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Adoption of fiscal devices and tax compliance. New evidence from Kazakhstan

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Abstract

We examine the tax revenue effects of a policy mandating certain businesses to adopt electronic fiscal devices in Kazakhstan. The case of Kazakhstan provides a unique setting for the study, as the government enacted the policy requiring firms in the selected industries and locations to adopt fiscal devices in business transactions. The effect of this policy on firms' tax compliance has not been explored up to now. This paper investigates the impact of this regulatory measure on small businesses. Using firm-level data for 2015 and 2016, we find that the policy generated an improvement in firms' compliance behavior. The regulatory intervention increased the tax revenues collected from the firms affected by the policy by approximately 20%. Understanding potential mechanisms to improve tax compliance, particularly in low state capacity contexts, is of both academic and policy interest. Increasing tax compliance can strengthen the ability of the government to provide public goods and it may also reduce inequality, depending on the distribution of evasion.

1 Introduction

One of the major fiscal policy tools in managing a country's economy is tax policy. Tax administration is crucial not only for the economic development of a country but also for developing an effective state (Bird and Casangera (1992)). Tax compliance shows the effectiveness of the tax administration and is a challenging issue in developing countries, which typically have weak institutional environments (Fuest and Riedel (2009); Torgler (2005); Bruno (2019); Slemrod (2019); Alm and Jorge (2003); Alon and Hageman (2012); Castro and Scartascini (2015); Kurauone et al. (2021)). As such, in 2016, Kazakhstan's government introduced a policy measure, which required firms in selected industries and locations to adopt electronic fiscal devices (EFDs)[1] in their transactions. This study investigates how this regulation affected tax compliance. By employing the industrial and geographic variation in the adoption of EFDs, we directly measure the effectiveness of the regulatory intervention on tax compliance. This study seeks to contribute to the existing literature by making use of the natural experiment setting that Kazakhstan provides, whereby we can assess the effectiveness of the regulatory intervention. The rich firm-level data allows the disentangling of the policy's impact.

Many studies have explored factors explaining tax compliance attitude at the enterprise level (Kenyon (2008); Carrillo et al. (2017); OECD (2019); Huizingh and Mulder (2015); Alm (2011)). However, research on the effectiveness of adopting fiscal devices on tax compliance is very limited. The existing studies suggest these devices positively impact the reported tax revenue. For example, the adoption of fiscal devices in Sweden increased the tax turnover by 5.2 percent (Awasthi and Engelschalk (2018)). The effects may vary by size and primary activity of the enterprises (Awasthi and Engelschalk (2018); Lovics et al. (2019)). Smaller companies have experienced larger value-added tax (VAT) returns (Awasthi and Engelschalk (2018)). The adoption of fiscal devices in Hungary affected reported turnover of retail, and accommodation and food services the most (Lovics et al. (2019)). Studies in developing countries have found similar positive effects of the EFD introduction (Merima et al. (2015); Fjeldstad et al. (2020)). The adoption of the new technology significantly improved tax compliance by increasing VAT payments in manufacturing firms in China (Fan et al. (2018)). In Tanzania, revenues from VAT have increased, but the effect was not as significant as expected (Fjeldstad et al. (2020)).

Attributing tax compliance to the causal impact of fiscal devices is generally tricky. Because there may be other factors influencing compliance and adoption of fiscal devices. It is necessary to exploit variation in fiscal device usage that is not driven by factors related to behavior changes. An important advantage of our study is that we utilize a policy intervention in which firms are required to adopt EFDs based on industry and location they are operating in. The regulation enacted in 2016 can be used to measure the effect of using the devices on tax compliance as it is a source of exogenous variation in the adoption of fiscal devices. Also, rich firm-level data samples for 2015 and 2016 enable us to use the variations in firm-level and regional characteristics in distinguishing the effect of the policy intervention from other factors affecting tax compliance.

The use of EFDs has been introduced by the government to improve tax compliance by monitoring business transactions in real-time and reducing informality in business transactions. The adoption of these devices by firms enables the tax authorities to receive live data online, which reduces the risk of fraudulent activities. Ten selected industries and sixteen locations[2] have been

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[1]The term Electronic Fiscal Device is used to describe a wide variety of technological machines such as electronic tax registers and electronic fiscal printers that revenue authority uses to record sales and taxes and monitor business transactions. For detailed information on these devices refer to Casey and Castro (2015).

[2]The locations were selected based on accessibility to the public telecommunications network.

mandated by the Kazakhstan Tax Authority (Ministry of Finance) to use fiscal printers starting from January 2016.

We obtain firm-level data from an annual survey conducted by the Statistics Committee of Kazakhstan. Our main finding is that firms that were subject to the policy, in our sample it is 600 firms, 3% of the total number of firms, identified by industry and location, appear to have improved their tax compliance. Firms that were required to adopt EFDs ended up paying approximately 20% more in taxes than those not required. This result highlights the importance of policy intervention in improving tax compliance.

The remainder of the study proceeds as follows. Section 2 provides an overview of the policy. Section 3 describes the firm-level data and presents some descriptive statistics. Section 5 provides the empirical results of the study. Section 6 concludes by summarizing the main findings of the study.

2 Background

Kazakhstan has experienced deep socio-economic transformations since its independence in 1991. The remarkable economic growth due to high world commodity prices since around the turn of the century has led to a substantial increase in per capita income in the country, making it the second-largest economy and one of the fastest-growing among post-Soviet countries (Abdulla (2021)). Kazakhstan has also implemented a range of public administration reforms which improved its position on the Worldwide Governance Indicators (Serikbayeva and Abdulla (2021)).

One of the public policies crucial for developing an effective state is tax administration. Currently, Kazakhstan is ranked 137th out of 168 countries by tax revenue as % of GDP (World Bank (2019)). The informal and underground economy accounts for around 25% of its GDP (Statistics Committee of Kazakhstan (2020)). There have been taken many regulatory measures to improve the country's tax administration (Ajmurzina et al. (2015); Baidybekova et al. (2016)). One of these reforms is the introduction of EFDs. In December 2015, the government signed a decree according to which individual entrepreneurs and legal entities in the selected industries and locations were required to use EFDs (Government Resolution (2015)). This regulatory intervention was undertaken to reduce informal economic activities, improve tax administration, and combat non-compliance by reducing cash transactions.

Firms' adoption of fiscal devices allows the tax authorities to monitor business transactions in real-time, mitigating the risk of fraudulent activities. The introduction of EFDs has been carried out in several phases. In the initial period starting from January 2016, the following selected industries were mandated to use EFDs: 1) wholesale of timber, construction materials, plumbing equipment; 2) wholesale of hardware, plumbing and heating equipment, and supplies; 3) retail trade of computers, peripherals, and software; 4) retail trade of audio, and video equipment; 5) retail sale of electrical household appliances; 6) retail sale of furniture, lighting equipment, and other household items; 7) provision by hotels; 8) restaurants and food delivery services; 9) film screening activities; 10) provision of services by hairdressers, and beauty salons. The regulation didn't include taxpayers whose businesses were located in places where there was a limited access to the telecommunications network.[3] The use of EFDs was gradually expanded in the years 2018-2020.

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[3]The following 16 locations are required to use EFDs: Aktau, Aktobe, Almaty, Atyrau, Karaganda, Kokshetau, Kostanay, Kyzylorda, Nur-Sultan, Pavlodar, Petropavlovsk, Shymkent, Taldykorgan, Taraz, Uralsk, and Ust-Kamenogorsk.

3 Data

The data used in the study are from the survey of small enterprise activities conducted by the Bureau of National statistics of Kazakhstan (Bureau). The survey is representative at the national level and contains detailed information on companies' financial and economic activities. The annual micro-data include reported tax revenues for each firm, the volume of production, turnover, costs, profits, number of employees, etc.

This paper focuses on the effect of using fiscal devices on tax collection by analyzing two periods: 2015 and 2016. Firms' financial and economic outcomes are summarized for each surveyed period. The timing of the introduction is useful for analyzing the impact of the new policy on firm behaviors. The requirement to use devices went into effect in January of 2016 so that the end-year survey of 2016 shows the effect of the policy on this year's activities of the firms, which is compared to those of 2015. Table A1 lists the available variables and their definitions used in the study.[4]

Table A2 provides the average values of the key variables used in the study. The table presents the reported tax revenue, volume of production, number of workers, as well as regional and other firm-specific variables.

Our final sample consists of 21 433 firms[5] in 16 regions of Kazakhstan. Based on the information about the industry, region, and year of the introduction of the regulation, the table shows the differences in characteristics in 2015 between firms having adopted the fiscal devices and those not having (Table A2). As seen, the firms are very heterogeneous in some of their characteristics. The volumes of production of not adopting firms are, on average higher than those of adopting. At the same time, adopting firms, on average, employ a higher number of workers. The firms that fell within the policy's scope, on average, are more likely to pay higher taxes. These differences in characteristics will be controlled in the empirical analysis.

Given the data are from the survey, there may be bias in the answers provided by the firms, which could lead to potential over/underestimation of our parameter of interest. Particularly, it is important to have more information about the survey, which would allow to know if firms have incentives to answer the survey truthfully, if the survey includes firm identification information or if firms trust that their information will not be leaked.

The survey is conducted by the Bureau of National Statistics, which is a professionally independent government body. The committee develops and implements state policy, regulatory legal acts in state statistics, forms statistical methodology following international statistical standards, and approves the methodology. It also ensures the confidentiality and protection of data. Primary statistical data are confidential and can be used by state statistics bodies only to produce statistical information. The confidentiality of primary statistical data is ensured during their collection, processing, and storage. The use of primary statistical data by state bodies is not allowed. The usage of databases is allowed for scientific purposes in a de-identified form following the procedure established by the authorized body. Therefore, firms can trust that their information will not be leaked or used by competitors or the government.

4 Conceptual Framework

The general form of the model that is used to analyze the effectiveness of the regulatory intervention on tax compliance, measured by tax revenue, is:

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[4]The detailed description of the variables are given in Tables A3, A4, A5 in the Appendix.

[5]3% of the total number of firms (600 firms) were subject to the policy intervention.

$$Tax_{jtig} = \beta_0 + \beta_1 Industry_j + \beta_2 Year_j + \beta_3 Location_j + \beta_4 X_{jtig} + \gamma YIL_j + \lambda + \varepsilon_{jtig} \qquad (1)$$

where Tax_{jtig} is the tax revenue collected from firm j in period t, an industry i and location g. *Industry* and *Location* are dummy variables indicating whether a firm is in the industry and the location that falls under the policy; *Year* is a dummy representing a year of the introduction of the regulation that takes value 1 when the regulation was introduced and 0 otherwise; YIL is an interaction of *Year*, *Industry*, and *Location*; X_{jtig} is a set of firm characteristics given in Table A1; λ is an unobserved regional effect; ε_{jtig} is iid error term.

The coefficient of interest is γ, which is the difference over time in the average difference of tax revenue between firms required to use fiscal printers and those not required.

$$\hat{\gamma} = (\bar{Tax}_{111} - \bar{Tax}_{011}) - (\bar{Tax}_{100} - \bar{Tax}_{000})$$

where $\bar{Tax}_{YIL}$ is an average tax revenue collected from firms in year Y, industry I and location L. In other words, $\hat{\gamma}$, the difference-in-difference estimator, is an estimate of the effect of the regulation on the values of the tax revenues collected from firms registered in the industry and location that were subject to the policy.

Figure 1 illustrates the mean values of tax revenues affected by the reform (the treatment group) and those not affected (the control group) across time. Tax revenues before the intervention (2015) and after the intervention (2016) are compared across groups. We observe that in 2015 mean tax payments were lower for firms that were subject to the EFD policy than for those which weren't. In 2016 tax payments by the treatment group were higher compared to the control group. In the next section we proceed to an empirical investigation of whether the impact of the government regulation is statistically significant.
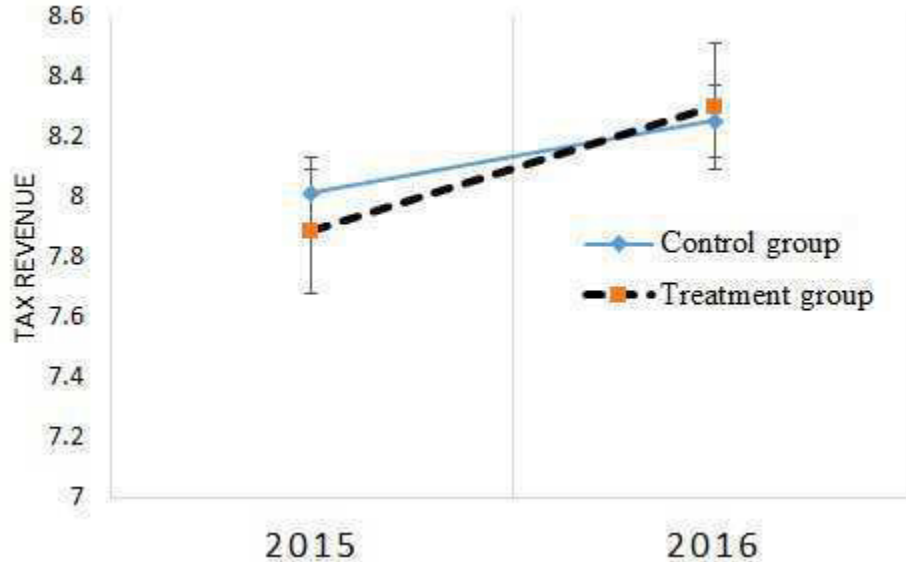
Figure 1: Impact of government intervention on tax revenue
Note: The graph enables to visually check the impact of the EFD policy on tax revenues in Kazakhstan. The mean values of tax revenues for firms affected by the reform - (the treatment group) and those not affected by the policy (the control group) are compared across two time periods, 2015 (before the intervention) and 2016 (after the intervention).

5 Empirical Findings

Table 1 provides the estimation results of model 1. The outcome we use is the logarithm of the reported tax revenue of firms. Column (1) presents the baseline model estimates, i.e., a model with the $Year$, $Industry$, $Location$, and the interaction of the variables, YIL. As seen, the estimate for Industry is negative, which suggests the tax revenues are lower for industries required to use fiscal printers. The estimate for $Location$ is positive, implying that locations experiencing the reform are paying higher taxes on average. The positive estimate for Year shows that in 2016 firms paid higher taxes than in 2015. The coefficients are statistically significant for all the variables. The estimate for the variable of interest, YIL, which shows how the regulation regarding the adoption of fiscal devices affects tax compliance, is not significant, but the effect size appears to be not negligible. The positive sign of the parameter of interest, $\hat{\gamma}$, indicates that there is an increase in tax revenues collected from firms under regulation, provided that the increase is not for other reasons. To ensure that other factors do not drive the parameters' estimates, we control for other firm-specific and regional characteristics in columns from (2) to (4).

As the first controls in the regression analysis, we add variables related to the firms' productivity that are more likely to affect tax revenues: the number of workers and production volume. Figure A1 shows a strong positive relationship between tax revenues and the volume of production. The correlation between tax revenue and the number of workers is positive but weaker. These relationships between tax revenue and the variables indicating the size of firms are not surprising since larger firms, on average, pay more taxes.

The results of the baseline regressions, using the controls for the number of workers and the volume of production, are summarized in Column (2). Controlling for these variables is important because the productivity of the firms under regulation could be systematically different from those not under regulation. These variables are generally significant with expected signs. A higher number of workers and a larger production volume are significantly associated with higher tax revenues. Including variables related to productivity improves the significance of $\hat{\gamma}$ and substantially increases the R-squared.

Columns (3) - (4) control for the variation in regional characteristics (*urban* and *region*), economic sectors in which firms operate (*sector*), forms and types of ownership (*ownership*), organizational and legal forms of management (*management*). As shown, controlling for additional characteristics does not affect the coefficient on the interaction term, $\hat{\gamma}$, the effect of the regulation is positive and statistically significant. The value 0.206 implies that firms that adopt fiscal devices pay 20.6% more in taxes because of the regulation. The full set of controls also allows for reducing the variance of the residuals, which is shown in the increased R-squared.

Table 1: Estimation results

VARIABLES	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Industry	-0.185*	-0.146*	-0.167**	-0.177**
	(0.100)	(0.080)	(0.080)	(0.080)
Location	0.250***	0.300***	0.086**	0.086**
	(0.030)	(0.020)	(0.040)	(0.040)
Year	0.230***	0.162***	0.109***	0.106***
	(0.030)	(0.020)	(0.020)	(0.020)
YIL	0.163	0.206*	0.197*	0.206*
	(0.160)	(0.120)	(0.120)	(0.120)
N. of workers		0.019***	0.019***	0.018***
		0.000	0.000	0.000
Volume of production		0.388***	0.380***	0.380***
		0.000	0.000	0.000
urban			Yes	Yes
region			Yes	Yes
ownership				Yes
sector				Yes
management				Yes
Constant	7.845***	3.331***	3.315***	3.302***
	(0.030)	(0.050)	(0.070)	(0.280)
N. of obs.	21433	21433	21433	21433
R_squared	0.01	0.43	0.44	0.47

Note: The dependent variable in columns is log(tax). Standard errors are in parentheses and *** p<0.01, ** p<0.05, * p<0.1.

5.1 Robustness checks

In the previous section, we have presented the results showing the effect of the regulatory intervention on tax compliance using data on the 2015 and 2016 samples. This section checks the robustness of the estimates by repeating the analysis using data for 2015 and 2017. Since in both 2016 and 2017, the policy was there, it is possible to check if the previous results hold for 2017.

Results for 2015-2017 are presented in Table 2 in Columns (1) to (4). Although not statistically significant, a primary parameter of interest, YIL in column (1), with a magnitude of 0.228, is comparable to the previous result. Controlling firm-specific and regional characteristics in Columns (2) through (4) improves the R-squared of the model. The regulation's impact on tax compliance remains robust, although marginally significant. The firms adopted fiscal machines pay 20% more in taxes.

Table 2: Estimation results

VARIABLES	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Industry	-0.052	0.00	-0.031	-0.029
	(0.120)	(0.090)	(0.090)	(0.090)
Location	0.452***	0.507***	0.192***	0.182***
	(0.030)	(0.030)	(0.040)	(0.040)
Year	0.292***	0.137***	0.077***	0.077***
	(0.030)	(0.020)	(0.020)	(0.020)
YIL	0.228	0.214*	0.192	0.196
	(0.160)	(0.130)	(0.130)	(0.130)
N. of workers		0.010***	0.010***	0.010***
		0.000	0.000	0.000
Volume of production		0.464***	0.454***	0.455***
		(0.010)	(0.010)	(0.010)
urban			Yes	Yes
region			Yes	Yes
ownership				Yes
sector				Yes
management				Yes
Constant	7.933***	2.533***	2.450***	2.137***
	(0.030)	(0.060)	(0.080)	(0.140)
N. of obs.	20579	20579	20579	20579
R_squared	0.02	0.37	0.38	0.39

Note: The dependent variable in columns is log(tax). Standard errors are in parentheses and *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

6 Conclusion

Tax compliance is essential for effective tax administration. It is a challenging issue, particularly in developing countries, many of which have weak taxation administration systems. In January 2016, the government of Kazakhstan enacted the regulation, which imposed the requirement to use EFDs on firms in the selected industries and locations. This paper seeks to empirically verify the expected positive effect of the policy instrument on tax revenues. We find strong evidence that the policy generated an improvement in the compliance behavior of firms. Based on the micro firm-level data for 2015 and 2016 years with controls for the full set of firm-specific and regional characteristics, the analysis suggests that firms falling under the regulation are significantly more likely to comply with tax policy than firms not affected by it. These firms tend to pay 20% more in taxes. The robustness estimations using the samples for 2015 and 2017 provide some evidence on tax compliance. The effect of the EFD policy is statistically significant only in Model 2, although the sign and magnitude of the effect remain the same across all models.

The study has important policy implications. Enforcing tax compliance reduces informal transactions and, as a result, increases government revenues. The study provides solid evidence for the effectiveness of EFDs in improving tax compliance among firms. The adoption of fiscal devices is likely to induce firms to be more compliant and, in consequence, to increase tax revenues. The findings enable tax officials to better assess the relationship between the enacted policy and firm

behavior and help better forecast tax revenues given the response from the regulation.

Although making a substantial contribution to the literature on tax compliance, the study has some limitations. First, the outcome variable is based on firm self-reports from survey data. It is possible that firms under the EFD policy report more tax revenue (perhaps the EFDs made them more aware of how much tax they were actually paying). Second, the study uses industry, region, and year to impute EFD status. However, there is a possibility that some firms don't comply (not all firms under the mandate may adopt the technology), particularly in the short run, due to logistical issues. It would be interesting to confirm the findings of the study and gain deeper insights into the relationship between the adoption of EFDs and tax compliance using administrative tax data.

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Appendix A

Figure A1: Tax revenue and firm performance

(a) Tax revenue and volume of production   **(b)** Tax revenue and number of workers
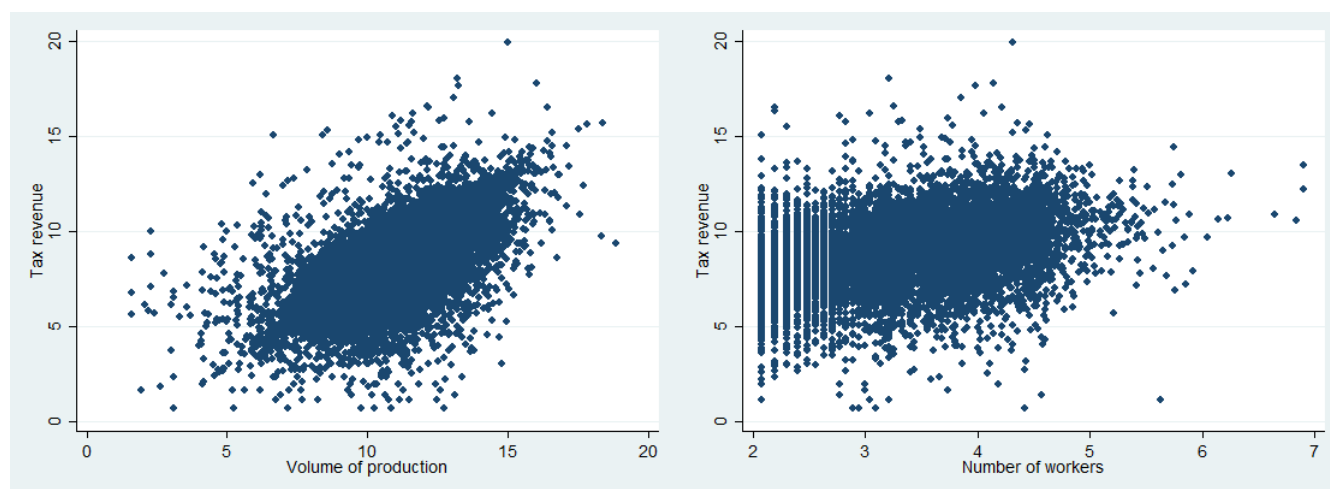
Note: Tax revenue, volume of production and number of workers are in logarithm. Source: Bureau of National statistics of Kazakhstan.

Table A1: Definitions of the variables

	Variable	Definition
1	tax	total tax revenues include VAT and excise tax
2	n_workers	the number of employees on the payroll minus specific categories of employees formally assigned to work (persons on a maternity leave, childcare, and others)
3	vol_prod	the volume of products manufactured, works performed and services rendered - the costs of all manufactured products and services provided at the manufacturer's prices
4	region	the territory of registration of the firm
5	oked	the type of activity for which the firm is registered
6	urban	the location of registration of the firm (urban or rural)
7	size	the classifier of the size of legal entities, branches and representative offices, as well as individual entrepreneurship
8	sector	the classifier of economic sectors
9	ownership	the classifier of the type of ownership
10	management	the classifier of organizational and legal forms of management
11	location	the location where the regulation is administered

Note: The table includes main variables and definitions used in the analyses. Source: Bureau of National statistics of Kazakhstan.

Table A2: Summary statistics for sample data

	log(tax)	log(vol prod)	n.of. work-ers	urban	size	sector	owner-ship	manage-ment
2015								
not adopt	8.02	10.27	25.36	0.83	124.69	1,127.1	20.03	20.1
	(2.13)	(2.63)	(36.76)	(0.38)	(19.31)	(24.88)	(4.23)	(2.59)
adopt	7.88	10.19	25.82	0.92	123.92	1,122.5	20.25	20
	(2.04)	(2.33)	(41.66)	(0.26)	(17.40)	(2.59)	(4.07)	(0.59)
total	8.01	10.27	25.38	0.83	124.66	1,126.9	20.04	20.09
	(2.12)	(2.62)	(36.95)	(0.37)	(19.24)	(24.44)	(4.22)	(2.55)
2016								
not adopt	8.52	11.19	28.66	0.86	129.21	1,123.5	20.46	20.06
	(1.96)	(2.12)	(29.47)	(0.35)	(19.23)	(11.57)	(4.61)	(1.52)
adopt	8.61	11.03	25.26	0.92	128.71	1,122.8	20.65	20
	(1.80)	(1.56)	(20.47)	(0.27)	(18.56)	(2.79)	(4.72)	(0.00)
total	8.52	11.18	28.54	0.86	129.19	1,123.5	20.47	20.06
	(1.95)	(2.10)	(29.20)	(0.35)	(19.21)	(11.38)	(4.62)	(1.49)

Notes: The first row is the statistics for firms that did not adopt fiscal devices, while the second for those that adopted, and the third for the whole sample. Standard errors are given in the brackets. Source: The authors' own calculations are based on the Bureau of National statistics of Kazakhstan.

Table A3 shows the Classifier of economic sectors, which is used to classify firms according to sectors they belong. The variable is used in the analysis as a dummy variable.

code	Name of the class	code	Name of the class
1.1.1.1	State non-financial corporations - NPO	1.2.7.1	Government captive financial institutions
1.1.1.2	State non-financial corporations - PPOs	1.2.7.2	National private captive financial institutions
1.1.2.1	National private non-financial corporations - NPOs	1.2.7.3	Captive financial institutions under foreign control
1.1.2.2	National private non-financial corporations - PPOs	1.2.8.1	State insurance corporations
1.1.3.1	Non-financial corporations under foreign control - NPO	1.2.8.2	National private insurance corporations
1.1.3.2	Non-financial corporations under foreign control - OPP	1.2.8.3	Insurance corporations under foreign control
1.2.2.1	State corporations accepting deposits	1.2.9.1	State pension funds
1.2.2.2	National private corporations accepting deposits	1.2.9.2	National Private Pension Funds
1.2.2.3	Foreign-controlled deposit-taking corporations	1.2.9.3	Pension funds under foreign control
1.2.3.1	State money market funds	1.3.1.1	Central government social security funds
1.2.3.2	National Private Money Market Funds	1.3.1.2	Central government bodies other than social security funds
1.2.3.3	Foreign-controlled money market funds	1.3.1.3	Non-profit organizations of central government
1.2.4.1	State investment funds of the non-monetary market	1.3.2.1	Social Security Funds of Regional Governments
1.2.4.2	National private investment funds of the non-monetary market	1.3.2.2	Regional governments other than social security funds
1.2.4.3	Foreign-controlled non-monetary investment funds	1.3.2.3	Non-profit organizations of regional authorities
1.2.5.1	Other public finance corporations	1.3.3.1	Local government social security funds
1.2.5.2	Other national private financial corporations	1.3.3.2	Local governments other than social security funds
1.2.5.3	Other financial corporations under foreign control	1.3.3.3	Local government non-profit organizations
1.2.6.1	State subsidiary financial corporations	1.4.4.1	Recipients of property income
1.2.6.2	National private subsidiary financial corporations	1.4.4.2	Recipients of pensions
1.2.6.3	Auxiliary financial corporations under foreign control	1.4.4.9	Recipients of other transfer income

Table A3: Classifier of economic sectors
Source: Bureau of National Statistics of Kazakhstan.

Table A4 shows the Classifier of organizational and legal forms of management, which is used to classify firms according to organizational and legal forms of management.

code	Name of the class	code	Name of the class
10	State enterprises	37	Consumer cooperatives
11	State-owned enterprises on the right of economic management	38	Foundations
12	State-owned enterprises on the right of operational management (state-owned)	39	Religious associations
15	Business partnerships	40	Associations of legal entities in the form of an association
18	Full partnerships	42	Agricultural partnerships
19	Limited partnerships	45	Individual entrepreneurship
20	Limited Liability Partnerships	46	Personal entrepreneurship
21	Additional liability partnerships	47	Individual entrepreneurship based on joint venture
28	Joint Stock Companies	48	Simple partnership
30	Other organizational and legal forms	49	Spouses entrepreneurship
31	Production cooperatives	50	Family entrepreneurship
35	Institutions	60	Other organizational and legal forms of a non-profit organization
36	Public associations		

Table A4: Classifier of organizational and legal forms of management
Source: Bureau of National Statistics of Kazakhstan.

Table A5 shows the Classifier of forms and types of ownership, which is used to classify firms according to forms and types of ownership.

code	Name of the class	code	Name of the class
11	State property	28	Ownership of joint ventures with foreign participation
12	Republican ownership	29	Property of public, including religious associations
13	Communal property	32	Foreign ownership
15	Private property	33	Property of other states, their legal entities and citizens
16	Property of citizens	34	Property of foreign states
17	Property of non-state legal entities and their associations	36	Property of foreign legal entities
19	Ownership of enterprises without state and foreign participation	37	Property of foreign individuals
23	Property of enterprises with state participation (without foreign participation)	38	Property of international organizations

Table A5: Classifier of forms and types of ownership
Source: Bureau of National Statistics of Kazakhstan.