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# The effectiveness of the Nord-Pas-de-Calais coal cartel during the inter-war period: a research note<sup>☆</sup>

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## Abstract

This note analyzes the collusive strategies developed by coal companies in the Nord-Pas-de-Calais (NPC) coal basin of France during the inter-war period. Based on an examination of archival data, mechanisms for maintaining collusive agreements are detailed.

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## 1. Introduction

Northern France has long been considered a region favorable to emergence of cartels (Aftalion, 1908, pp. 108–109). In 1922, coal companies in the Nord-Pas-de-Calais (NPC) re-formed a cartel that had previously existed since 1901, but whose activities had been interrupted during World War One. Scholars have long considered the re-formed NPC coal cartel to be ineffective. In 1936, for example Galand (Galand, 1936, p. 66) wrote that commitment [to the cartel] is not sustained by any retaliatory mechanism (see also Laffite-Laplace, 1933, pp. 213–214). A similar

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conclusion of ineffectiveness was also reached by Sauvy and Hirsch (1984), Caron (1988), and Kourchid (1988; see also Kemp, 1972). Heaulme (1948), on the other hand, argued that the NPC coal companies really did collude during the inter war period.

This note revisits the issue of the effectiveness of the inter-war NPC cartel and, in the process, sides with Heaulme. Although I make use of previous studies by Heaulme (1948) and Gillet (1971), much of the analysis is based on archival research at the *Centre des archives du Monde du Travail* (C.A.M.T.) in Roubaix and at the *Centre Historique Minier* (C.H.M.) in Lewarde.

From 1913 to 1939, domestic coal production made up nearly two thirds of French domestic consumption. This proportion was even higher during the inter-war period (Barjot, 1991, p. 110). France had few real substitutes for coal. Although development of waterpower resources was intense, technical problems concerning electricity transportation over long distances slowed the replacement of coal by waterpower (Kemp, 1972, p. 90). Petroleum was also a possible substitute for coal product, but the high relative price of petroleum was a barrier to its adoption.<sup>1</sup>

Documents compiled by NPC mining engineers have been used to delineate the geographic boundaries of the domestic market served by NPC firms and to compute market shares.<sup>2</sup> Herfindahl indices computed from these market shares equal 838.2 in 1908–1912 and 868.2 in 1925–1939, implying a moderate increase in the degree of concentration inside the coal-basin.

The distribution of market shares was asymmetric. In both sub-periods, the top 10 producers accounted for approximately 87% of the market. In theory, an asymmetric distribution should have exerted a destabilizing effect on the cartel (Erickson, 1969, pp. 94–95). However, the NPC coal basin was not very large. The largest firms were located close to each other and this geographic proximity enhanced collusion as did small overall numbers. Another positive element for collusion was that costs were similar inside the NPC coal-basin (Heaulme, 1948, p. 122).

Although NPC coal firms faced some competition from domestic production in the East, their real competition came from foreign producers in Belgium, Germany, Netherlands, and the UK (Heaulme, 1948, p. 122).<sup>3</sup> Some of these operated inside cooperative organizations such as the German R.K.W.S. The R.K.W.S., for example, had an effective centralized selling system that dampened any potential

<sup>1</sup> See Bairoch (1999, p. 219) and La Statistique Générale de la France, 1941, pp. 182–183.

<sup>2</sup> These documents show quantities of “equivalent-coal” sold by NPC firms by department. Tonnage of equivalent-coal corresponds to tonnage of coal + 1.3 tonnage of coke + 0.92 tonnage of briquette; see Archives 92 W 30–92 W 97, C.H.M. Departments in the market area include the following: *Nord, Pas-de-Calais, Seine, Seine-et-Oise, Aisne, Somme, Marne, Seine Inferieure, Seine et Marne*, and *Oise*. For the 1908–1912 period market shares were computed using production data from Gillet (1971, p. 176). For the 1925–1939 period, market shares were based on estimations of monthly sales of coal measured in tons, with adjustments for missing data; details are available from the author on request. Market shares do not add to 100 in the first period because only companies that operated during the interwar period are included.

<sup>3</sup> From 1925 to 1939, coal imports from UK, Germany, and Belgium accounted for nearly 90% of imports in the NPC coal market.

non-cooperative behavior from its members. Other foreign producers were not cartelized. Although the degree of concentration in English coal rose during the inter-war period (see Henley, 1988, p. 266) the ability of English coal producers to collude was largely undermined by their high numbers (Fine, 1990, p. 447; Guyot, 1929, p. 78; see also Kirby, 1973, p. 280; Marlio, 1930, p. 842). Similar conditions prevailed in Belgium (see Barjot, 1991, p. 17).

Other than domestic consumption, the main demand for NPC coal came from the steel industry, railroads, gas works, and the electric industry. Firms in the steel and gas works had high degrees of market power and were in position to influence NPC coal prices. In addition, steel companies were vertically integrated which created an incentive to be linked with the coal companies, since coal was used in the production process (Caron, 1988, p. 186; Gillet, 1971, p. 86). In the case of the steel industry, for example, an agreement called the *Marchés à l'échelle* was signed in November 1910 between steel producers located in *Meurthe-et-Moselle* department and the NPC coal mines (Du Fou, 1934, p. 43; Gillet, 1971, p. 486). Steel companies also signed bilateral agreements or forged alliances with NPC coal firms or, in some cases, purchased the coal firms outright (Du Fou, 1934, p. 43, 45–46).

NPC firms had a long history of writing bilateral contracts between themselves dating back to the beginning of the 19th century. During the second half of the century, these agreements expanded in scope to the regional, and national levels (Gillet, 1971, p. 204). In particular, in 1901 a regional commercial structure was established under the title of the *Office de Statistique des Houillères du Nord et du Pas-de-Calais* (Robinet, 1910). In 1918, NPC companies grouped inside another regional organization, the *Office des Houillères sinistrées*.

In 1922 a new cooperative organization among the NPC firms was formed, the *Comptoir d'Expansion Commerciale des Houillères du Nord et du Pas-de-Calais*. The 1922 agreement specified prices and quotas as well as market areas. The regional market included the NPC coal-basin. Inside this area, adherents had to respect official prices and quotas. Quotas corresponded to a fraction of each company's production. This area corresponded to the main one in which regional companies carried the large majority of their sales.<sup>4</sup> Within the coal-basin, NPC firms faced lower transportation costs than Great Britain or Poland (Guyot, 1929, p. 91). Nevertheless, this differential did not exist with Belgian producers who were located close by NPC coal-basin.<sup>5</sup>

The “extra-regional market” was extended towards the southeast. Here, foreign pressure was more intense and agreements simply defined minimum prices. The final market, an expansion zone, was totally free of restrictions, but this area was dominated by foreign producers, especially from the UK.

As in 1901, NPC producers were grouped inside five different sub-groups defined by type of product: *gras*, *demi-gras* and *maigres*, *fleus*, *agglomérés* and *coke*

<sup>4</sup> See Archives 92 W 30–92 W 97, C.H.M.

<sup>5</sup> Concerning German coke producers, internal archives from *Vicoigne-Noeux-Drocourt (VND)* company reveal that in 1924 its coke price was higher than German prices, transportation costs included. If this information is correct, then competition from coke imports existed even inside the NPC coal-basin; see Archive 1994051 184bis, C.A.M.T.

(Heaulme, 1948, p. 283). Data on prices published regularly by the regional cartel in *La Revue de l'Industrie Minérale* or in *Le Nord Charbonnier* reveal that each price was obtained by applying a specific multiplicative coefficient. Aside from these five main sub-groups a multitude of sub-groupings existed.<sup>6</sup>

As of 1922, numerous coal companies had not yet recovered their initial production capacity from the war. Due to the fact that individual quotas were calculated on the basis of each company's past production, those who had suffered from destruction during the war were afraid of obtaining a quota inferior to their pre-World War One market shares. In order to avoid this, official quotas were calculated on the basis of the average production of 1913 and 1921 (Heaulme, 1948, pp. 278–280).

The main objective of the regional structure was achieved by requiring companies to sell their excess production *outside* the regional market. Within the regional market, companies agreed not to cut prices below a certain level as well as to limit the volume of their sales. To monitor compliance with these objectives, production, and market statistics were collected by *Office de Statistique des Houillères*.

The 1922 agreement penalized “cheaters.” Specifically, Article 3 established penalties of 10 francs/ton if a company gave false information to the *Office de Statistique de Houillères* or if it sold below the official prices (Heaulme, 1948, p. 284). This penalty was divided in two components: 80% was given to companies that had lost market and 20% were given to the regional collective (Heaulme, 1948, p. 288).

The 1922 penalty structure may have been made less effective by the practice (see Heaulme, 1948, pp. 287, 292, 295), of keeping the identities of cheaters secret during meetings of the cartel (Heaulme, 1948, p. 288). However, an economic crisis affected the French economy and especially the NPC coal-basin in 1927.<sup>7</sup> In reaction, NPC companies decided to improve upon the effectiveness of the regional organization. A new agreement was signed at the end of 1927. The agreement divided the expansion zone in three parts ( $Z_1$ ,  $Z_2$ ,  $Z_3$ ) by increasing order of distance from the coal-basin. Each ton of ore sold in  $Z_2$  was multiplied by 1.5, whereas each ton of ore sold in  $Z_3$  was multiplied by 2.5, so that total coal sales for each company in the expansion zone were equal to  $Z_1 + 1.5 Z_2 + 2.5 Z_3$ . Each company had to sell a fraction of its total production inside each zone each quarter.<sup>8</sup> Each company had to declare monthly the total amount of its sales as well as those by zone. A contribution of 10 francs/ton was applied in the event of cheating.<sup>9</sup> Conversely, if a company had sold more than requested, this member could obtain a bonus in proportion to the differential between effective sales and quotas. This agreement was more sophisticated than the previous one and was designed to give incentives to maximize sales

<sup>6</sup> For example, the *Flenus* sub-group was divided 13 ways: *Fines brutes* (0/10, 0/20, 0/30), *Tout-venant* (20/25, 30/35), *Fines lavées* (0/20), *Grains lavés* (10/20, 20/40), *Criblés* (10, 20, 40, 80), *Gailletins non lavés* (20/80). Figures in parenthesis correspond to the size of the ore.

<sup>7</sup> See Archive 1994051 793, C.A.M.T.

<sup>8</sup> The basis for these calculations was production in the fourth quarter of 1926. If a firm had increased its net production since the fourth quarter of 1926, then its quota in the expansion zone had to increase in the same proportions. A similar mechanism was designed for companies that had still not recovered their pre World War One production capacity.

<sup>9</sup> The text of the agreement used the word “contribution” rather than sanction.

in the expansion zone and to reduce incentives to deviate from the cartel outcome inside the regional zone. The agreement was supposed to be applied as long as economic conditions necessitated selling part of the NPC coal-basin's production inside the expansion zone.<sup>10</sup> The adherence to the accord constrained companies to reduce their production by a significant percentage.<sup>11</sup> These agreements seemed to have been effective; for example, the *VND* firm noted in May 1927 that its prices fixed for the 1st July inside the regional zone had not been changed.<sup>12</sup> It seems that this agreement avoided price wars, or at least limited them inside the regional market.

In the early 1930s, the French government put additional pressure on NPC firms to reinforce their cooperative strategies.<sup>13</sup> An implicit contract was negotiated according to which NPC coal-companies had to reinforce their regional cartel and the French government had to apply quotas on coal imports.<sup>14</sup> The implementation of this agreement appeared in June 1931 with a new regional contract and in July 1931 with the promulgation of a decree on coal import quotas.<sup>15</sup> This new regional contract was agreed to for 1 year and explicitly introduced a limitation on individual coal production. Each NPC company was allowed to produce quarterly a fixed quantity.<sup>16</sup> If the effective production was below this quota, then the differential was rolled over to the following quarter.<sup>17</sup> Conversely, if adherents had exceeded their allotments, the differential up to 3% of the quota was reported to the following quarter (that is, a reduction of the quota), the differential comprised between 3 and 5% implied a sanction of 5 francs/ton and for a higher differential the sanction was 10 francs/ton.

<sup>10</sup> A report drafted after the Anzin board of directors meeting notes that the company was reluctant to adhere to this agreement. In the end, however, the board approved the agreement under the sole condition of adherence of all NPC coal companies; see Archive 49AQ4, microfilm, 4th spool, p. 91, C.A.M.T.

<sup>11</sup> In November 1927 the *Comptoir d'Expansion Commerciale* asked to its members to reduce their production by 8% during November. This measure was approved; see Archives 49AQ4, microfilm, 4th spool, p. 91, C.A.M.T. and Anzin board of directors meeting report, October 27th 1927, non-numbered, C.H.M.

<sup>12</sup> See Archive 1994051 791, C.A.M.T.

<sup>13</sup> The economic crisis of the 1930s forced some regional companies to lower their price inside the regional market in order to maintain their sales; see Archive 1994051 804bis, C.A.M.T.

<sup>14</sup> The agreement between public authorities and NPC producers appears clearly in Article 1 of the new regional agreement. The French government attitude towards Northern French coal-mines was even more aggressive; the *VND*'s company archives indicate that the government had threatened NPC coal companies to intervene if a complete agreement was not achieved before the end of 1930; see Archive 1994051 801bis, C.A.M.T.

<sup>15</sup> As early as 1925 a system designed to limit coal imports from Germany has been in place. Nevertheless, this system was ineffective, because German producers increased quantities associated with reparations to balance the effect of the system. A second system was set up in May 1927 in order to limit coal imports. This system does not seem to have been effective, either; see Archives 1994051 786 and 1994051 791, C.A.M.T.

<sup>16</sup> The quota corresponded to the average quarterly production of 1929 and 1930. A multiplicative coefficient  $K$ , possibly less than one, was applied to this figure to obtain the quota. Coke and briquettes productions were converted in equivalent coal with multiplicative coefficients (respectively 1.30 and 0.92). For NPC coal-companies held by eastern steel companies,  $K$  could not be less than one. Such a measure was certainly to take into account the fact that these companies produced solely for eastern steel companies. Heaulme (1948, p.323) shows that  $K = 0.90$  for the first year of the agreement.

<sup>17</sup> The differential could not exceed 5% of the quarterly quota.

Evidently, these sanctions were applied. As Heaulme (1948, p.323) notes, six companies were sanctioned during the first year for a total amount of 1,464,722 francs. Another record concerning application of these sanctions in 1932 appears in internal archives of Anzin in which the general manager noted that the company “should” have paid a fine of close to 700,000 francs. However, the company succeeded in lowering the sanction to 223,658.5 francs.<sup>18</sup>

In the beginning of 1934, in order to increase their sales in the expansion region, NPC coal companies decided to ship coal to the Western region of France (Heaulme, 1948, p. 325). Such shipments required significant price reductions to compete with Britain coal. Several coal companies adhered to an agreement according to which they had to pay 0.20 franc/ton of net production. NPC coal firms could directly negotiate with Western consumers but they had to obtain the agreement of the NPC coal cartel. In order to maximize sales in the Western France, adherents received half of the difference between the market price in the western sector and the price for rail-road market. The agreement explicitly required that this element had to stay confidential. This accord ended in late 1936.

The government’s action towards increasing the degree of horizontal integration inside the coal industry was not solely centered on the first national coal-basin, but concerned all the domestic coal industry. These efforts led in April 1932 towards the creation of a national agreement, the *Entente Interbassins*. This contract concerned all three domestic coal-basins (NPC, Central, and Eastern coal-basins) as well as three main products.<sup>19</sup> Several zones of production in France and a quota system for each group and zone were defined. Each domestic coal-basin had a zone of privilege, free of commercial restraints unlike other members who were limited by a system of quotas. These zones were named A, B, C<sub>1</sub>, C<sub>2</sub>, D, and R and covered nearly all the French territory.<sup>20</sup>

This collusive agreement was held together through a credible retaliation system; in particular, each member had to send a monthly statistic report on its sales according to respective zones. In addition, on a quarterly basis, each member that had exceeded its quota had to pay compensation to the national organization. Further, each company inside a coal-basin that had not respected its quotas was punished. Internal archives establish that these sanctions were also applied.<sup>21</sup> Records of these

<sup>18</sup> Report of Board of Directors Meeting, Anzin, October 29th 1932, C.H.M.

<sup>19</sup> Coal, coke, and briquettes were converted in equivalent coal with coefficients previously mentioned.

<sup>20</sup> Zone A covered the following departments: Nord, Pas-de-Calais, Somme, Aisne, Oise, Seine-et-Oise, Seine-et-Marne, Seine inférieure, Eure, Orne, Mayenne, Sarthe, Eure-et-Loir, Loiret, Loir-et-Cher, Seine. NPC sales of coke to steel firms located in departments of zone R were added to the zone A.

<sup>21</sup> For example, a letter dated December 7th 1932 from the NPC cartel to the administrator of the company VND contained statistical results concerning the period from April to September 1932. This document contained a summary of VND’s activities during the period previously mentioned on its sales for zones A, B, C<sub>1</sub>, C<sub>2</sub>, D, and R. Moreover, this letter detailed for each zone differences between VND’s quotas and its effective sales. The document showed the amount of the sanction due by the company: 49292.28 francs, which corresponded to a payment on account. A letter dated August 2nd 1933 informed VND that the company had to pay 115,490.99 francs as sanctions on its sales in excess on its quotas. This amount corresponded to 164,783.27 francs less 49,292.28 francs already paid as payment on account. Documents extracted from VND’s internal archives; see Archives 1994051 637 to 1994051 639, C.A.M.T.

sanctions appeared, for example, for *Aniche*.<sup>22</sup> National agreement and NPC coal cartel were closely interconnected concerning application of quotas as well as sanctions. Beginning in April 15th 1932, fixation of quotas was at a national level as well as at a regional level. The NPC group had quotas for each of the six zones of the national agreement, whereas NPC coal companies had individual quotas for zones A and R.

Monthly statistical documents on this national agreement available from April 1932 to March 1936 and published by the *Office Statistique des Houillères* highlight its effectiveness.<sup>23</sup> This agreement was still in existence in 1938.<sup>24</sup>

Negotiations between NPC firms were actively pursued from the end of 1932. A new regional agreement was signed on April 9, 1935, which introduced specific sanctions for regional quotas.<sup>25</sup> and for national quotas.<sup>26</sup> In 1936, negotiations were pursued, but the law of August 18 and 19 introduced a control on coal prices. Since this date, Government intervention inside the NPC coal basin's activity was more intense (Heaulme, 1948, p. 338). In 1937, NPC coal cartel monitored all major markets and especially those involving railroads, electric industry, and gas industry (Heaulme, 1948, p. 341).

I have shown the existence of numerous successive collusive agreements inside the NPC coal-basin.<sup>27</sup> Some of these, such as in 1927, were sustained by a positive incentive that gave bonuses to members if their sales in the expansion market exceeded their quotas. Others specified a retaliation system for those who had cheated on cartel's agreements. In spite of, criticisms concerning its strength, the evidence from the internal archives of NPC companies strongly suggest the mechanisms were effective and credible.

<sup>22</sup> A letter dated November 25th 1933 from the NPC cartel to the general manager of *Aniche* contained a summary regarding results of the company from April to September 1933. This letter informed the company had to pay a penalty approximately 95,000 francs.

<sup>23</sup> See Archives 199405 637–1994051 639, C.A.M.T. Page 3 of a report from the *Office de Statistique des Houillères* dated November, 16 1933, notes the effectiveness of the cooperative national structure.

<sup>24</sup> *Aniche's* internal archives (C.H.M.) show that in 1938 effective sales were monthly compared with quotas.

<sup>25</sup> These quotas concerned zones A and R of the national accord. The reference was the average coefficient of the NPC coal-basin inside these two zones. Sanctions were computed as follows: 4 francs/ton were due for excess less than 1%, 8 francs/ton for excess comprised between 1 and 2%; 14 francs/ton were due for excess higher than 2%.

<sup>26</sup> The quotas concerned zones A, B, C<sub>1</sub>, C<sub>2</sub>, D, and R. The reference was the average coefficient of the three national coal-basins inside these five zones. Sanctions were computed as follows: 2 francs/ton were due for excess less than 1%, 4 francs/ton for excess comprised between 1 and 2%; 6 francs/ton were due for excess higher than 2%.

<sup>27</sup> Moreover each of these agreements demonstrates that NPC coal companies were aware of the importance of collective action on the regional level.

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