Mineral Economics (2018) 31:263–268
https://doi.org/10.1007/s13563-017-0139-2

ORIGINAL PAPER

Coal sector in Poland, light in the tunnel or dimming candle?

Wojciech Suwala[1]

Received: 3 October 2017 / Accepted: 25 December 2017 / Published online: 17 January 2018

Abstract

The coal sector in Poland, especially mining, is a showcase of how a mix of technical, economic and political initiatives aimed at healing a decaying sector has worked or perhaps not worked. Coal mining was one of the sectors most affected by economic transformation in early 1990s. It was formerly privileged as provided primary energy for the economy and convertible currencies from export, but at the beggining of economy transformation turned into a number of overemployed and unprofitable companies. The result was a nearly continuous deficit but many governmental efforts to improve the situation were not leading to long term viability. This paper aims to discuss the history and prospects for the coal industry in Poland. Firstly, the past of coal mining in Poland is analysed to identify possible reasons for the lack of efficacy of the restructuring programs. Secondly, the present situation and future prospects are described. Conclusions point to the issues which are important in restructuring processes and factors determining the prospects of coal mining in Poland.

Keywords Coal industry in Poland · Restructuring · Prospects

JEL classification P28 · P31 · N74

Coal in Poland

The history of coal industry in Poland goes back to the mid-eighteenth century when the first mines were built in Upper Silesia. Two other basins were also developed: Lower Silesia abandoned after 1990s due to high costs of production and Lublin Basin which only started to operate in the 1980s.

During the command and control period, limited access to convertible currencies, lack of crude oil reserves and domestic natural gas supplies covering only half of annual consumption but abundant domestic coal reserves led to the economy based on coal. It was the only fuel relatively easily available for all sectors of the economy and for households. The strong position of the coal mining industry under the "socialist" rule came also from coal export, which was the dominating source of convertible currencies. Due to this role, the sector enjoyed several privileges including such as favourite pension conditions or special shops for miners. Trade unions of coal miners were and still are a strong force in the coal sector, and practically no crucial decision could be undertaken without their consent. Politicians still consider these unions as a real political force able to influence voters' opinions.

Coal still plays a significant role in primary energy supplies (Fig. 1), but its share of energy supply diminishes as crude oil for transport purposes increases, as would be expected, due to the number of cars and growing transport demand. Poland's GDP has increased two and half times since 1990 which at quite stable primary energy consumption gives a proportional decrease of energy intensity.

The role of coal in the economy is decreasing due to improvements in power generation efficiencies and fuels switch in industry which contributed to the lower consumption (Fig. 2). Opening to international markets, no import quotas, used earlier to limit import from Russia, caused that Poland once big coal exporter became net importer. In recent years, import from Russia reached 9 ml ton (2011) out of total 14 ml ton (Olkuski 2013). In the same 2011 year, Polish export was only 5 ml ton. Majority of imported coal is used by small consumers (Stala-Szlugaj 2016), as domestic production is dominated by fine grades suitable for large consumers, while coarse coal is in shortage.

The Polish coal market up to years 2000 was considered to be separated from the world one. The development of the

✉ Wojciech Suwala
wojciech.suwala@agh.edu.pl

1 AGH University of Science and Technology, Krakow, Poland

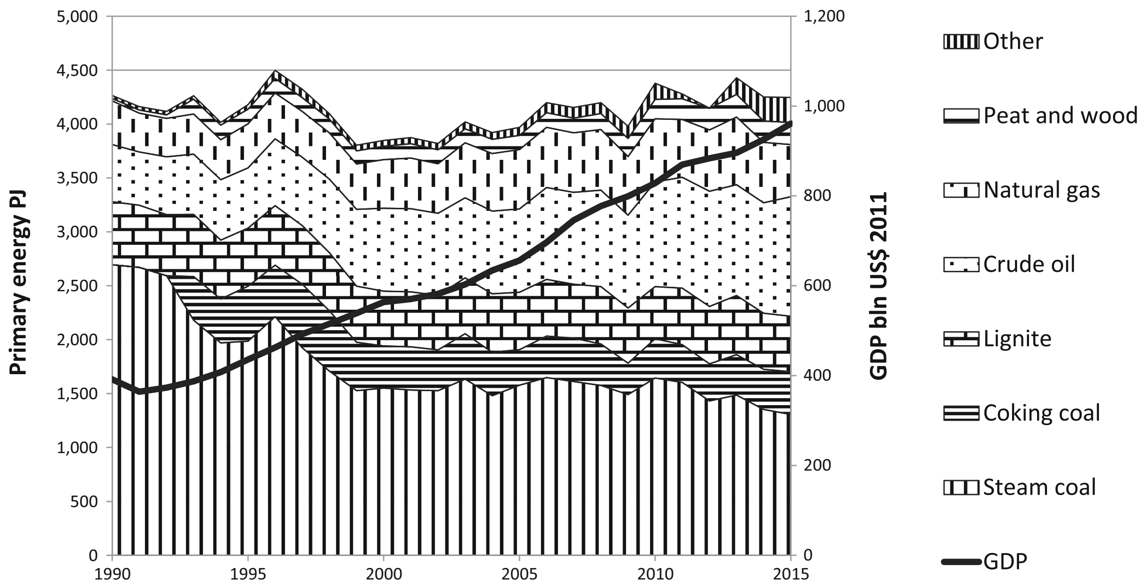


Fig. 1 Primary energy consumption and GDP in Poland. Source of data: GUS (1991-2016) and World Bank (GDP, in constant 2011 US$)

country's international trade and management skills of coal companies broke this separation and domestic coal prices started to depend on international ones. It could be observed that domestic coking coal prices directly depend on the international ones, while for steam coal there is one year lag (Fig. 3). Coking coal international trade, both import and export, seems to have strong link to domestic market.

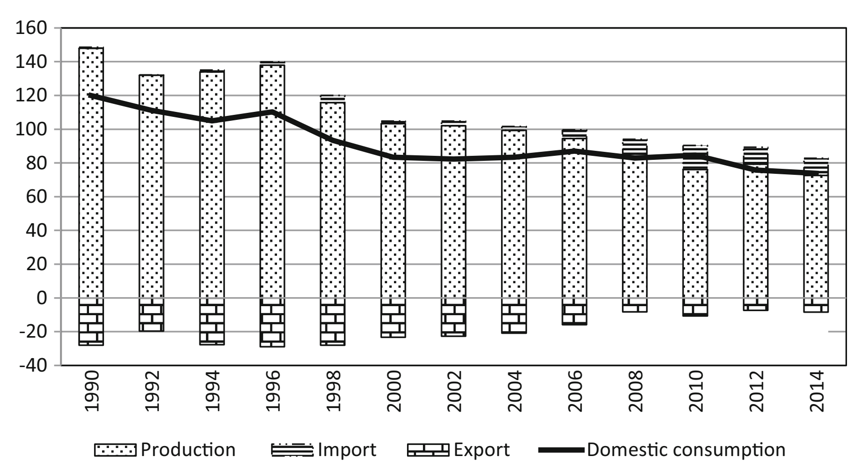
The painful story of coal mining restructuring in Poland

Polish coal mining is a showcase of a decaying sector's transition from centrally planned and controlled to market economy, as the way of this process shows the main problems of such transformation.

During the command and control period, when prices and distribution of commodities were state controlled, the situation on the domestic market corresponded to point E_1 on the Fig. 4. The amount consumed Q_1 resulted from limited capacities of supply as for the low regulated price P_1 demand would be higher. Simultaneously, costs of a commodity such as coal were higher, at the level of $C_{1,}$ and the differences between P_1 and C_1 (here exaggerated) were covered by more or less visible subsidies. Transition to "market" economy led to the situation in which subsidies became transparent, but not limited. Coal mines which initially became individual "state-owned enterprises" on the one hand should follow the market-based commercial laws but on the other hand, the coal prices were controlled, leading to increasing debts.

Obviously, the first attempt to restructure the coal mining was to shift the supply line by reducing unprofitable capacities so that point E_2 could be reached.

Fig. 2 Coal balance million ton (Source: GUS (1991-2015), Olkuski 2013)



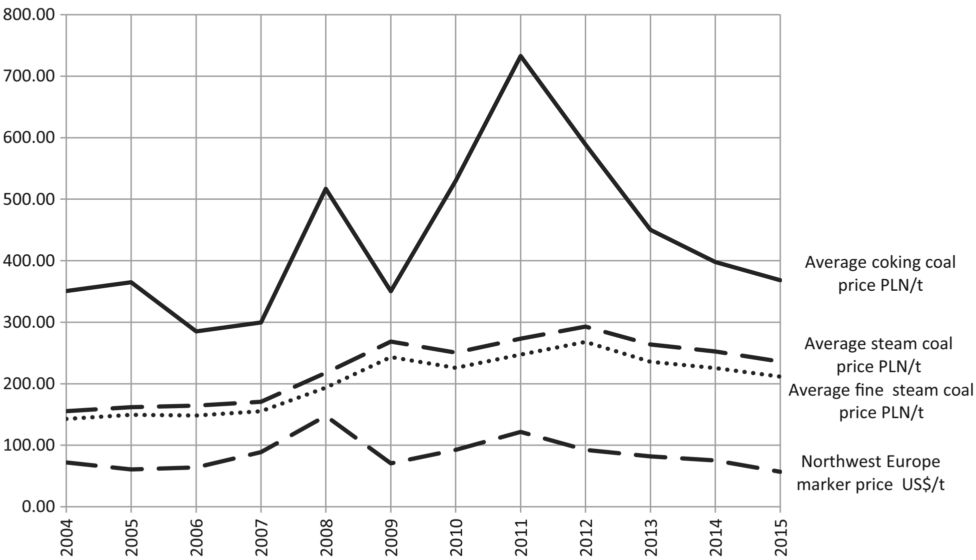


Fig. 3 Coal prices in Poland and NW Europe (source of data: The Supreme Audit Office)

On the demand side, there were also unfavourable conditions. Since economics became the force leading the decisions made by enterprises, the rational use of fuels was one of the means of costs management and resulted in the decrease of demand for coal. The shifting downwards of the demand curve was an additional factor affecting adversely the situation of the coal mines. Finally, the equilibrium point E_3 should be reached with much lower prices and lower demand.

The former favourites—due to their important role in the economy—coal mines and coal miners were exposed to the laws of the market economy and decreasing demand for coal. The lack of management experience, coal prices still centrally controlled and the non-existent direct owner of mines and mining companies, which were still controlled by the state, led to a continuously deteriorating situation of the coal mines. Various governments devised numerous plans for restructuring of coal mining, first in 1991 and subsequently in 1993, 1994, 1996 and 1997 (Suwala 2010). The first attempts were to merge mines into larger companies that should be able to conduct rational operational and development policies. Operational subsidies were apparently abandoned maintaining support for closing of mines and for employment reduction. But the stubborn opposition by the trade unions to these measures to keep up wages prevented costs rationalisation.

The efforts of governments were in general not successful, due to limited funds earmarked to mines' closing and the support for employment reduction was not attractive enough. However, some progress was made, and in the period 1990–97 employment was reduced from 388 to 260 thousands of persons, the number of mines reduced by 12 and productivity increased from 380 to 550 ton/person per year (Fig. 5).

The debts of coal mining industry to the state and to local authorities were rising continuously reaching about 18 billion

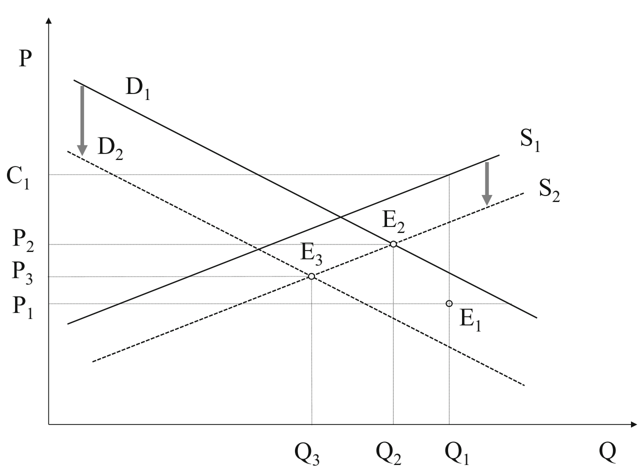


Fig. 4 Market equilibria for the decaying sector under command and control and market economy

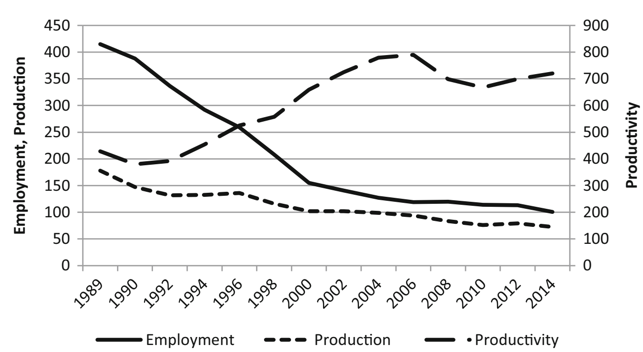


Fig. 5 Main indicators of hard coal mining in Poland, 1989–2015 (Production in million tons, employment in thousands of persons, productivity in tons per person per year)

PLN (5.6 billion USD) in 1998 without any prospects of improvement into the future.

The restructuring processes were supported by World Bank loans, and nearly every tranche was preceded by a close scrutiny and a report, which discussed the situation of the coal mining industry, evaluated gains made by closing down mines, prospects for domestic and foreign markets as well as measures needed to improve the situation (e.g. Radetzki 1995). The crucial measures were employment reduction and appropriate investments, which were aimed at contributing to the improvement of the productivity, which remained at a low level. It was predicted that after the completion of restructuring measures up till the year 2000, costs would be stabilised at a competitive level. Nevertheless, the prospects for coal mining would still be highly dependent on international prices, and the demand would change not only with regard to the level but also to quality structure stemming from stricter environment regulations and higher demand for better quality coal.

Early restructuring was generally not successful and the situation was under continuous scrutiny. The discussions involved both politicians and society, which did not accept continuous subsidies to the coal industry when other decaying sectors could not count on such support and generated mass unemployment especially in mid-size cities where there was usually only one big employer.

The restructuring got higher momentum in 1998 when a coalition under the leadership of the Solidarity trade union formed the government. The base for the restructuring was a parliamentary bill (Parliament of Poland 1998) with provision of funds to close down of unprofitable mines and social program for the years 1998–2002. The latter was a crucial issue which amounted to about 60% of the total funds provided. There were special programs for redundant miners such as:

- soft loans for the creation of new small scale businesses, or non-mining job demanding businesses,
- 24 monthly payment amounting to 65% of wage paid during leave, for those who leave coal mining to search for a new job,
- one-off payment of about 15 average previous monthly wages for those who intend to leave coal mining and get new non-mining employment within 24 months after being dismissed,
- one-time payment for those who voluntarily leave coal mines of initially 24, later in 2002 reduced to 12 months average wages and
- incentives to leave mining early for persons close to retirement.

The program was successful, as the reduction of employment slightly exceeded the planned one and total reduction was about 100 thousands persons from an initial level of 243 thousands. The number of mines was reduced from 54 to 41, production from 116 to102 mt, productivity rose from 558 to 725 tons/person and production costs reduced by 25%. Within this period, other measures were undertaken such as merging the former seven coal companies into three groups. The funds allotted to the program were at 8 billion PLN and spending was on the planned level. Nevertheless, the debts of the coal companies to the central government and local authorities reached 24 billion PLN and coal companies were not able to repay them even in favourable market conditions. Thus, the next step in restructuring was partial waiving of these debts. A special bill (Parliament of Poland 2003) reduced debts against tax, pension, environmental and other funds from before 2003 what amounted to some 14 billion PLN, while all other debts had to be repaid (see Fig. 6).

The following years were expected to become a period of adjustment to a new more relaxed situation and the beginning of viability of the coal mining sector. The prospects were promising as the number of mines was further reduced (however this indicator is not that significant as some mines were merged) and the sector turned profitable.

Privatisation of mines started in late 1990s, when mines in the east part of Upper Silesian basin became a subsidiary of a power generation company. In 2009, shares of Bogdanka mine in Lublin basin were introduced at the GPW Warsaw stock exchange and shares were bought by pension funds and mine's employees. Similarly, shares of the JSW (Jastrzebska Spolka Weglowa) company producing mainly coking coal were introduced on the same stock exchange in 2011.

In the years after completion of restructuring stage—2003, the industry stagnated. Governments expected improvement in companies' performance but were not very strict on checking the results and progress, mainly due to the risk, as they saw it, of possible counter actions from trade unions and loss of voters. It could be noticed that despite the fact the prices were higher than costs (Fig. 6), debts of mining raised.

The Supreme Audit Office of Poland (2016) carried out a review of the performance of the coal mining industry with special attention to how much of the Governmental Restructuring programs had been carried out after 2003. The review concluded with very critical statements. Restructuring activities were mediocre, based on too optimistic expectations of market performance, consumption and prices, especially by the managers of the coal companies. Consequently, the state-owned companies lost economic efficiency and became less competitive. Improvements to be undertaken had been delayed and were inadequate to meet the demands of the situation.

The period 2007–2011 with high prices on the world market for coal, which influenced the domestic market as well, should have been a good time for further privatisation, investments and efficiency improvements. Unfortunately, the

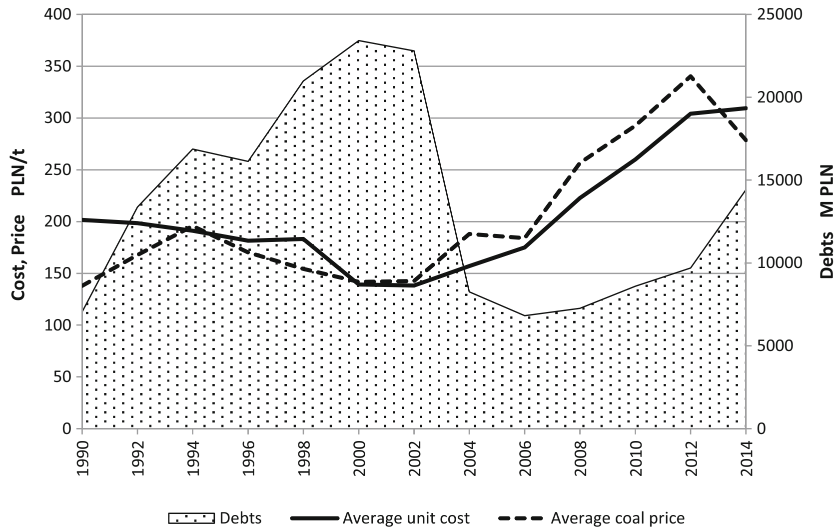


Fig. 6 Main indicators of hard coal mining economics in Poland

priority of the government and company managers was to maintain the calm among the employees.

The cumulative effects of 2007–2015 period were that two state-owned companies experienced continuous losses while the two which were privatised showed profits.

Coal mining in Poland of today

The ownership structure of the coal mining industry has changed in recent years. Two formerly state-owned companies were merged and formed PGG—Polska Grupa Gornicza, which has other state-owned companies as its owners. The formerly privatised BOGDANKA company is now practically back in state hands as state-owned energy company ENEA bought 65% of its shares in 2015. There are also three truly private mining companies, efficient but with quite small production. Three mines form a subsidiary of TAURON power generation company.

Prospects for coal in Poland are not very positive, domestic demand will continue to sink. The main consumer—power generation is expected to transform to lower carbon emitting. Apart from those presently under construction or planned (five units of approximately 1000 MW each), no other coal fired units are to be built. The share of coal-based power generation is expected to decrease from present 80 to 20% in 2050, especially after 2030 when coal will be substituted for by other energy carriers mainly natural gas and nuclear energy (EU Reference Scenario 2016). Air quality, in winter period, deteriorated mainly by low-quality coal, being burnt in inefficient stoves, became one of the top priorities of local authorities, and a ban on the use of coal for such purposes has already been introduced in some areas. Insufficient investments during recent years and closing down of some mines resulted in reduced production, and increase of coal import is expected. On the other hand, 2017 high prices and half year profits at 1.5 bln PLN (400 ml USD) give opportunity to remedy years of neglect and speed up restructuring (Steinhoff 2017). New projects also emerge, as an Australian company Praire Mining plans to open two mines, one in Upper Silesia and other one in Lublin basin (PDZ 2017).

Conclusions

The history of transition of Polish coal mining is like a typical story of attempts to heal a decaying industry, while there is no strong determination to restructure the sector in a relatively short period. Numerous programs were not sufficiently elaborated or funded adequately. There is a significant role of the social factor-acceptance and dialogue, between policymakers, trade unions and society. The restructuring program of 1998 was successful because it was accepted by the trade unions and backed by parliamentary bills and most importantly sufficiently funded. On the other hand, strong trade unions, and a government not determined about what to do, contributed to preserve inefficient mining operations and deteriorate mining economics.

The future of the Polish coal mining sector is complex; on the one hand, decreasing consumption and a climate policy will further lower demand, and on the other hand, improvements in efficiency are expected. The "partial privatisation" which means that coal companies are in reality still state owned, but managed as commercial companies under market conditions, should make them profitable in longer term. Experience shows that even such type of ownership is a way to reduce both costs and employment, contributing to economic efficiency. The increase of coal prices in recent time could become a kind of respite providing also funds for investments and improvements.

Acknowledgements The author wishes to thank Prof Marian Radetzki firstly for his contribution to the formation of effective restructuring programs for Polish coal mining, secondly, personally, for his approach and training of the author-researcher with, at that time, nearly no experience in market-based economics and finally for his friendly attitude.

Funding information The paper was supported by AGH grant no. 11.11.210.375.

References

EU Reference Scenario (2016) Energy, transport and GHG emissions Trends to 2050, EUROPEAN COMMISSION Directorate-General for Energy, Directorate-General for Climate Action and Directorate-General for Mobility and Transport

GUS (1991–2016) Gospodarka paliwowo-energetyczna (energy statistics) various issues. Central Statistical Office of Poland, Warsaw

Olkuski T (2013) Zależność Polski w zakresie importu węgla kamiennego, (Poland - *dependency on coal import*) Gospodarka Surowcami Mineralnymi; ISSN 0860–0953. t. 29. z. 3, s. 115–130

Parliament of Poland (1998) Act on the adjustment of hard coal mining functioning in market conditions and special rights and tasks of mining districts, 26 November 1998

Parliament of Poland (2003) Act of 28 November 2003 on coal mining restructuring in the years 2003–2006 (Dz.U. z 2003r. Nr 210, poz. 2037)

PDZ (2017) http://pdz.com.pl/. Access 31 Aug 2017

Radetzki M (1995) Polish Coal and European Energy Market Integration, Avebury

Stala-Szlugaj K (2016) Węgiel z importu na polskim rynku – obserwowane tendencje w dystrybucji. (*Coal imports on the Polish market – the observed trends in distribution)* Przegląd Górniczy Nr 5, Wyd. ZG SITG Katowice, s. 13–20. ISSN 0033-216X

Steinhoff (2017) Steinhoff: lepsze wyniki górnictwa to czas na inwestycje i restrukturyzację (*Better economic effects of mining – time for investments and restructuring*). http://gornictwo.wnp.pl/steinhoff-lepsze-wyniki-gornictwa-to-czas-na-inwestycje-i-restrukturyzacje,304864_1_0_1.html. Access 28 Aug 2017

Suwala W (2010) Lessons learned from the restructuring of Poland's coal-mining industry. Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD), Geneva

The Supreme Audit Office of Poland (2016) Funkcjonowanie górnictwa węgla kamiennego w latach 2007–2015 na tle założeń Programu Rządowego