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Does Trade Policy Uncertainty Affect Firms' Imported Intermediates?

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Abstract

In recent years, the rise of trade protectionism and the intensifying trend of deglobalization worldwide have led to an annual increase in trade policy uncertainty faced by Chinese companies in international trade. This uncertainty may impact the import of intermediate goods by these companies. The import of intermediate goods is closely related to various aspects of a company's operations, such as productivity, mark-up rates, and innovation. Therefore, examining the impact and mechanisms of trade policy uncertainty on the import of intermediate goods by companies is of significant importance. This paper uses data from the 2001-2009 China Industrial Enterprise Database, China Customs Import and Export Database, and the World Bank's WITS database to calculate the trade policy uncertainty index for Chinese companies and test theoretical hypotheses. Empirical results show that when trade policy uncertainty increases, there is a decrease in both the amount and range of intermediate goods imported by companies, while the growth rate of intermediate goods import value increases. The mediating effect indicates that trade policy uncertainty affects companies' intermediate goods procurement strategies by reducing their production and business scale. Additionally, heterogeneity analysis finds that trade policy uncertainty has different impacts on companies with various intermediate goods import strategies.

Keywords: Trade Policy Uncertainty, Import, Intermediates, Business Scale.

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1. Introduction

In recent years, trade protectionism has been on the rise, and the trend of anti-globalization is intensifying worldwide. The economic volatility in the international trade environment has been increasing, and Chinese enterprises are facing growing uncertainties in trade policies in international trade. Enterprises invest in intermediate goods for production, and when trade policy uncertainties change, the likelihood of external trade policy changes increases, which in turn affects the enterprises' decisions on importing intermediate goods. According to existing research, the import of intermediate goods by enterprises is closely related to various aspects such as productivity, markup rates, and innovation. Therefore, examining the impact and mechanism of trade policy uncertainty on the import of intermediate goods by enterprises is of significant importance.

According to Handley and Limão (2015), global trade liberalization often accompanies two major features: a decrease in tariff rates and a reduction in trade policy uncertainty. Knight (1921) defines uncertainty as the unknown probability and outcome of an event, making it difficult to predict. Bloom et al. (2007) observes that uncertainty reflects market participants' doubts about the future. Tong and Li (2015) explain that trade policy uncertainty refers to the state of unregulated trade policies among countries worldwide. It means that a country's foreign trade policies, influenced by domestic political and economic factors and foreign trade policies, affect the import and export decisions of its businesses. In current research, trade policy uncertainty is defined as the likelihood of a change in tariffs, i.e., the possibility of moving from optimal tariffs to the worst-case scenario. In recent years, academic interest in trade policy uncertainty has remained high. However, since it is an abstract rather than a concrete concept, there are a variety of methods for measuring it. The current common methods for measuring trade policy uncertainty mainly include three types: text extraction method, tariff differential method, and model estimation method. The first method is the text extraction method. Baker et al. (2012) calculated economic policy uncertainty based on the frequency of relevant keywords. The monthly data on Trade Policy Uncertainty Index, jointly released by Stanford University and the University of Chicago, employs this method. The current issue with this approach is its strong subjectivity and the inaccuracy of machine calculations, necessitating extensive human effort and resulting in less accurate data. The second method is the tariff differential method. Groppo and Piermartini (2014) used the difference between the worst-case tariff rate faced and the current tariff rate as a method to measure trade policy uncertainty. The third method is the model estimation approach. Handley (2015) proposed a measure of trade policy uncertainty by constructing a heterogeneous firm model, using the gap between the actually implemented preferential tariff and the stipulated most-favored-nation (MFN) tariff to assess trade policy uncertainty. In his 2015 study on the relationship between trade policy uncertainty and Australian exports, Handley argued that joining the WTO does not completely eliminate trade policy uncertainty. This is because there is a fluctuation space between the WTO-agreed bound tariffs

and the MFN tariffs, leading to fluctuations in the actual tariffs faced by enterprises in exports, still subject to the impact of trade policy uncertainty. The study found a positive correlation between trade policy uncertainty and bound tariffs, and a negative correlation with MFN tariffs. Against this background, a method for measuring trade policy uncertainty was proposed, namely, calculating the gap between the WTO-agreed bound tariffs and the WTO-set MFN tariffs. Handley and Limão (2017) noted that before China's accession to the WTO, the U.S. had granted China temporary MFN status, but voted annually on whether to continue this status. Thus, China continuously faced the threat of losing this MFN status until its formal entry into the WTO, which eliminated this threat and reduced the trade policy uncertainty faced by Chinese enterprises. In this context, a method for measuring trade policy uncertainty was proposed, using the difference between the Smoot-Hawley tariff levied by the U.S. on China and the MFN tariff imposed post-WTO accession. If the U.S. were to cancel China's temporary MFN status, the Smoot-Hawley tariff would be applied.

Building a powerful trade nation is an inevitable requirement for comprehensively constructing a modern socialist country. To build a strong trade nation, it is essential not only to be strong in exports but also in imports. The role of trade in the economy must be studied, and the contribution of imports to economic growth should be highly valued. Importing intermediate goods closely links China's industry and supply chains with those of other countries, supporting the development of industries in these nations and sharing the benefits of development. Compared to the import of other final products, intermediate goods imports not only have commodity attributes but also serve as carriers of knowledge and technology from other countries. This can bring about international technology spillover, stimulating China's imitation and learning of knowledge and technology from other countries. It enhances the production efficiency of China's final products and the quality of export products, thereby improving China's core competitiveness in international trade. This is key for China's transition from a large trading nation to a powerful trading nation.

The study by Novy and Taylor (2019) indicates that an increase in uncertainty is often related to financial crises and has a significant suppressive effect on trade. The authors found through constructing economic models that firms adjust their strategies for importing intermediate goods to cope with the impact of trade policy uncertainty.

Shepotylo and Stuckatz (2017) used data from Ukrainian manufacturing firms for the years 2003-2013 to explore the potential outcomes of Ukraine joining two major competing free trade agreements. The study found that joining either side led to a reduction in Trade Policy Uncertainty, which in turn positively influenced foreign direct investment and the import of intermediate inputs by companies. However, the impact on exports was not significant. Yu and Li (2016) calculated the quality of imported intermediate goods at the 8-digit HS code level and conducted empirical research using the difference-in-differences method. Their study revealed that trade policy uncertainty increases the quality of imported intermediate goods. Mao and

Xu (2018), using the difference-in-differences method, investigated corporate import strategies and found that a decrease in trade policy uncertainty increased firms' expected profits, thereby motivating the import of intermediate inputs. Mao (2020) also used the difference-in-differences approach, and the results showed that a decrease in trade policy uncertainty significantly promotes the expansion of firms' import scale, beneficial for high-quality enterprise development. Sun and Zhou (2020) used the trade data between our country and CAFTA and the difference-in-differences method for his research. The results show that the decline in trade policy uncertainty significantly improved the quality of our country's export products, which helps to promote the expansion and upgrading of our export products, optimize the industrial structure, and enhance our country's position in the value chain. Liu and Chen (2022) used data from the World Bank Trade Agreement Content Database and the Customs Trade Database to study the impact of the depth of free trade agreements on the quality of imported intermediate goods by enterprises. The results show that the depth of free trade agreements significantly enhances the quality of imported intermediate goods by enterprises, and the deeper the free trade agreement, the more it can promote the upgrading of the quality of imported intermediate goods by enterprises. Chen et al. (2022) found that the U.S. anti-dumping measures against China may lead to a decline in the quality of export products by suppressing the growth in the scale and the improvement in the quality of intermediate goods imported by the enterprises involved. Xu and Guo (2023) found that trade protectionism and the normalization of trade frictions have led to a continuous increase in trade policy uncertainty, significantly inhibiting the rise in the division of labor in the global value chain. The author further discovered that trade policy uncertainty suppresses the division of labor in the global value chain through the import of intermediate goods. Tang and Wang (2023) used matched data from the Industrial Enterprise Database and China Customs Database for the years 2000 to 2013. Through empirical analysis, he found that the import of intermediate goods has a significant positive effect on the quality of enterprise export products. Wang et al. (2023) discussed the impact of exchange rate fluctuations on export stability by constructing a framework in which market penetration rate is endogenously determined. The study found that the import of intermediate goods can hedge against the negative effects of exchange rate fluctuations.

This paper measures the scale of a firm's import of intermediate goods using both the amount of intermediate goods imported at the firm level and the growth rate of these imports. It assesses the range of intermediate goods imported by a firm using the variety of intermediate products imported at the firm level. The study examines the impact on a firm's import of intermediate goods when faced with changes in trade policy uncertainty. The marginal contributions of this paper are: (1) Existing literature on international trade primarily focuses on the impact of trade policy uncertainty on firms' export and import strategies, with relatively few studies emphasizing the effect of trade policy uncertainty on firms' strategies for importing intermediate goods. (2) Current literature mainly investigates the negative impact

of trade policy uncertainty on firms' imports, overlooking the positive effects of trade policy uncertainty on the growth rate of firms' intermediate goods imports.

2. Theoretical Mechanism Analysis and Research Hypotheses

Once a firm makes an investment decision, it cannot be reversed, hence the need to consider the opportunity cost of the decision. If a firm decides to invest in the current period, it might encounter adverse situations, leading to potential losses. Conversely, if the investment decision is postponed to the next period, the firm might miss out on profits that could have been earned in the current period. A substantial body of literature indicates that trade policy uncertainty primarily affects firms' import and export decisions by influencing their sunk costs. In the presence of trade policy uncertainty, firms might need to incur higher sunk costs to make production decisions. Since importing intermediate goods is part of a firm's production process, it is considered an investment decision. When trade policy uncertainty changes, the likelihood of external trade policy changes increases, which in turn affects firms' decisions regarding the import of intermediate goods. With heightened trade policy uncertainty, the opportunity cost of choosing to import intermediate goods increases. To avoid situations detrimental to business operations, firms may opt to delay or reduce their investment decisions, leading to a decrease in their import of intermediate goods. Additionally, as firms postpone their decisions, trade policy uncertainty may lead to an increase in the growth rate of intermediate goods imports. To diversify risk, firms may adopt more conservative import strategies for intermediate goods, focusing more on core intermediate goods and reducing the variety of imported products. Based on this, research hypotheses 1 and 2 of this paper are formulated.

Hypothesis 1: When trade policy uncertainty increases, firms' imports of intermediate goods decrease, while the growth rate of intermediate goods imports increases.

Hypothesis 2: When trade policy uncertainty increases, the range of intermediate goods imported by firms decreases.

When trade policy uncertainty increases, firms may delay or reduce their production decisions, leading to a decrease in their production scale. Consequently, firms adjust their intermediate goods import decisions based on their production choices. Therefore, under heightened trade policy uncertainty, firms reduce their production scale, and subsequently, their intermediate goods procurement strategies. Based on the above analysis, Hypothesis 3 of this paper can be drawn.

Hypothesis 3: When trade policy uncertainty increases, firms reduce their production and operation scale, which inhibits their intermediate goods procurement strategy.

3. Empirical Strategy

3.1 Data source and processing

The empirical data in this article are derived from the China Industrial Enterprise Database, China Customs Import and Export Database, and the WITS database jointly established by the World Bank and UNCTAD. Data processing and database matching were conducted based on these three databases, retaining data from 2001 to 2009. The specific processing methods are as follows:

1. Processing of China Industrial Enterprise Database: First, exclude sample data with missing key variables. Next, exclude abnormal samples with less than 8 employees, total assets less than current assets, or total assets less than net fixed assets. Finally, exclude samples that clearly do not conform to accounting standards.
2. Processing of China Customs Import and Export Database: First, exclude sample data with missing enterprise names. Next, exclude intermediate goods import source market observations from non-WTO member countries. Then, for customs data from 2001-2006, which are monthly, and other observation periods that are annual, aggregate the monthly data from 2001-2006 into annual data for research convenience. Finally, due to changes in the HS code version used in the customs data during the sample period, convert the HS code version in the customs data to the HS96 version for ease of research.
3. Processing of World Bank WITS Database: The WITS database includes the bound tariff rate, the most-favored-nation tariff rate, the preferential tariff rate after signing regional trade agreements, and the applied tariff rate used in international trade. Typically, the applied tariff rate equals the most-favored-nation rate, but if a preferential trade agreement applies, the applied tariff rate equals the preferential rate. This paper retains the bound tariff rate, most-favored-nation tariff rate, and preferential tariff rate at the HS6 digit code level for WTO member countries during the sample period. For products with a bound tariff rate of 0, following Osnago et al. (2015), the most-favored-nation tariff is tripled to set the bound tariff.
4. Database matching: Following the method of Nie et al. (2012), the China Industrial Enterprise Database is matched with the China Customs Import and Export Database. First, disorderly values in enterprise names are processed. Next, the two databases are matched based on year and enterprise name, and further refined by matching based on the postal code of the enterprise's location and the last seven digits of the enterprise's phone number. Then, trade policy uncertainty data at the country-year level for HS6 digit code products is calculated based on tariff data from the World Bank WITS database and merged with the matched data from the China Industrial Enterprise Database and China Customs Import and Export Database. Finally, match the HS6 digit codes with the BEC codes according to the matching table, retaining import data with BEC codes "111", "121", "21", "22", "31", "322", "42", "53".

3.2 Model construction

Based on the relevant hypotheses in the aforementioned research, to study the impact of trade policy uncertainty at the enterprise level on firms' import strategies for intermediate goods, the econometric model is set as follows, and empirical research is conducted:

$$\mathrm{Var}_{ft} = \beta_0 + \beta_1 \mathrm{tpu}_{ft} + \beta_2 Z_{ft} + \mu_f + \mu_t + \mu_i + \varepsilon_{ft} \tag{2}$$

In the model, f represents the firm, t represents the year, and i represents the industry in which the firm operates. The dependent variable Var_{ft} measures the import of intermediate goods at the firm level, including the scale and range of intermediate imports. The core explanatory variable tpu_{ft} is trade policy uncertainty at the firm level, alongside control variables at the same level. μ_f represents firm fixed effects, μ_t represents year fixed effects, and μ_i represents industry fixed effects. ε_{ft} is the error term, and the regression standard errors are robust standard errors clustered at the industry level.

3.2 Introduction of key variables

3.2.1 Dependent variable

The dependent variable is the import of intermediate goods at the enterprise level, including the scale and range of intermediate imports. Specifically, the scale of imports includes the logarithmic value of the enterprise's intermediate goods import value (lnvalue) and the growth rate of intermediate goods import value (growth). The range of imports is represented by the type of intermediate goods imported by the enterprise (type).

3.2.2 Core explanatory variable

The core explanatory variable is the trade policy uncertainty at the enterprise level (tpu_{ft}). For measuring trade policy uncertainty, this study adopts the approaches used by Handley and Limão (2017), measuring it through the following methods:

$$\mathrm{TPU} = \begin{cases} 1 - \left(\frac{\tau_{MFN}}{\tau_{BND}}\right)^{\sigma}, & \text{WTO member} \\ 1 - \left(\frac{\tau_{PRF}}{\tau_{MFN}}\right)^{\sigma}, & \text{signed an RTA} \end{cases} \tag{2}$$

Here, τ_{MFN} represents the Most-Favored-Nation (MFN) tariff rate, τ_{BND} represents the bound tariff rate, and τ_{PRF} represents the preferential tariff rate after signing a Regional Trade Agreement (RTA). The parameter σ is set to 5. For products with a bound tariff rate of 0, following Osnago et al. (2015), the bound tariff is set at three times the MFN tariff rate. For WTO member countries that have not signed an RTA with China, the tariff ceiling is the bound tariff rate, whereas for those that have signed an RTA with China, the tariff ceiling is the MFN tariff rate. Based on these measurement methods, the trade policy uncertainty index tpu_{pjt} is calculated, which

represents the trade policy uncertainty faced in year t when importing intermediate product p from country market j. However, this measure of trade policy uncertainty refers to the uncertainty at the product market level for enterprises. The core explanatory variable of this paper is the trade policy uncertainty at the enterprise level, tpu_{ft}, which is derived by weighting the trade policy uncertainty at the product level. The weight is the proportion of the import value of a specific product to the total import value of the enterprise. The specific calculation steps are shown in the following formula:

$$\mathrm{tpu_{ft}} = \sum_{\mathrm{p}} \frac{\mathrm{value_{fpt}}}{\sum_{\mathrm{p}} \mathrm{value_{fpt}}} \times \mathrm{tpu_{fpt}} = \sum_{\mathrm{p}} \sum_{\mathrm{j}} \frac{\mathrm{value_{fpjt}} \times \mathrm{tpu_{pjt}}}{\mathrm{value_{ft}}} \tag{3}$$

Based on the aforementioned measurement methods, the trade policy uncertainty index at the enterprise level, tpu_{ft}, is calculated. This index represents the trade policy uncertainty faced by enterprise f in year t when importing intermediate goods.

3.2.3 Control variables

This section includes several control variables, primarily focusing on those at the enterprise level. The control variables at the enterprise level mainly consist of enterprise age, size, capital intensity, labor productivity, and financing constraints. Specifically:

1. Enterprise Age (lnage): This is represented by the logarithm of the current year minus the opening year plus one.
2. Enterprise Size (lnsize): Indicated by the logarithm of the total number of employees.
3. Capital Intensity (lnkl): Measured by the logarithm of the ratio of the total value of fixed assets to the number of employees.
4. Labor Productivity (lnlp): Represented by the logarithm of the ratio of industrial total output to the number of employees.
5. Financing Constraint (finance): Calculated as the ratio of the difference between current assets and current liabilities to total assets. This indicator is inversely related to the financing constraints of a firm; a larger value indicates less financing constraint.

3.2.4 Descriptive statistics of variables

The descriptive statistical results of the main variables selected in this article are shown in Table 1. In the selected sample, the standard deviations of the dependent variables lnvalue, growth, and type are 2.704, 5.101, and 12.15, respectively, indicating a considerable range of variation in the dependent variables. The overall standard deviation of the core explanatory variable tpu is 15.54, suggesting that there were significant changes in trade policy uncertainty faced by enterprises during the observation period of 2001-2009.

Table 1: Descriptive statistics of variables

Variable	Mean	Standard Deviation	Minimum	Maximum
lnage	2.216	0.519	1.099	3.401
lnsize	5.433	1.153	3.219	8.013
lnkl	4.008	1.374	1.105	6.808
lnlp	5.530	1.061	3.480	7.899
finance	0.132	0.277	-0.504	0.701
tpu	-4.984	15.54	-82.54	0.946
lnvalue	12.15	2.704	5.781	16.89
type	10.08	12.15	1	53
growth	1.403	5.101	-0.966	27.83

4. Results

4.1 Analysis of Baseline Regression Results

The results of the baseline regression are shown in Table 2.

Table 2: Results of the Baseline Regression

	(1)	(2)	(3)
Variable	**lnvalue**	**growth**	**type**
tpu	-0.004***	0.015***	-0.012***
	(-4.03)	(5.13)	(-4.51)
lnage	0.046	-0.678***	0.383***
	(1.63)	(-5.95)	(3.73)
lnsize	0.816***	-1.086***	2.660***
	(51.98)	(-15.73)	(24.69)
lnkl	0.043***	-0.118**	0.494***
	(4.71)	(-2.44)	(7.62)
lnlp	0.515***	-0.770***	1.080***
	(20.60)	(-15.06)	(10.89)
finance	0.002	0.010	-0.255*
	(0.07)	(0.10)	(-1.95)
Constant	4.721***	13.646***	-12.809***
	(23.72)	(21.60)	(-10.12)
Observations	207,469	133,838	207,469
R-squared	0.824	0.288	0.874
Firm Fixed Effects	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

According to the regression results in Table 2, in the baseline regression where the scale of imported intermediate goods is the dependent variable, the results of column (1) indicate that an increase in trade policy uncertainty at the firm level leads to a significant decrease in the amount of imported intermediate goods. The results of column (2) show that when the growth rate of imported intermediate goods is the dependent variable, an increase in trade policy uncertainty at the firm level results in a significant decrease in the growth rate of imported intermediate goods. In the baseline regression where the range of imported intermediate goods is the dependent variable, the results of column (3) suggest that an increase in trade policy uncertainty at the market level of the firm significantly reduces the variety of intermediate goods imported by the firm in that market. The empirical results demonstrate that when trade policy uncertainty increases, there is a decrease in both the amount and range of imported intermediate goods, while the growth rate of imported intermediate goods increases.

4.2 Robust tests

4.2.1 Core Explanatory Variable Substitution

In measuring trade policy uncertainty, there are various measurement methods, and the choice of method can lead to differences in regression results. This article measures the core explanatory variable of trade policy uncertainty using a model estimation method. Following the approach of Qian and Gong (2017), this study selects an optimized tariff difference method. Based on the tariff data from the World Bank's WITS database, trade policy uncertainty is recalculated using the following specific formula:

$$\mathrm{TPU} = \begin{cases} \tau_{\mathrm{BND}} - \tau_{\mathrm{MFN}}, \text{WTO member} \\ \max\left(\tau_{\mathrm{MFN}} - \tau_{\mathrm{PRF}}\ ,\ 0\right), \text{signed an RTA} \end{cases} \tag{4}$$

In this formula, τ_{MFN} represents the Most Favored Nation (MFN) tariff rate, τ_{BND} is the bound tariff rate, and τ_{PRF} is the preferential tariff rate after signing a Regional Trade Agreement (RTA). For WTO member countries that have not signed an RTA with China, the tariff ceiling is the bound tariff. For those who have signed an RTA with China, their tariff ceiling is the MFN tariff. The advantage of using the tariff difference method to measure trade policy uncertainty, as opposed to the model estimation method, is that with the model estimation method, the trade policy uncertainty index remains unchanged when the two types of tariff rates used for measurement change by the same magnitude. However, this issue does not arise with the tariff difference method. Here, the recalculated trade policy uncertainty index is used to study the impact of trade policy uncertainty on firms' intermediate goods import strategies, in order to validate the results of the baseline regression. The results of the regression are shown in Table 3.

Table 3: Robustness Test Results with the Substitution of the Explanatory Variable

	(1)	(2)	(3)
Variable	**lnvalue**	**growth**	**type**
tpu	-0.018*	0.037***	-0.032**
	(-1.87)	(3.69)	(-2.11)
lnage	0.005	-0.165***	0.281**
	(0.18)	(-2.86)	(2.48)
lnsize	0.802***	-0.711***	2.564***
	(49.03)	(-20.99)	(26.64)
lnkl	0.038***	-0.076***	0.440***
	(4.21)	(-3.54)	(7.63)
lnlp	0.506***	-0.500***	1.029***
	(20.50)	(-19.74)	(11.19)
finance	-0.014	0.013	-0.222*
	(-0.41)	(0.25)	(-1.71)
Constant	5.078***	8.138***	-11.529***
	(25.42)	(25.34)	(-10.08)
Observations	211,091	136,361	211,091
R-squared	0.830	0.281	0.873
Firm Fixed Effects	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

By re-running the regression using data with the substituted core explanatory variable, the results indicate that under different measurement methods for trade policy uncertainty, there is a significant correlation between trade policy uncertainty and the amount of imported intermediate goods, the growth rate of import amounts, as well as the range of imported intermediate products. Moreover, the sign of this relationship is consistent with the baseline regression. This suggests that the results of the baseline regression are robust.

4.2.2 Substitution of the Dependent Variable

In this robustness test regression, the dependent variable of the scale of imported intermediate goods is substituted with the logarithm of the quantity of intermediate goods imported at the firm level (lnquantity) and the growth rate of the import quantity (growth_q). Additionally, the dependent variable of the range of imported products is replaced with the concentration index of imported intermediate products at the firm level (hhi) and the proportion of core intermediate product imports in the total intermediate goods imports of the firm (core). The formula for calculating the concentration index is as follows:

$$\mathrm{hhi}_{\mathrm{ft}} = \sum_{\mathrm{p}} \left(\frac{\mathrm{value}_{\mathrm{fpt}}}{\sum_{\mathrm{p}} \mathrm{value}_{\mathrm{fpt}}}\right)^2 \quad (5)$$

In this formula, f represents the firm, p represents the product, and t represents the year.
The results of the regression are shown in Table 4.

Table 4: Robustness Test Results with the Substitution of the Dependent Variable

	(1)	(2)	(3)	(4)
Variable	**lnquantity**	**growth_q**	**hhi**	**core**
tpu	-0.006***	0.042***	0.0002***	0.0002**
	(-5.12)	(7.61)	(2.646)	(2.296)
lnage	0.059*	-0.870***	-0.0057*	-0.0038
	(1.65)	(-4.05)	(-1.761)	(-1.330)
lnsize	0.847***	-1.788***	-0.0442***	-0.0342***
	(38.52)	(-13.10)	(-19.302)	(-18.434)
lnkl	0.058***	-0.260***	-0.0095***	-0.0076***
	(5.19)	(-2.90)	(-5.430)	(-5.503)
lnlp	0.502***	-1.105***	-0.0094***	-0.0063***
	(18.06)	(-11.94)	(-6.023)	(-4.799)
finance	-0.033	0.041	-0.0001	0.0003
	(-0.92)	(0.19)	(-0.033)	(0.110)
Constant	2.999***	21.629***	0.9440***	0.9575***
	(11.08)	(18.51)	(43.299)	(56.485)
Observations	207,469	133,838	207,469	207,469
R-squared	0.828	0.293	0.708	0.679
Firm Fixed Effects	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

According to the robustness test regression results in Table 4, the results of columns (1) and (2) show that trade policy uncertainty has a negative impact on the quantity of intermediate goods imported by firms and a positive impact on the growth rate of intermediate goods imports. This is consistent with the baseline regression conclusion that trade policy uncertainty significantly inhibits the amount of intermediate goods imported by firms and significantly promotes the growth rate of these imports. Furthermore, based on the results of columns (3) and (4), trade policy uncertainty has a positive impact on the concentration of imported intermediate products at the product level and on the proportion of core intermediate goods imports. This suggests that trade policy uncertainty increases the concentration and the share of core intermediate goods imports for firms, which is consistent with the baseline regression results of a decrease in the range of firm's products. This indicates that the results of the baseline regression are robust.

4.2.3 Substitution of Import Substitution Elasticity

In the baseline regression mentioned earlier, the trade policy uncertainty measurement set the import substitution elasticity at 5. Here, it is replaced with 3, substituting the original trade policy uncertainty index. The regression results are as shown in Table 5.

Table 5: Robustness Test Results with the Substitution of Import Substitution Elasticity

	(1)	(2)	(3)
Variable	**lnvalue**	**growth**	**type**
tpu	-0.023***	0.103***	-0.046***
	(-3.01)	(5.06)	(-2.59)
lnage	0.046	-0.680***	0.383***
	(1.61)	(-5.96)	(3.73)
lnsize	0.814***	-1.082***	2.662***
	(51.59)	(-15.64)	(25.01)
lnkl	0.042***	-0.117**	0.494***
	(4.59)	(-2.43)	(7.63)
lnlp	0.516***	-0.772***	1.084***
	(20.59)	(-15.08)	(11.01)
finance	0.002	0.012	-0.256*
	(0.05)	(0.12)	(-1.95)
Constant	4.726***	13.652***	-12.819***
	(23.62)	(21.59)	(-10.21)
Observations	207,469	133,838	207,469
R-squared	0.824	0.288	0.874
Firm Fixed Effects	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

The regression results are consistent with the baseline regression, indicating that the results of the baseline regression are credible.

4.2.4 Retain Data of Enterprises that Continuously Import Intermediate Goods

Exclude the observations of enterprises that entered or exited the market during the observation period, retaining only the observations of enterprises that continuously imported intermediate goods throughout the sample period. Re-run the regression using data from enterprises that continuously imported intermediate goods. The regression results are as shown in Table 6.

Table 6: Robustness Test Results for Retaining Data of Continuously Importing Enterprises

	(1)	(2)	(3)
Variable	**lnvalue**	**growth**	**type**
tpu	-0.005***	0.018***	-0.021***
	(-3.63)	(4.36)	(-4.00)
lnage	0.106*	-0.207	-0.050
	(1.84)	(-0.87)	(-0.14)
lnsize	0.817***	-0.978***	3.579***
	(21.90)	(-7.98)	(13.41)
lnkl	0.020	-0.132*	0.575***
	(0.92)	(-1.82)	(3.95)
lnlp	0.535***	-0.439***	1.479***
	(16.67)	(-5.31)	(8.32)
finance	-0.008	-0.276	-0.914***
	(-0.16)	(-1.40)	(-3.10)
Constant	5.446***	10.318***	-14.477***
	(14.70)	(8.34)	(-4.88)
Observations	29,047	25,812	29,047
R-squared	0.807	0.209	0.871
Firm Fixed Effects	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

4.3 Heterogeneity analysis

Due to the core explanatory variable in this study employing the share of imported products at the enterprise level as a weight, enterprises might alter their import strategies based on their own assessments of trade policy uncertainty. This could lead to endogeneity issues. To eliminate potential endogeneity interference, the following methods were used for endogeneity testing.

4.3.1 Using Lagged Explanatory Variables

To avoid endogeneity issues, this study uses the lagged values of the core explanatory variable and the lagged values of all explanatory variables for regression. The regression results are as shown in Table 7.

Table 7: Regression Results Using Lagged Explanatory Variables

	(1)	(2)	(3)	(1)	(2)	(3)
Variable	**lnvalue**	**growth**	**type**	**lnvalue**	**growth**	**type**
tpu	-0.002*	0.003**	-0.011*	-0.002***	0.004***	-0.007*
	(-1.69)	(2.05)	(-1.76)	(-2.80)	(2.62)	(-1.75)
lnage	-0.061*	-0.106	0.195	-0.045	-0.258*	0.020
	(-1.82)	(-1.63)	(1.28)	(-1.41)	(-1.90)	(0.13)
lnsize	0.759***	-0.508***	2.369***	0.530***	-0.559***	1.960***
	(36.70)	(-15.32)	(23.99)	(32.01)	(-9.63)	(20.19)
lnkl	-0.003	-0.015	0.346***	0.050***	-0.106***	0.428***
	(-0.27)	(-0.65)	(5.84)	(4.49)	(-2.71)	(5.90)
lnlp	0.509***	-0.432***	1.031***	0.293***	-0.290***	0.718***
	(16.24)	(-12.02)	(9.08)	(16.32)	(-5.57)	(8.66)
finance	-0.018	0.093	-0.361*	-0.029	0.147	-0.006
	(-0.35)	(1.11)	(-1.89)	(-0.81)	(1.32)	(-0.05)
Constant	5.812***	6.110***	-9.525***	8.072***	6.644***	-4.773***
	(23.11)	(18.83)	(-7.17)	(50.40)	(11.25)	(-4.06)
Observations	133,945	90,076	133,945	133,808	89,903	133,808
R-squared	0.847	0.278	0.891	0.841	0.291	0.895
Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

The regression results in columns (1), (2), and (3) use the lagged values of trade policy uncertainty as the explanatory variable for regression. Columns (4), (5), and (6) use the lagged values of all explanatory variables for regression. The results of these regressions are highly significant and the signs are consistent with the baseline regression, further confirming the accuracy of the baseline regression results.

4.3.2 Removing Time Trends

Since the core explanatory variable utilizes the enterprise-level product import share that varies over time as a weight, to avoid endogeneity issues, the trade policy uncertainty index was processed to remove time trends. The residuals after regression were used as the trade policy uncertainty in the regression. The results are as shown in Table 8. It can be seen that using the time-trend-removed trade policy uncertainty as the explanatory variable, the regression results remain significant. This indicates that, even when considering endogeneity, the conclusions drawn in the previous sections are still credible.

Table 8: Regression Results after Removing Time Trends

	(1)	(2)	(3)
Variable	**lnvalue**	**growth**	**type**
tpu	-0.004***	0.015***	-0.012***
	(-4.05)	(5.09)	(-4.39)
lnage	0.046	-0.678***	0.383***
	(1.63)	(-5.95)	(3.73)
lnsize	0.816***	-1.086***	2.660***
	(51.96)	(-15.73)	(24.70)
lnkl	0.043***	-0.118**	0.494***
	(4.71)	(-2.45)	(7.62)
lnlp	0.515***	-0.770***	1.080***
	(20.59)	(-15.07)	(10.89)
finance	0.002	0.010	-0.255*
	(0.07)	(0.10)	(-1.95)
Constant	4.741***	13.550***	-12.754***
	(23.54)	(21.44)	(-10.09)
Observations	207,469	133,838	207,469
R-squared	0.824	0.288	0.874
Firm Fixed Effects	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

4.3.3 Using Different Weighting Methods

To avoid endogeneity issues, this approach no longer uses the current year's import share as the weighting factor. Instead, it uses the import share of each product from each market in the initial year of import as the weighting factor. This method recalculates the enterprise-level trade policy uncertainty index and conducts regression. The regression results are as shown in Table 9.

Table 9: Regression Results with the Replacement of Weighting Method

	(1)	(2)	(3)
Variable	**lnvalue**	**growth**	**type**
tpu	-0.005***	0.018***	-0.017***
	(-5.09)	(6.39)	(-7.35)
lnage	0.045	-0.676***	0.374***
	(1.56)	(-5.93)	(3.63)
lnsize	0.813***	-1.079***	2.651***
	(50.26)	(-15.52)	(24.24)
lnkl	0.042***	-0.117**	0.492***
	(4.68)	(-2.42)	(7.66)
lnlp	0.514***	-0.764***	1.074***
	(19.94)	(-14.87)	(10.60)
finance	0.001	0.010	-0.261**
	(0.02)	(0.09)	(-1.99)
Constant	4.740***	13.587***	-12.723***
	(22.80)	(21.33)	(-9.89)
Observations	207,469	133,838	207,469
R-squared	0.824	0.289	0.874
Firm Fixed Effects	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

By performing regression with the trade policy uncertainty index calculated using different weighting methods, the results are consistent with the baseline regression. This indicates that the results of the baseline regression are robust.

4.4 Heterogeneity analysis

4.4.1 Heterogeneity Analysis Based on the Nature of Enterprise Ownership

Table 10 reports the impact of trade policy uncertainty on enterprises of different ownership types. The regression results in columns (1) and (2) indicate that the impact of trade policy uncertainty on the amount of intermediate goods imported by foreign-invested enterprises is less than that on state-owned enterprises. This might be because foreign-invested enterprises, due to their ownership characteristics, tend to use more intermediate goods from foreign markets for production and are more involved in international trade, leading to less fluctuation in their import amounts under trade policy uncertainty compared to state-owned enterprises. The results in columns (3) and (4) demonstrate that under uncertainty, foreign-invested enterprises experience a greater increase in the growth rate of import amounts, while the regression coefficient for state-owned enterprises is not significant, likely due to the more stable operational scale and import patterns of state-owned enterprises. Finally,

the results in columns (5) and (6) show that foreign-invested enterprises are able to adjust their range of imported intermediate goods more quickly in the face of trade policy uncertainty, while state-owned enterprises, with more stable procurement strategies, are less affected, hence the non-significant regression coefficients.

Table 10: Regression Results 1 of Heterogeneity Analysis

	(1)	(2)	(3)	(4)	(5)	(6)
	lnvalue		**growth**		**type**	
Variable	**state-owned**	**foreign-invested**	**state-owned**	**foreign-invested**	**state-owned**	**foreign-invested**
tpu	-0.005**	-0.004***	0.011	0.015***	-0.009	-0.011***
	(-2.24)	(-3.96)	(0.82)	(4.86)	(-1.12)	(-3.80)
lnage	-0.007	0.090***	-0.240	-0.725***	-0.221	0.644***
	(-0.05)	(2.67)	(-0.53)	(-5.77)	(-0.58)	(4.73)
lnsize	0.552***	0.833***	-1.250**	-1.071***	1.391***	2.868***
	(5.06)	(46.71)	(-2.33)	(-14.63)	(4.54)	(22.68)
lnkl	-0.021	0.037***	-0.015	-0.099**	0.370*	0.539***
	(-0.32)	(3.81)	(-0.04)	(-2.01)	(1.77)	(7.56)
lnlp	0.651***	0.510***	-0.826**	-0.746***	1.475***	1.086***
	(8.02)	(20.55)	(-2.11)	(-13.95)	(5.48)	(10.76)
finance	0.262	-0.002	-0.296	0.003	0.931	-0.288**
	(1.22)	(-0.05)	(-0.31)	(0.03)	(1.35)	(-2.06)
Constant	4.788***	4.843***	16.080***	13.214***	-11.075***	-13.438***
	(4.04)	(23.83)	(2.94)	(19.92)	(-3.14)	(-9.50)
Observations	8,955	175,655	5,051	117,325	8,955	175,655
R-squared	0.786	0.827	0.334	0.282	0.829	0.875
Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

4.4.2 Heterogeneity Analysis Based on the Types of Imported Intermediate Goods

In this part, products under the same four-digit product code but different six-digit codes are defined as similar products. The table below analyzes the heterogeneous effects of trade policy uncertainty on enterprises that import similar intermediate goods and those that import diversified intermediate goods. According to the regression results in Table 11, trade policy uncertainty has a significant impact on enterprises importing diversified intermediate goods. In contrast, for those importing similar intermediate goods, the regression coefficient is not significant. This indicates that enterprises importing similar intermediate goods have more stable import strategies for intermediate goods and are less susceptible to the effects

of trade policy uncertainty. Meanwhile, enterprises importing diversified intermediate goods have more flexible import strategies and can adjust their procurement strategies more promptly in response to trade policy uncertainty.

Table 11: Regression Results 2 of Heterogeneity Analysis

	(1)	(2)	(3)	(4)	(5)	(6)
	lnvalue		growth		type	
Variable	diversified	similar	diversified	similar	diversified	similar
tpu	-0.004***	0.000	0.015***	-0.005	-0.012***	0.001
	(-4.08)	(0.11)	(5.24)	(-0.31)	(-4.54)	(1.11)
lnage	0.051*	-0.120	-0.694***	0.073	0.374***	-0.020
	(1.73)	(-1.38)	(-5.88)	(0.18)	(3.48)	(-0.80)
lnsize	0.828***	0.424***	-1.100***	-0.718*	2.747***	0.025
	(49.95)	(7.24)	(-15.74)	(-1.85)	(24.29)	(1.14)
lnkl	0.046***	-0.043	-0.130***	0.134	0.516***	-0.025
	(4.86)	(-1.36)	(-2.61)	(0.56)	(7.43)	(-1.64)
lnlp	0.520***	0.356***	-0.772***	-0.675***	1.112***	0.046***
	(19.71)	(7.59)	(-14.88)	(-2.88)	(10.65)	(2.83)
finance	0.002	-0.006	0.011	-0.207	-0.267*	-0.060*
	(0.06)	(-0.06)	(0.11)	(-0.38)	(-1.95)	(-1.65)
Constant	4.621***	7.872***	13.848***	7.680**	-13.115***	0.954***
	(21.32)	(14.76)	(21.50)	(2.45)	(-9.71)	(5.57)
Observations	197,163	10,210	129,777	3,982	197,163	10,210
R-squared	0.820	0.904	0.287	0.406	0.871	0.740
Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

4.4.3 Heterogeneity Analysis Based on Different Financing Constraints of Enterprises

In recent years, scholars have increasingly focused on the impact of firms' financing constraints on their international trade activities. In this context, the median of corporate financing constraints is chosen as a benchmark. Firms with financing constraint variables above this benchmark are defined as low-financing-constraint enterprises, while those below are considered high-financing-constraint enterprises. The regression results are presented in Table 12. According to these results, firms with low financing constraints, when faced with the impact of trade policy uncertainty, adjust their import amounts of intermediate goods and the range of imported intermediate products less than firms with high financing constraints. Additionally, the increase in the growth rate of intermediate goods import amounts is smaller for firms with low financing constraints. This may be because firms with low financing constraints have relatively stable financing sources and their

operational scales are less likely to change, leading to less fluctuation in imports. Their scale of intermediate goods imports and the range of imported products are less affected by fluctuations in trade policy, resulting in smaller adjustments.

Table 12: Regression Results 3 of Heterogeneity Analysis

	(1)	(2)	(3)	(4)	(5)	(6)
	lnvalue		growth		type	
Variable	low	high	low	high	low	high
tpu	-0.003***	-0.004***	0.011***	0.018***	-0.008**	-0.016***
	(-2.98)	(-3.31)	(3.18)	(4.78)	(-2.00)	(-5.19)
lnage	0.039	0.044	-0.428**	-0.776***	0.900***	0.090
	(0.82)	(1.16)	(-2.09)	(-4.70)	(5.25)	(0.67)
lnsize	0.852***	0.818***	-0.993***	-1.276***	2.835***	2.625***
	(38.26)	(33.22)	(-10.80)	(-11.84)	(20.75)	(20.70)
lnkl	0.047***	0.053***	-0.100*	-0.173**	0.570***	0.587***
	(3.37)	(3.39)	(-1.71)	(-2.07)	(6.18)	(7.50)
lnlp	0.526***	0.529***	-0.758***	-0.826***	1.042***	1.105***
	(17.70)	(21.13)	(-9.88)	(-9.41)	(10.16)	(10.18)
Constant	4.658***	4.476***	12.119***	15.810***	-14.125***	-13.176***
	(18.81)	(17.82)	(13.33)	(15.48)	(-9.71)	(-9.63)
Observations	97,624	95,314	62,881	61,503	97,624	95,314
R-squared	0.844	0.834	0.324	0.332	0.890	0.885
Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

4.4.4 Heterogeneity Analysis Based on the Number of Different Import Market Types

Table 13 reports the different impacts experienced by single-market and multi-market enterprises under the influence of trade policy uncertainty. According to the regression results in columns (1) and (2), the decrease in the amount of intermediate goods imported by multi-market enterprises is smaller than that of single-market enterprises. The results in columns (5) and (6) show that when facing the impact of trade policy uncertainty, multi-market enterprises adjust the range of their products to a greater extent than single-market enterprises. As per the results in columns (3) and (4), under trade policy uncertainty, the growth rate of intermediate goods importation significantly increases for multi-market enterprises, while the regression coefficient for single-market enterprises is not significant. This is because single-market enterprises have more stable intermediate goods import strategies and are less affected by trade policy uncertainty, whereas multi-market enterprises are more flexible in importing intermediate goods.

Table 13: Regression Results 4 of Heterogeneity Analysis

	(1)	(2)	(3)	(4)	(5)	(6)
	lnvalue		growth		type	
Variable	**multi-market**	**single-market**	**multi-market**	**single-market**	**multi-market**	**single-market**
tpu	-0.004***	-0.005**	0.015***	0.009	-0.012***	-0.011***
	(-4.01)	(-2.24)	(5.08)	(0.61)	(-4.38)	(-2.76)
lnage	0.056*	-0.096	-0.675***	-1.412	0.393***	-0.092
	(1.94)	(-0.74)	(-5.89)	(-1.27)	(3.72)	(-0.38)
lnsize	0.820***	0.594***	-1.082***	-0.849	2.714***	1.072***
	(49.59)	(8.32)	(-15.69)	(-1.53)	(24.50)	(5.16)
lnkl	0.044***	-0.012	-0.119**	0.027	0.513***	0.058
	(4.61)	(-0.34)	(-2.40)	(0.08)	(7.75)	(0.76)
lnlp	0.524***	0.313***	-0.762***	-0.771*	1.106***	0.396***
	(20.42)	(6.60)	(-15.05)	(-1.75)	(10.61)	(4.21)
finance	0.001	-0.069	0.016	-0.207	-0.268**	-0.032
	(0.02)	(-0.73)	(0.15)	(-0.26)	(-2.07)	(-0.10)
Constant	4.712***	5.919***	13.606***	12.521***	-13.080***	-3.191**
	(22.65)	(10.70)	(21.71)	(2.84)	(-9.95)	(-2.34)
Observations	195,457	11,906	130,193	3,549	195,457	11,906
R-squared	0.815	0.859	0.286	0.439	0.873	0.872
Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

4.5 Analysis of the mechanism of action

To test the hypothesis of the role mechanism of enterprise production scale expansion, a mediation effect model is used for the regression analysis in this part. The study first employs trade policy uncertainty as the core explanatory variable and uses channel variables as the dependent variables for regression. Then, using trade policy uncertainty as the core explanatory variable, channel variables are added as explanatory variables. The regression analysis is conducted with the scale of intermediate goods imports and the range of imported intermediate products at the enterprise level as the dependent variables.

The reduction in the overall trade policy uncertainty faced by enterprises may lead to the expansion of their production scale, which in turn could increase the scale of their intermediate goods imports. In constructing the indicator for this study, due to the availability of data, the growth rate of enterprise sales is used to measure the expansion of enterprise production scale. Table 14 presents the test results for the transmission mechanism of enterprise production scale expansion.

Table 14: Analysis of mechanism of action

	(1)	(2)	(3)	(4)
Variable	**scalegrowth**	**lnvalue**	**growth**	**type**
tpu	-0.001***	-0.004***	0.015***	-0.011***
	(-3.14)	(-4.01)	(5.21)	(-3.28)
scalegrowth		0.012**	0.157***	0.079***
		(2.26)	(5.66)	(2.83)
lnage	-0.169***	0.147***	-0.652***	0.533***
	(-3.96)	(4.40)	(-5.70)	(3.83)
lnsize	-0.990***	0.850***	-0.930***	3.141***
	(-19.78)	(40.45)	(-13.24)	(19.17)
lnkl	0.013	0.076***	-0.120**	0.649***
	(0.78)	(6.32)	(-2.48)	(6.88)
lnlp	-1.030***	0.562***	-0.608***	1.304***
	(-18.23)	(23.83)	(-11.40)	(11.30)
finance	-0.171***	-0.035	0.037	-0.330**
	(-3.31)	(-1.14)	(0.35)	(-2.15)
Constant	11.737***	4.289***	11.803***	-16.318***
	(20.32)	(20.06)	(17.69)	(-9.01)
Observations	133,838	133,838	133,838	133,838
R-squared	0.382	0.835	0.289	0.883
Firm Fixed Effects	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Cluster-Robust Standard Errors (by Industry)	YES	YES	YES	YES

Note: ***, **, and * represent significance levels at 1%, 5%, and 10%, respectively. The numbers in parentheses are t-values.

In column (1) of Table 14, the estimated coefficient of tpu is significantly negative, indicating that a decrease in trade policy uncertainty promotes the expansion of enterprise production scale. In columns (2) and (4), the estimated coefficients of trade policy uncertainty and enterprise production scale expansion are opposite in sign, suggesting that trade policy uncertainty can reduce the amount of intermediate goods imported by enterprises and the range of imported intermediate products by inhibiting the expansion of enterprise production scale. In column (3), the estimated coefficients of trade policy uncertainty and enterprise market scale expansion are both significantly positive, indicating that trade policy uncertainty faced by enterprises can increase the growth rate of intermediate goods imports through inhibiting the expansion of enterprise production scale.

5. Conclusion

This study, utilizing data from the China Industrial Enterprise Database, China Customs Import and Export Database, and the World Bank WITS Database for the years 2001-2009, tests theoretical hypotheses and concludes the following: First, there is a significant negative correlation between the trade policy uncertainty faced by enterprises and their intermediate goods import amount, indicating that the greater the increase in trade policy uncertainty, the more the enterprise's intermediate goods import amount decreases. Second, there is a significant positive correlation between trade policy uncertainty and the growth rate of intermediate goods import amount, suggesting that the greater the increase in trade policy uncertainty, the higher the growth rate of the enterprise's intermediate goods import amount. Third, there is a significant negative correlation between trade policy uncertainty and the range of imported intermediate products, meaning that the greater the increase in trade policy uncertainty, the more the range of the enterprise's imported intermediate products decreases. Additionally, the study's analysis of mediation effects suggests that trade policy uncertainty can influence an enterprise's intermediate goods procurement strategy by reducing its production and operational scale.

In light of the research conclusions, this study proposes the following policy recommendations:

1. Enterprises should focus more on trade policy uncertainty. Based on their own operational characteristics, enterprises should timely adjust the scale of their intermediate goods imports and the range of imported products. By adapting their intermediate goods import strategies, they can mitigate the negative impact of trade policy uncertainty and make timely improvements in line with their own issues.
2. Enterprises should continually optimize their intermediate goods import structure. When making decisions about importing intermediate goods, enterprises should not only focus on the scale of imports but also pay attention to the structure of these imports. Enterprises can enhance their competitive edge in international trade and offset the negative impact of trade policy uncertainty by importing diversified intermediate goods and sourcing from different markets.
3. Governments should formulate intermediate goods trade support policies based on the heterogeneous characteristics of enterprises. Tailored assistance should be provided to different types of enterprises, such as those with various ownership structures, varying levels of financing constraints, importing similar or diverse intermediate goods, and those dealing with different numbers of import markets. By developing stable and effective support policies, governments can further deepen the liberalization reform of intermediate goods trade.

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