



Drivers of reported electricity service satisfaction in transition economies



António Carvalho

Centre for Energy Economics Research and Policy (CEERP), Heriot-Watt University, Conoco Building, EH14 4AS Edinburgh, United Kingdom

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ABSTRACT

Since 1990, the power sectors in the countries of the Former Soviet Union have evolved from a context of central planning towards independent regulation. There is great heterogeneity in reform progress in transition countries, with consequences to service quality in utilities and also the view the population has of such services. This article analyses drivers of reported household satisfaction with the quality of electricity services in 27 countries using cross-section survey data from the European Bank for Reconstruction and Development Life in Transition Survey II, in a context of improving regulation and infrastructure. An ordinal Random Effects Logit model is estimated, showing that key drivers of reported satisfaction are the uses of electricity within the household and some characteristics such as age and economic conditions of the household. There is no strong evidence of the effect of the state of power sector reform on the opinion of households. However, customers in countries with fully independent regulation are more likely to report higher levels of satisfaction than those in countries with no independent regulation.

1. Introduction

This article aims to empirically explore the drivers of reported household satisfaction with electricity supply in transition economies, in a context of improving regulatory and infrastructure frameworks. The end of central planning implied that many of these economies implemented broad market-driven reforms as a part of thoroughgoing economic and political changes in the early 1990s. Throughout the transition process, economies that emerged from the collapse of the Soviet Union faced many parallel challenges, from reforming their economic systems to creating an appropriate institutional framework for future growth and stability. However, the transition process has been very heterogeneous. As such, some differences in service provision, socio-economic characteristics and opinions about service quality are expected across transition economies.

More specifically, this article aims to assess if the perceived quality of service is influenced by the state of the power sectors in transition and what are the socio-economic drivers of responses. The motivations to analyse this unexplored topic in the literature are threefold. First, it is important for policy makers in the energy sector to evaluate if the power sector reforms in transition economies are translating to better opinions about the service. Secondly, it is of interest to evaluate the effect of the persistency of the Soviet legacy and if that affects opinions on a service that has been shifted from free provision to a mixed or market structure. Finally, when evaluating changes and reforms in the power sector, it is crucial to understand how other social and economic

characteristics might drive opinions, perhaps more strongly than specific reforms themselves. These issues highlight the contribution of the article to policy makers not only in the energy sector, but also across the entire economic spectrum.

This empirical study is conducted using survey data from the EBRD (2011) and estimates an ordinal model with random effects to account for unobserved heterogeneity. The findings show that household opinions are mostly driven by general socio-economic characteristics of the household, with large variation across respondents, and that there is no evidence of a link between power sector reforms and household opinions about the electricity service. However, there is a significant effect of fully independent regulation on customer satisfaction when considered as an alternative measure. There is no evidence that past affiliation with a communist party affects reported satisfaction levels. Also, young people appear to be more dissatisfied. The policy implications are discussed at the light of the “unhappiness gap” literature in transition economies. Economic conditions and increased dependency of the service shift opinions along with regulatory independence. The persistency of the Soviet legacy is slowly fading away, but has not vanished completely.

The remainder of the article is structured as follows. Section 2 presents a literature review and key facts on the transition economies power sector. Section 3 outlines data analysis and the econometric methodology. Section 4 presents and discusses results. Section 5 concludes and points some policy implications of the findings.

E-mail address: A.Carvalho@hw.ac.uk.

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2. Power sector in transition: key facts and literature review

Since the very early stages of the Soviet Union, a strong focus was placed on electricity provision. [Lenin \(1920\)](#) declared that “Communism is government by the Soviets plus the electrification of the whole land” in an effort to transform the Soviet Union into a modernized world power with focus on heavy industry. The structure of the power sector in Soviet economies was deeply influenced by the organization of the economy. Besides the frequent use of price controls, supply side policies were applied in the energy sector whenever changes in demand were observed ([Cooper and Schipper, 1992](#)). While the oil shocks of the 1970s pressured countries in the Western hemisphere to push towards macroeconomic reforms, the Soviet Union was mostly isolated from such shocks and made shy reforms efforts. [Williams and Ghanadan \(2006\)](#) conducted an extended analysis of electricity reforms in development and transition countries. Pre-reform electricity sectors in such countries were characterized by universal access through a state owned and highly bundled sector. With tariffs set by ministries, cross subsidizing was common for agriculture, residences and public agencies. The authors also refer to limited use of utility meters and appropriate bill collections. However, after 1990, the need for additional revenue made utilities an attractive sector to privatize and commercialize, in order to keep state accounts balanced during times of economic turmoil. The World Bank also gave power sector loans on the condition that reforms were put in place ([World Bank, 1993](#)). While the first plan of action was mostly to follow the conclusions of the Washington Consensus to liberalize and reform economies, such efforts had wide variation in time and intensity. The different paces of reform after the break-up of the USSR ultimately meant that the situation in the power sector is different between transition economies well into the transition period. [Kennedy \(2003\)](#) reviewed the progress in regulatory reform in the specific case of transition economies, stating that while there was progress in reforms in the power sector in most countries, there are still issues with the independence of regulators, meaning that problems like government influence (through decision making or reliance on central funding) can still appear. Government commitment is necessary as simply importing pricing mechanisms from Western countries is not enough. Transition economies face specific challenges, such as significant exchange rate risks. The authors also point that in countries where regulation and commitment are weak, strategic investors leave the sector. In this context, the sector can face lack of investment and trust, and perpetuate lack of competition and price distortions.

There is an increasing literature about broad aspects of the power sector in transition economies. [Nepal and Jamasb \(2012\)](#) assess the impacts of reforms in transition economies and highlight the interdependency of power sector reforms and wider market reforms, with the failure to harmonize multiple reforms leading to ineffective power sector reforms. [Pollitt \(2009\)](#) makes an analysis of the South Eastern Europe electricity markets, concluding that power sector reform should be a part of wide institutional reforms and that progress in that wide range of reform is necessary to achieve success in reforming the power sector.

According to EBRD data, countries like Azerbaijan and Belarus failed to make significant improvements in the establishment of an independent regulator and the participation of private companies in the supply of electricity for a long period, while many countries in Eastern Europe (particularly those who joined the EU) have achieved a framework of independent regulation, cost-reflective pricing policies and higher bill collection rates. As such, the experiences and opinions of the population with their utility services and public services in general are expected to be very varied. However, the focus on the industry, reforms and their macroeconomic consequences is not being followed by a focus of the literature on the household side of the problem.

Besides depending on the socio-economic characteristics of the

customers, the opinion about electricity supply can also depend on the state of the power sector. There is a series of studied connections between service quality and customer satisfaction and loyalty ([Ardabili et al., 2012](#)), and customer satisfaction with services and their quality is an often discussed issue in the marketing literature ([Reketye and Pintér, 2006](#)). However, the specific context of transition economies needs to be considered, as in many countries there is no large-scale competition between private companies. Besides that, the historical and economic background of these countries implies that the focus of the power sector was placed on viability and attractiveness to investors instead of consumer concerns, as deteriorating national and sector finances were a driver of reforms ([Williams and Ghanadan, 2006](#)).

One of the key issues in assessing consumer satisfaction with utilities is the existence of comprehensive surveys on the subject. A study by [IPSOS \(2007\)](#) assessed customer satisfaction in all EU member-states regarding electricity services, including some of the transition economies. In the new member states (mostly transition economies), there was a higher percentage of both satisfied and dissatisfied consumers than in the EU15, and the average percentage of satisfied customers for transition economies is noticeably higher than the EU15 average, and especially when compared against southern Europe. Lithuania was the country with the highest percentage of satisfied customers in EU25. A survey by the [European Commission \(2013\)](#) also found evidence for EU countries that age influences reported opinions on electricity services and that females reported higher outcomes than males.

In transition economies, such efforts to retrieve opinions from households are scarce. A clear exception is a study conducted in Hungary to evaluate what is the opinion of customers about utility services in the country, where a consumer satisfaction survey was conducted from 1996 ([Reketye and Tersztyánszky, 2001](#)). [Reketye and Pintér \(2006\)](#) conducted a survey in Hungary to explore the relationship between satisfaction and price acceptance in electricity supply. An ordered probit response model was used, as the dependent variable was discrete. Another more general example of analysis using similar methods of discrete consumer satisfaction outside of the power sector literature is an analysis for Spanish mobile internet services ([Muñoz et al., 2012](#)). Regarding the opinions of households in developing economies, some studies have been conducted but are driven by specific problems rather unusual in the transition bloc, such as frequent power outages. [Aklin et al. \(2016\)](#) show in the context of energy-poor states of India that household satisfaction responds strongly to the average hours of electricity available on a typical day, implying that measuring quality of service is more important than counting connections. However, this study does not explore socio-economic characteristics of households as possible drivers of reported satisfaction.

The major efforts in understanding citizens' concerns and problems in transition economies have been conducted through the Life in Transition Surveys, done in 2006 and 2010 in a collaboration between EBRD and the World Bank. The second survey, LiTS II ([EBRD, 2011](#)) surveyed approximately 39,000 households in 34 countries in 2010, as the effects of the financial crisis were impacting the population. This survey asked a wide range of questions, related to the level of satisfaction with utility services, allowing researchers to look into household satisfaction with electricity supply all across the transition bloc. Data on income and savings is also collected, which is highly relevant to analyse the role of economic conditions. In an analysis of electric vehicle adoption in Europe, [Sierzchula et al. \(2014\)](#) show that the key drivers of electric vehicle adoption are financial incentives and availability of charging infrastructure, and that income and urban density are not significant, pointing for a minor role of socio-economic characteristics in that specific context.

Other specific issues of transition economies need to be considered. For example, the relevance of the age of respondents, as a large part of the citizens of these countries was educated in the Soviet system and a

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