UKRAINIAN GAS TRANSIT GAME

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Abstract

Dieser Aufsatz beschäftigt sich mit der jüngsten Gaskrise, die durch den russischen Stopp der Erdgaseinspeisung ins die durch die Ukraine nach Europa führenden Pipelines ausgelöst wurde. Das Ziel dieses Aufsatzes ist es, diese Situation durch Berücksichtigung auch russischer Quellen zu dokumentieren und vor allem Verlustsituation für die beteiligten Parteien, Russland und die Ukraine, und die konfliktsituation an sich äußern gegenangegabe, wo einige Länder dadurch von der Zustand abgegrenzen waren. Aus der Darstellung dieses Konfliktes wird versucht, eine Lösung zu erarbeiten, die dann in einem Postskriptum mit dem tatsächlichen Ausgang verglichen wird.

This paper investigates the origins and reasons for the termination of the Russian natural gas flow from Russia to Europe through Ukraine in January 2009. It discusses the strategic interaction of the three players (Russia, Ukraine and the European Union) based on the dynamics of losses from confrontation. The objective is to interpret the situation in a stylized way and to derive outcomes using calibrated parameters for costs and benefits of the players. We show that the stakes are high for both Russia and Ukraine in choosing to follow their preferred strategies, as both countries would sustain moderate losses during the initial period of conflict. Meanwhile, Europe’s lack of reserves makes it less prepared for the energy deficit than Ukraine and Russia, causing wider and earlier suffering for European countries dependent on Russian gas. Therefore, the European Union has a strong incentive to intervene in the conflict. Its actions during the January confrontation between Ukraine and Russia included extortion and bribery, all of which affected the outcome of the conflict.

1. Introduction

The cessation of Russian natural gas exports to Ukraine, and thereby to the European Union countries (some completely, others partially), made several days of headlines in all major European newspapers. Gas transit game represents an interesting economic phenomenon that is related to market structures, externalities and emerging games. These issues often arise because producers and consumers are separated by large distances, which also tend to grow in relation to the depletion of nearby gas fields. The connection of supply with demand involves several problems including politics, logistics, incentives for additional investment, and safeguards against hold up.

Assume a system consisting of a producer and a consumer (of natural gas in this example), separated by a third country that is neither a consumer nor a producer. If the third country is seeking rent for transit (e.g., Ukraine) or sabotaging pipelines (e.g., Afghanistan, for gas from Turkmenistan to Pakistan), then it is creating an externality that infringes upon the rights of both producer and consumer. In contrast, if producers and consumers are directly linked, then such problems can be avoided. Such is the case of the LNG trade, where producers and consumers have ports with only international sea between them.

Transit problems can emerge when a gas pipeline passes through a third country that behaves as a middleman. The following variations are possible:

1. There are either one or several paths for pipelines between producer and consumer countries (in the case of Russia, this can be Ukrainian vs. Belarus transit);
2. The transit country is either a net gas exporter, a net gas importer (in the case of Ukraine), or neither a producer nor a consumer of natural gas.
3. The transit country is potentially a member of a political block, in which case political interests of a fourth country could impose externalities.

This paper focuses on transit of Russian gas to European consumers and on economics related to geopolitical aspects, although occasionally, political costs must be taken into account. Indeed, externalities can arise from the political agenda of the supplier (this is definitely true for Russia due to its ambition as a global player) and the consumer (the EU strives for gas import diversification) in the sense that optimal trade routing cannot be achieved (i.e., diversification of European gas supplies as well as re-routing of Russian gas exports fail to take advantage of the sub-additive costs of the pipelines)

Russian natural gas export to Europe is substantial. In 2007, Russia exported 168.5 billion cubic meters (bcm) of gas to the European Union (excluding Baltic countries) and 100.9 bcm of gas to former Soviet Union (FSU) countries. At present, all exported gas has to pass transit countries (Ukraine or Belarus) before reaching the border of the EU. The existing Russian gas exporting network (operated by Gazprom) offers four different routes to the West. The bulk of strategic pipelines (5 pipelines, from 25 to 40 bcm capacity each, with total capacity of 155 bcm) still

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1 See Gordon, Gunsch and Pawluk (2003) for an empirical confirmation of this cost structure.
2 According to Gazprom www.gazpromquestions.ru.

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passes through Ukraine. In the 1980s, when transcontinental gas pipelines have been constructed in the region, the contract delivery point was set at the West German border, and the USSR had been responsible for the delivery of gas up to this point (vertical integration of production and transport infrastructure applies). Since the USSR included all Soviet republics (Ukraine and Belarus), and Eastern Europe belonged to the COMECON (CMEA) block, there were no transit problems at the time. The problem emerged with the dissolution of COMECON and divorce of the FSU. This is how Ukraine, Belarus and Eastern European Countries (EEC) inherited the pipeline infrastructure. Later on, EEC entered the EU and the transit problem had temporarily disappeared (although not completely, as the costly building of Nord Stream confirms). Russia tried to privatize Ukrainian pipelines, but was not successful due to strong Ukrainian commitment to seek rents from the ownership of these pipelines. Ukraine is also suspected of siphoning off a portion of the gas coming through its pipelines, due to the lack of proper legal enforcement. The economic problem then turned political with Ukraine’s pro-Western stance following the Orange Revolution in 2004. Russia was only willing to subsidize a ‘friendly’ Ukraine (charging it only 20% of the EU gas price), while Ukraine wanted both Western integration and cheap Russian gas. Since it was clear that a sudden increase to world natural gas prices would bankrupt Ukraine, Russia offered a gradual increase in Ukraine’s gas prices over time, in order to show some goodwill and increase to world natural gas prices, which in turn depend on the storage capacities of the parties involved. In February 2008, when Russia tried to increase its gas price rapidly to bring it closer to the EU level, Ukraine responded with an increase in the transit fee (9$ per 100 km, or three times above EU’s cost and two times the cost of under-water gas transport in the North Sea; for transit costs see Golombocek R. et al, 1995), such that it would compensate the loss from higher Russian gas prices. One reason for this ongoing natural gas quarrel is the difficulty of attaining legal enforcement of gas contracts in sovereign transit countries. First of all, there is no international law governing acceptable price limits for gas transit fees. Second, Ukraine’s siphoning of gas without paying fees has been observed and documented, albeit without legal consequences. Only as of January 2009, has Ukraine allowed independent EU observers to monitor its gas transit. Even then, they were still unable to enforce the contract.

There exist two types of literature related to this gas problem – theoretical and empirical. Most of the theoretical literature on the gas transit problem in Ukraine models the analysis as a game. The paper of von Hirschhausen et al (2005) derives the gas price for Ukraine and the transit tariff for Russia as the results of bargaining between two countries. Both cooperative and non-cooperative behaviors of each player are considered. In the non-cooperative case, Russia and Ukraine independently determine transit quantity and transit tariffs to maximize their profits. The evidence presented here and its derived policy changes are relevant for the 2004 price level (the prices are now higher). An interesting observation is that the transit fee is about $0.88-1.09 per tcm and per 100 km, while the marginal cost is only $0.15-0.24, thereby demonstrating the rent-seeking behavior on behalf of Ukraine. However, this will not be explored further. The conclusion is that cooperation between Ukraine and Russia is mutually beneficial. Another finding is that construction of alternative pipelines (one is currently planned via Belarus) brings about the erosion of the Ukrainian monopolistic position over transit. The paper of von Hirschhausen et al (2005), however, does not touch on a number of other important issues. Understanding the first issue requires the separation of the problem of supplying gas from Russia to Ukraine and the problem of supplying gas from Russia to the EU via Ukraine. Legally, these are two separate issues, despite Ukraine’s attempts to mix them up in the press. The second issue is whether a game theoretical set up is correct to use for a normative approach. Finally, gas is a non-renewable resource that is entitled a ‘scarcity’ rent in its own right.

The policy-oriented literature observes that Gazprom encounters transit problems, the resolution of which is essential, and explains why it has an interest in diversifying export routes. The issue of bypassing Ukraine was already a hot topic for Gazprom in the 1990s. Ideally, the price for gas and transit should be determined by an efficient market, but this requires that no participant has market power. Throughout the history of the Soviet Union's gas exports to Europe, contracts have been signed for delivery to the Western European border, after passing through an integrated COMECON (a.k.a. CMEA) region. In this set up, both the producer and the consumer of natural gas traded directly and hence there were no externalities imposed by a third party. Dissolution of the USSR created a structure in which one party (Ukraine) acquired a transit monopoly, which had the power to cause potential externality for Europe, since old contracts have not been adapted to the new economic situation. This externality became obvious in the gas transit conflict of January 2006, which is well documented in Stern (2006). The conflict of 2006 lasted only for 3 days (1-4/1/06) and thus did not affect the EU significantly. However, the settlement that was supposed to last 5 years came to an end. Therefore, it seems doubtful whether

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4 We infer rent seeking behaviour from two facts: opposing Russian intentions to operate pipelines jointly (Pirani, Simon (2007)) and the possibility to extract rents above the cost of transit (according to our discussion below).

5 In the past, Russia has accused Ukraine many times. In May 2005 it was revealed that 7.8 bcm of gas which Gazprom had deposited in Ukrainian storage reserves during the previous winter had not been made available to the company. It remains unclear if the gas was missing, had disappeared due to technical problems, or had been stolen, Stern (2006).

6 For example, Hubert and Ikonnikova (2004) model a bargaining process between one producer and several potential transit countries. Von Hirschhausen, Menhart and Pavel (2005) present a theoretical model and simulations of a gas pipeline game between Russia and Ukraine.

7 von Hirschhausen et al (2005)