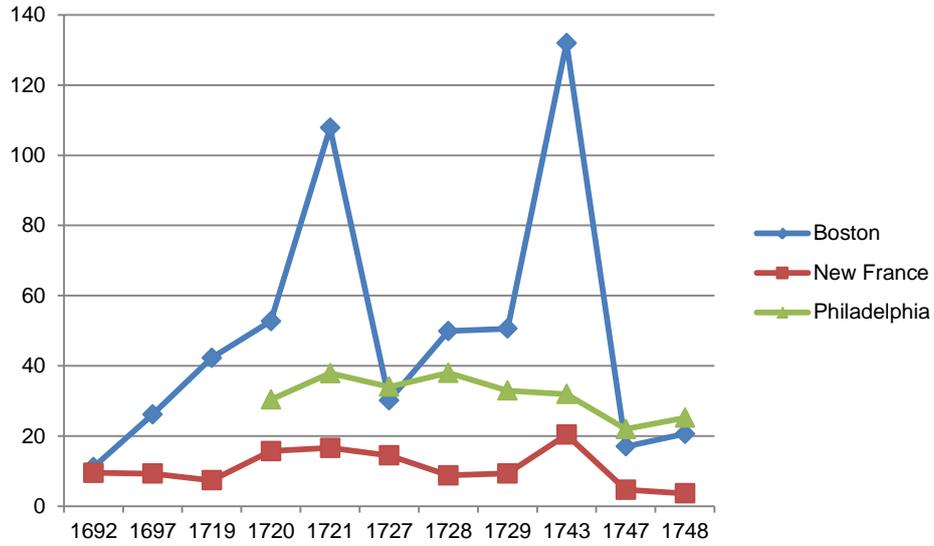
**Figure 29:** Liters of rum that could be purchased with one day's wages New France and Philadelphia.



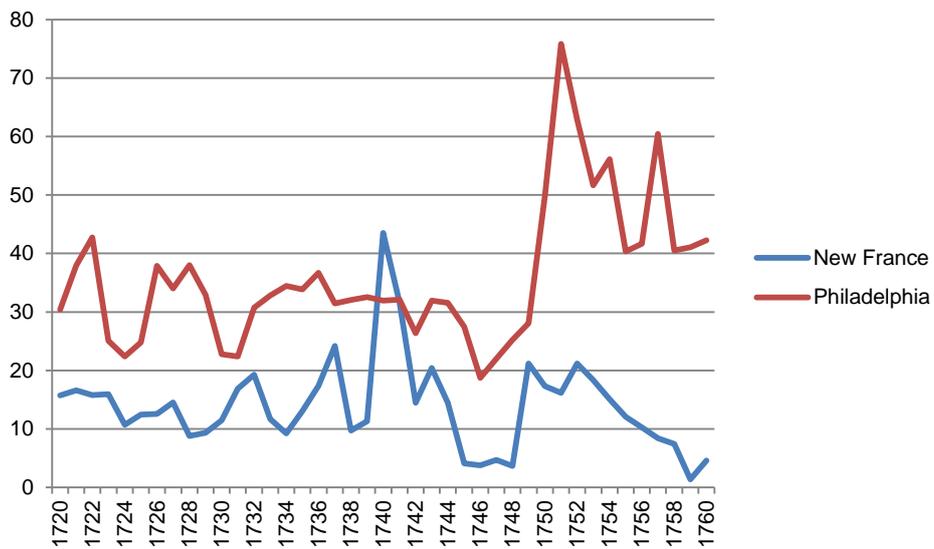
**Figure 30:** Kilo of sugar that could be purchased with one day's wages New France and Philadelphia.



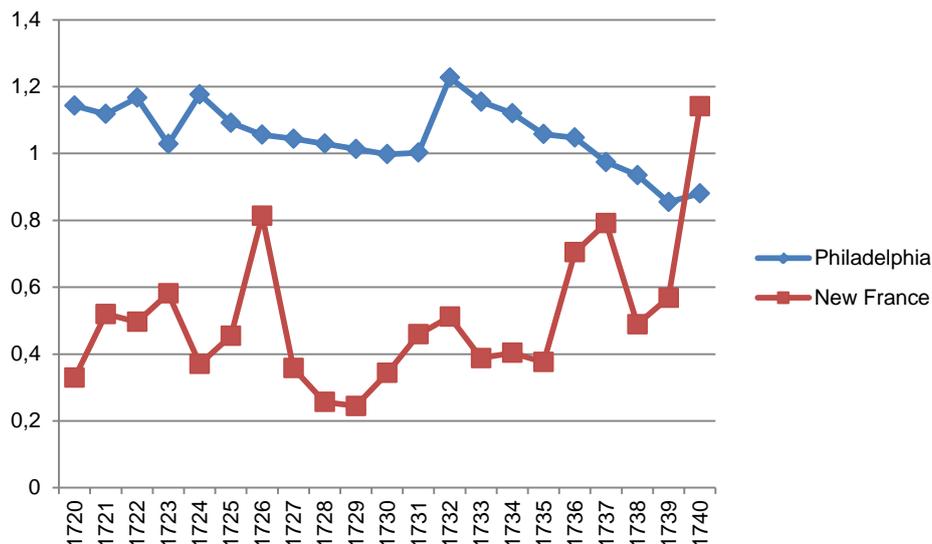
**Figure 31:** Kilo of salt that could be purchased with one day's wages Boston, New France and Philadelphia.



**Figure 32:** Kilo of salt that could be purchased with one day's wages New France and Philadelphia.



**Figure 33:** Meters of cloth/cotton that could be purchased with one day's wages New France and Philadelphia.

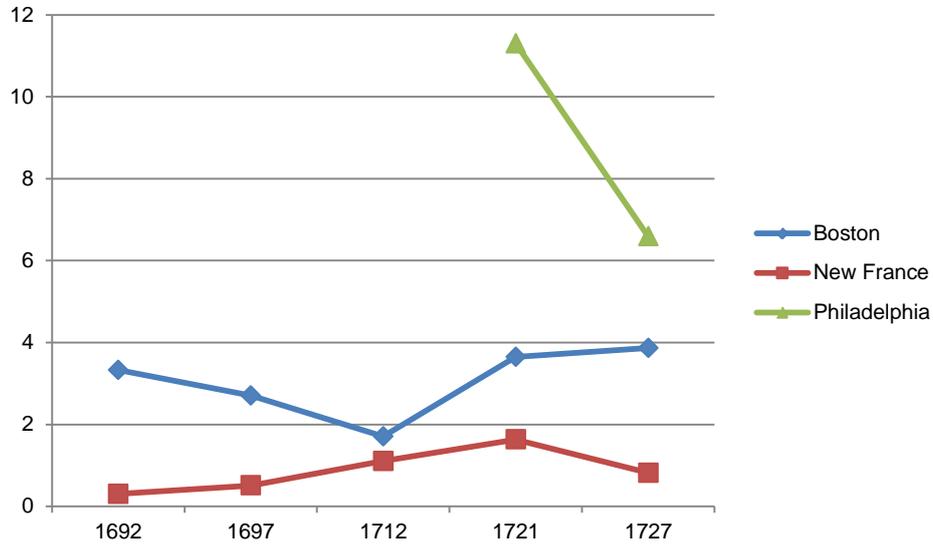


As for manufactured goods that could be produced domestically, the gap is similar if not larger. As mentioned above, tobacco was grown in the American colonies – mainly the middle and southern colonies – but it could also be grown in New France where the census of 1734 reported an appreciable production of roughly 2 kg per person. Still, when we compute the quantity of tobacco that could be acquired in New France, Boston and Philadelphia with one day wages, we can see that the gap is quite considerable. Figure 34 shows that one day's wage in Philadelphia acquired more than 6 kilos of tobacco while Boston daily wages commanded between 2 and 4 kilos a day. In comparison, New France never commanded more than 1.6 kilos a day. Figure 35 shows a similar comparison over the more continuous Philadelphia series from 1720 to 1740 (there are no continuous tobacco prices for New France past 1740). Even the lowest point of the tobacco-wages of Philadelphia (3.4 kilos/day) is higher than the highest point of the tobacco-wages of New France (2.63 kilos/day). The results for codfish are the most damning. Here, there are abundant datasets of prices that exist from the American colonies that can allow us to compare with our own Quebec codfish prices.<sup>128</sup> Moreover, the prices series are much more continuous than in the case of the other commodities. In Boston, the quantity of cod (measured in kg) that could be bought with a day's work steadily increased between 1688 and 1760. Meanwhile in New France, that figure progressively declined and reached a low plateau during the mid-18<sup>th</sup> century. This is quite an important observation given that during the late 17<sup>th</sup> century, the two

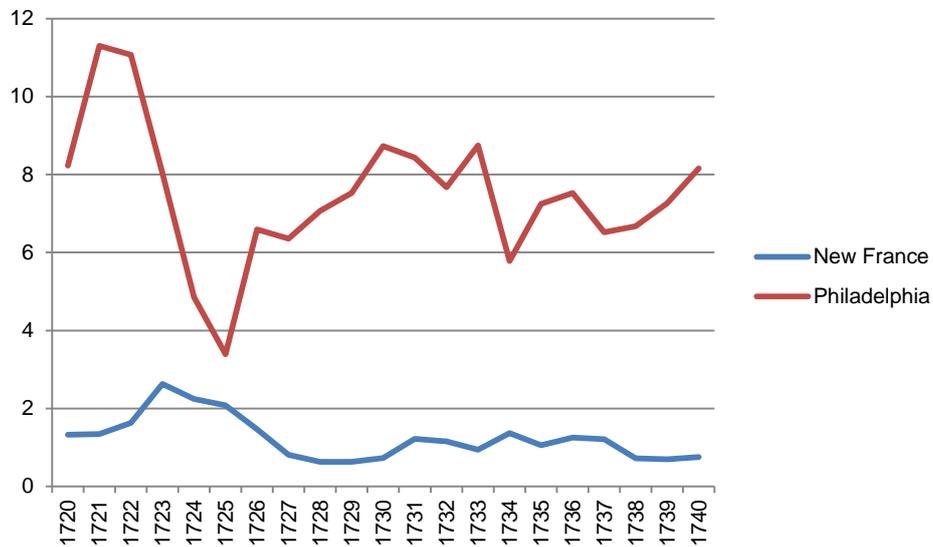
<sup>128</sup> Those interested in discussions of those price series can consult the following articles: Ruth Crandall. 1934. "Wholesale Commodity Prices in Boston during the Eighteenth Century", *Review of Economics and Statistics*, Vol.16, No.6, pp.117-128; Daniel Vickers. 1996. "The Price of Fish: A Price Index for Cod, 1505-1892", *Acadiensis*, Vol. 25, No. 2, pp.92-104; Christopher Magra. 2006. *The New England Cod Fishing Industry and Maritime Dimensions of the American Revolution*. Pittsburgh, PA, PhD Thesis, Department of History, University of Pittsburgh. Note : It should be underlined that the prices I used are also available online at the Global Price and Income History Group under the title *Massachusetts, 1630-1883* at the following address : [http://gpih.ucdavis.edu/files/Massachusetts\\_1630-1883a.xls](http://gpih.ucdavis.edu/files/Massachusetts_1630-1883a.xls) (consulted September 11th 2014). The category of "merchantable cod" here refers to dried cod after transformation (net weight after evisceration). To make the price series comparable, I used the conversions proposed by François Rousseau.1983. *L'Oeuvre de Chère en Nouvelle-France: Le Régime des Malades à l'Hôtel-Dieu de Québec*. Québec : Presses de l'Université Laval, p.395. According to Rousseau, one *poignée* of codfish (2 cods) when dried and eviscerated weighed 1.02 kg (510 g per fish). It according to his specifications that I enacted the conversions.

colonies were very similar in this regard as figure 36 shows. The existence of a living standards gap between New France and New England is broadly confirmed.

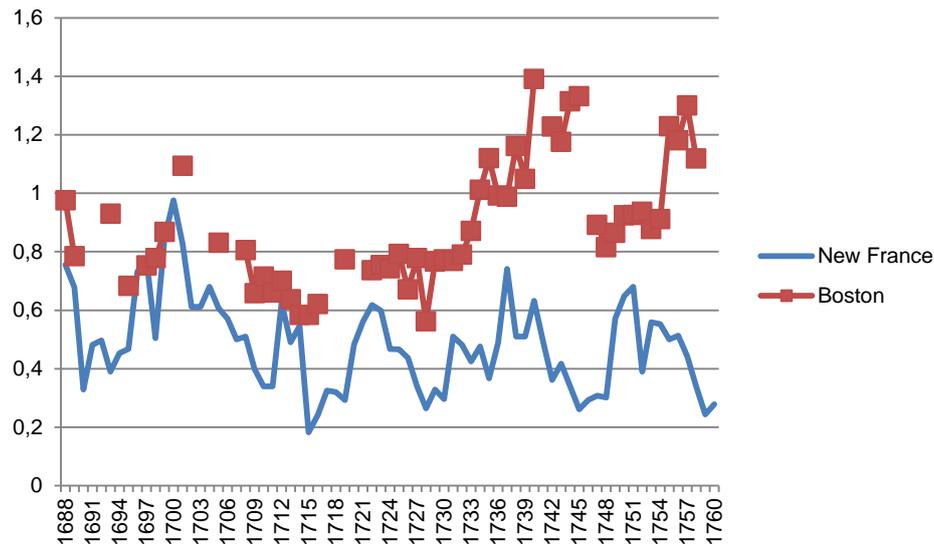
**Figure 34:** Kilo of tobacco that could be purchased with one day's wages Boston, New France and Philadelphia.



**Figure 35:** Kilos of tobacco that could be purchased with one day's wages New France and Philadelphia.



**Figure 36:** Kilos of codfish that could be purchased with one day's wages New France and Boston



Broadly speaking, it seems clear that the inhabitants of New France were very well able to achieve a basic level of living standards. However, moving to another level of consumption by increasing consumption of domestically produced manufactures or imported durable and non-durable goods is very costly in New France. The inhabitants of New France had a much harder time than their counterparts in France to acquire goods like wine and cloth. Moreover, relative to their counterparts the settlers of the American colonies of New England and Pennsylvania, the inhabitants of New France seemed equally able to satisfy the basic needs of life although the inhabitants of Pennsylvania seemed to have a pronounced edge in that regard. At the bare bones level of consumption, there does not seem to be a clear gap between New England and New France. However, if we consider the consumption of goods that tended to be manufactured domestically (tobacco and codfish) or imported (salt, cloth, rum, sugar), the wages of the inhabitants of New France had a much smaller command over these goods than the inhabitants of New England and even more so relative to the inhabitants of Pennsylvania.

### Section 8: Conclusion

What can we conclude from this empirical paper? First and foremost, New France did not enjoy any sustained improvements in living standards throughout the period. This contrasts mightily with the results of Lindert and Williamson who found that New England enjoyed a positive rate of growth from the low levels (which are similar to those of New France) it started from in 1675.<sup>129</sup> Lindert and Williamson also found that living standards in the American South declined throughout the period. Given that we find stagnation in a region that has great geographical similarities with New England, this indicates that there are colonial origins to divergence within North America. It also indicates that there are different forms of divergence: the middle colonies and New France stagnate, the south declines and New England rises.

Secondly, we can also see that the inhabitants of New France were more easily able to acquire the basic needs of life than their counterparts in France. However, moving

<sup>129</sup> Peter Lindert and Jeffrey Williamson. 2014. *American Colonial Incomes, 1650-1774*. Cambridge, MA : National Bureau of Economic Research, p.41.

beyond the bare bones basket of goods was costly and narrows the perceived gap between the two regions. This indicates that results showing that, at bare bones level, the inhabitants of North America were better off than their European counterparts might not be capturing the full picture of divergence. It might be overstating the gap that some like Allen, Murphy and Schneider<sup>130</sup> and Lindert and Williamson found. Indeed, moving from France to New France seems to have entailed paying a penalty in terms of foregoing non-essential consumption.

Thirdly, we see other signs of divergence within North America. Although New France and New England seem to diverge slightly at the bare bones level, there is an existing (and probably widening) gap in terms of broader baskets which would include manufactured and imported goods. That gap is much larger in comparison with the inhabitants of Philadelphia. Explaining the existence and expansion of this gap in living standards seems key to explaining why divergence occurred even within the high living-standard group of North America.

Most importantly, the inclusion of Quebec allows us to question the validity of certain hypothesis concerning divergence. Although this is the subject of another paper (i.e. the subsequent essay in this dissertation), many of the existing hypotheses cannot explain why New France exhibited signs of divergence during the early colonial era. First of all, the similar geographical features of New England and New France seem to preclude geographical determinism in the origins of this divergence. Secondly, the explanation advanced by Allen and al. which states that high wages in America (due to labor scarcity) incentivized invention and labour-saving machinery in order to increase productivity seems hardly to apply. Labor was equally rare in New France as it was in New England, maybe even more so given the low migration to the French colony. Institutional explanations (which we will discuss in greater details in a following paper) are probably a very strong candidate for the origins of divergence. New France had a peculiar land tenure system which was inspired from the French legal system of seigniorial tenure. In that system, the King granted estates to *seigneurs*, who would then concede plots to  *censitaires* who would pay dues and taxes to the *seigneurs* in perpetuity plus a 12.5% capital tax once they sold their plot. Moreover, the inhabitants of a *seigneurie* were obliged to mill their grain at the estate's mill and not elsewhere. Individuals who left their tenancy and resettled were in illegality and could be brought to court. This institution is an oddity given the land abundance of New France. Basically, land was the cheapest input and could easily be harnessed for production, why create an institution that controls access to this cheap input. Landlords would have had a weak bargaining power relative to the tenants without seigniorial tenure which merely reinforced their bargaining position. This institution suggests that the proposition of Douglass North, Barry Weingast and William Summerhill that the definition of property rights in the Americas explain divergence is probably the most interesting for us.<sup>131</sup> Yet, this is probably not sufficient given that there is another problem that complicates our situation: the small migration flow to New France. The low levels of migration between France and New France implies that most of the population growth the colony enjoyed resulted from natural growth. Up to 1760, the population of New France increases very

---

<sup>130</sup> Robert Allen, Tommy Murphy and Eric Schneider. 2012. "The Colonial Origins of the Divergence in the Americas : A Labor Market Approach", *Journal of Economic History*, Vol. 72, No. 4, pp.863-94.

<sup>131</sup> Douglass North, William Summerhill and Barry Weingast. 2000. "Order, Disorder and Economic Change: Latin America vs North America" in eds. Bruce Bueno de Mesquita and Hilton Root, *Governing for Prosperity*. New Haven, CT: Yale University Press, pp.17-58.

slowly – much more so than that of New England – and only reaches 70,000 in the early years of British rule. Moreover, the population was very disseminated across the territory. In 1763, when the colony was conquered by the British, the population was concentrated along the St-Lawrence seaway. In this area, the population density stood at 8.91 inhabitants per square mile.<sup>132</sup> A standard Smithian view of growth can explain why institutional features probably exacerbated an existing structural problem. The low density and small population limited the scope for specialization, made it harder to generate economies of scale in production and limited the capabilities of individuals to organize commercial networks. In comparison, the rapidly growing and large American population offered great opportunity for specialization and trade which permitted an improvement in living standards. Attributing a positive role to population levels and population growth is by no means revolutionary<sup>133</sup>, but in the case of New France versus the rest of North America, it is an interesting candidate that we will explore in greater depth in the following essay.

---

<sup>132</sup> This estimate has been made possible by Jacques-Alexandre Fournier from the urbanist firm Indicia in Montreal using the map provided in Cole Harris. 2012. *Le Pays Revêché: Société, espace et environnement au Canada avant la Confédération*. Québec : Les Presses de l'Université Laval, p.112.

<sup>133</sup> Oded Galor. 2005. "From Stagnation to Growth: Unified Growth Theory" in eds. Philippe Aghion and Steven Durlauf, *Handbook of Economic Growth, Vol 1A*. New York, NY: North Holland, pp. 171—293.