Does household capacity play a role in influencing consumption? Empirical evidence from the rural area of Mekong River Delta, Vietnam

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Abstract

This study is to examine the link between income diversification and household consumption in Mekong River Delta, Vietnam based on the 1993/98 panel data and the 2002/04/06 panel data. The study period covers a thirteen year period and drew on a framework that conceptualized diversification as a product of household capacity variables and "incentives to diversify". The analysis showed that there is a clear link between income diversification and consumption, and that household capacity does play a role in influencing consumption. Particularly, results suggest that changes in household consumption over this period may be attributed to mainly two factors. First, the main household specific factor that plays a role in influencing consumption is a household head's occupational status with a clear effect of non-farming work (manual or otherwise) on increasing consumption. Second, non-household specific attributes as captured by changes in the intercept account for the bulk of the increase in consumption. These findings support the idea that institutional and policy changes which have occurred in Vietnam in the last twenty years have provided the impetus for the spectacular growth and poverty reduction experienced in the MRD and in Vietnam.

Keywords: Vietnam, Mekong River Delta, income diversification, household consumption

JEL classification code: D13, D14, D31, G31, G50

1. Introduction

From the theory, agricultural household models (AHM) that income diversification should have influences on household consumption and household production. A mixed picture of the link between diversification into non-farm activities and poverty has been revealed in the literature (Ellis 2000, Lanjouw 2007). Previous studies show that a greater share of time allocated to non-farm activities and poverty levels is negative in some parts of the world while positive in others (Lanjouw, 2007). In Vietnam, van de Walle and Cratty (2004) conclude that the development of non-farm self-employment provides a route for moving out of poverty for some households but not for others. In the context of Mekong River Delta (MRD) of Vietnam, there has been an increasing reliance on non-farm wage employment and between 1993 and 2006, the share of time spent on non-farm wage employment has almost tripled in this region, from 7.3 percent in 1993 to 19.8 percent in 2006 (GSO, 2007). Given the high percentage of self-employment and the limited development of agricultural labour markets, it is unlikely that the separability

assumption underlying AHM holds. Hence, variables that affect production and consumption decisions may be expected to influence household consumption patterns.

Following van de Walle and Cratty (2004), we use a panel data to examine whether there is any link between diversification and consumption/poverty, with occupation of household head as a proxy for diversification. The advantage of using panel data is that it allows me to control for unobserved time-invariant heterogeneity and provide a more convincing estimate of the link between various characteristics and expenditure.

The structure of the paper is as follows. The reseach data is described in section 2, followed by estimation model in section 3. Section 4 provides the empirical results and discussions. Finally, we provide some concluding remarks and policy implications in section 5.

2. Research data

Data from the Living Standards Measurement Surveys (LSMS) in Vietnam, known as Vietnam Living Standard Survey (VLSS), are used for the analyses in this paper. Specifically, data from five Mekong River Delta (MRD) samples 1993, 1998, 2002, 2004 and 2006 are ultilized. The available data are used to construct three different two-year panel samples, 1993/98 (707 households), 2002/04 (703 households), 2004/06 (688 households), and one three-year panel sample, 2002/04/06 (313 households). By construction in the VLSS dataset, total household expenditure is composed of (i) consumption expenditure on food and non-food (nondurable goods), (ii) value of home-product food consumed, (iii) value of goods in-kind received (such as food and housing) beside wages, (iv) estimated used value of durable goods owned by the household, and (v) rental value of the dwelling occupied by the household. Total household expenditure and per capita expenditure (PCE) both are measured at the January prices in each year of the study.

Additionally, we also use information drawn from other official sources collected by the Vietnam General Statistics Office (GSO) for this study.

3. Methodology

3.1 Theoretical background

Literature has shown three main motives for diversification. By observing the observed diversification patterns, one can draw inferences about the motives that drive diversification at the household and community level.

3.1.1 Risk motivation

Risk refers to variance in an outcome, e.g., profits or income, of a production process. There are two channels that may lead to a link between risk and income diversity among households. First, if a household (predictably) confronts considerable risk or uncertainty in income, it may make a plan to reallocate productive resource across several uncorrelated risk activities (Dercon and Krishnan 1996, Start 2001). This is because expected income generated from a single activity is likely to be more variable than from a range of different activities. In this case, a household has

to face a trade-off between a lower total income and a higher level of security since some activities may fail to benefit from increasing marginal returns to scale (Ellis 2000, Barrett and Reardon 2001). Second, multiple income sources may result from a situation in which households are faced with shocks. A loss in its main income source may force households to allocate its resource to various activities to compensate for the loss and to smooth consumption (Ellis 2000, Barrett and Reardon 2001, Start 2001). At the same that risk may drive diversification it may also work towards inhibiting it. Households may fear the higher risk associated with a new activity and, for example, may limit off-farm self-employment and continue to work more intensively on on-farm production (van de Walle and Cratty 2004). This refers to prohibitive risks and indicates risk aversion among certain groups of households.

There are a number of authors who argue that risk is not the main motive for income diversification (Ellis 2000, Lanjouw and Feder 2001, Start 2001) and instead argue that increasing incomes is the prime force driving diversification. First, diversity in income sources is to take advantage of high-yielding farming systems, such as mixed cropping crops, or some combination of paddy-fish, and paddy-shrimp on the farm. Second, diversification is used as a way to take advantage of wage labour in periods of slack in agricultural production. Third, different household members with different skills/education levels are motivated to work in different labour markets and some individuals from the same household may earn money from work with a high wage rate whereas some others with lower ones. Given such arguments, households are obviously motivated to diversify for higher levels of total income accumulation rather than risk-lowering.

For these reasons, while risk does play a role in driving diversification, it is not viewed as a necessary condition for households to choose to diversify (Barrett and Reardon 2001: 4). It motivates but it also constrains diversification and as van de Walle and Cratty (2004: 248), note, 'households make decisions about diversifying into new economic activities based on a calculation of the expected costs and benefits of participation allowing for uninsured risk'. This means that to choose an activity to work, return is a necessary condition, and in fact, risk is already factored into that decision.

3.1.2 Poverty motivation

Poor households in developing countries are typically confronted with resource or market constraints. Poverty motivation for diversification relates to a situation in which these constraints prevent poor households from expanding any single income-generating activity up to a level that would be able to meet their basic needs (Dunn 1997, Ellis 2000, Barrett and Reardon 2001, Start 2001). For example, a household at a point in time may have identified a highly profitable primary activity but may not be able to expand due to insufficient investment resources. Since such constraints prevent expansion of the primary activity, the household cannot use its labour endowment. Subsequently, excess labour may be allocated to additional production or wage activity. Similarly, if expansion of the primary activity is prevented by geographical or other market access constraints, the household may allocate its underutilized resource to other income-earning opportunities (Dunn 1997, Lanjouw and Feder 2001). In such situations households are

motivated to diversify as the total amount of income generated from all sources is likely to be greater than income earned by using all of its resources in a single income-generating option. This motivation is also termed "necessity" (Ellis 2000) or "push-distress diversification" (Davis and Bezemer 2003, Start 2001).

3.1.3 Economic expansion motivation

This motivation explains diversification as part of efforts made by households to expand their economic base. Under the expansion motivation for diversification, the household may open up its existing income-generating options or set up a new one by using wealth accumulated from their existing income sources, or underutilized or accessible resource outside the household. Such an expansion may reflect household's response to new economic opportunities (Davies and Bezemer, 2003) or simply a desire to increase income. This motivation is sometimes considered as a "choice" (Ellis 2000) or "demand-pull diversification" (Davis and Bezemer 2003, Start 2001).

While both poverty and expansion motivation may lead to an increased income portfolio, they may be contrasted with each other in various ways, at both the household and the wider level. First, the attitude and purpose are different. Income diversification motivated by the former is ascribed to households who are eager to meet basic needs and to end difficulties while in the case of the latter it is motivated by a desire for better economic standards. Second, there is a difference in the nature of the external stimulus that leads to diversification. People under the poverty motivation react to a constraint that prevents their expansion of the primary activity for sufficient basic needs; in contrast, the expansion motivation is the household's response to attractive opportunities, which provide employment or other options to diversify (Dunn 1997). The last difference, at the household level, is that push-distress diversification concentrates on the role of a household's current income in driving diversification while demand-pull diversification focuses on the role of future income streams in driving the process. At a wider level, diversification is ascribed to the poverty motive when there are market imperfections, there is poor physical infrastructure, underutilized employment, low resource endowment or a decreasing trend of a given primary income source. Conversely, diversification is ascribed to the expansionary motive in situations where conditions are the opposite to those prevailing in the case of the poverty motive (Davis and Bezemer 2003, Ellis 2000, Lanjouw and Feder 2001, Start 2001).

3.2 Estimation model
The general model of consumption growth can be expressed as

$$\ln(y_{it}) = \alpha_i + X'_{it}\beta + u_{it}$$

where, $\ln(y_{it})$ is the natural logarithm of total consumption expenditure of the household i at time t; X_{it} is a vector of observed characteristics for the household i at time t; β is a vector of coefficients to be estimated; and u_{it} is an error term.

The list of explanatory variables and their definitions is specified as follows. The quantity and quality of household labour is captured by three labour-quantity variables and six labour-quality variables. Access to land is captured by the size of a household's landholdings. This variable is of course a part of a household's productive endowments but may also reflect access to capital. Beyond these variables which capture household assets and capacity, consumption is treated as a function of ethnicity, sex of head of household. Since the dependent variable is household expenditure, household size and its square are also included in the specification.

A set of occupation dummies representing the main occupation of the household head is included to examine the link between sector of work and consumption. This is similar to the specification used by Glewwe et al. (2004). Based on information about the most time-consuming job in the past twelve months preceding the survey, household heads are allocated to one of five categories—white-collar jobs, sales or services, agricultural work, non-farm manual work, and joblessness. In the specifications, agricultural work is used as a reference variable. These occupational categories are often included in consumption functions but are clearly endogenous. We treat these dummy variables as proxies for diversification of household into non-farming occupations.

The last variable included in this specification is a dummy for households living in communes where there are accessible to paved roads. This variable captures the overall infrastructure and development of the commune.

4. Findings and discussion

4.1 Descriptive statistics

Descriptive statistics of used variables in regression are presented in table 1 for the sample of 1993, 1998, 2002, 2004, 2006, as well as for full panel sample 1993/1998 and 2002/2004/2006.

Table 1. Descriptive statistics of variables used in regression

Variables	Panel sample 1993/98			Panel sample 2002/04/06			
	Full	1993 sample	1998 sample	Full	2002 sample	2004 sample	2006 sample
Mean log of household expenditure	8.767 (.533)	8.705 (.580)	8.830 (.475)	9.546 (.579)	9.410 (.532)	9.514 (.589)	9.714 (.574)
Household characteristics							
Female head = 1	.245 (.430)	.233 (.423)	.256 (.437)	.213 (.410)	.208 (.406)	.217 (.413)	.214 (.411)
Ethnic minority = 1	.100 (.301)	.100 (.301)	.100 (.301)	.051 (.220)	.051 (.221)	.051 (.221)	.051 (.221)
Household size	5.37 (2.13)	5.55 (2.24)	5.19 (2.00)	4.37 (1.73)	4.58 (1.79)	4.36 (1.72)	4.15 (1.65)
Occupation of head							
White-collar job = 1	.033 (.179)	.034 (.181)	.033 (.178)	.032 (.176)	.019 (.137)	.038 (.192)	.038 (.192)
Sales or services = 1	.071 (.256)	.064 (.244)	.078 (.268)	.007 (.086)	.000 .000	.006 (.080)	.016 (.126)
Non-farm manual work = 1	.068 (.252)	.066 (.249)	.069 (.254)	.185 (.389)	.192 (.394)	.166 (.373)	.198 (.399)
Not working = 1	.101 (.302)	.102 (.303)	.100 (.301)	.183 (.387)	.182 (.387)	.201 (.402)	.166 (.373)
Farming work = 1	.727 (.446)	.734 (.442)	.720 (.449)	.592 (.492)	.607 (.489)	.588 (.493)	.581 (.494)
Household labour resource							
Number of male members 19-59 age group (A)	1.134 (.741)	1.117 (.743)	1.150 (.740)	1.257 (.758)	1.265 (.736)	1.259 (.760)	1.246 (.780)
Number of female members 19-54 age group (B)	1.198 (.720)	1.187 (.699)	1.209 (.740)	1.105 (.708)	1.163 (.722)	1.083 (.679)	1.070 (.722)
Number of members 15-18 age group	.598 (.757)	.569 (.762)	.627 (.752)	.431 (.653)	.482 (.734)	.447 (.649)	.364 (.562)
Share of main labour force (A+B): males with primary education	.212 (.254)	.204 (.247)	.220 (.260)	.200 (.263)	.212 (.267)	.215 (.276)	.171 (.242)
Share of main labour force (A+B): females with primary education	.291 (.278)	.290 (.278)	.292 (.279)	.209 (.241)	.241 (.252)	.198 (.234)	.188 (.234)
Share of main labour force (A+B): males with secondary education	.151 (.239)	.154 (.243)	.148 (.235)	.166 (.242)	.169 (.235)	.159 (.233)	.169 (.257)
Share of main labour force (A+B): females with secondary educ.	.104 (.212)	.101 (.214)	.107 (.209)	.125 (.218)	.119 (.214)	.133 (.220)	.124 (.221)
Share of main labour force (A+B): males with tertiary education	.057 (.157)	.058 (.167)	.055 (.148)	.111 (.224)	.099 (.214)	.107 (.218)	.126 (.240)

Variables	Panel sample 1993/98			Panel sample 2002/04/06			
	Full	1993 sample	1998 sample	Full	2002 sample	2004 sample	2006 sample
Share of main labour force (A+B):	.042	.044	.039	.060	.054	.059	.067
females with tertiary education	(.152)	(.155)	(.148)	(.161)	(.154)	(.160)	(.167)
Household non-labour capitals							
Farm size (hectare)	.886	.912	.860	.741	.764	.728	.731
	(1.01)	(1.03)	(.99)	(1.00)	(1.10)	(.93)	(.95)
Communal level variables							
Having access to paved roads=1[a]	.371	.409	.332	.411	.339	.383	.511
	(.483)	(.492)	(.471)	(.492)	(.474)	(.487)	(.501)
N	**1,414**	**707**	**707**	**939**	**313**	**313**	**313**

Notes: Real expenditure amounts are calculated at the January prices in each initial year of panel samples. Working ages refer to 19-59 for males and 19-54 for females.[a] It is a road for **motor vehicles** for 1993 while a road for **cars** for 1998, 2002, 2004, and 2006.

4.2 Estimation results

To identify factors that influence changes in consumption over time, panel data used to estimate the model of consumption growth (presented in section 3) for four different panel samples. These samples include 707, 703, 688 and 313, households respectively for the years 1993/98, 2002/04, 2004/06, and 2002/04/06.

Table 2 shows the estimated results for 1993/98 panel, 2002/04 panel, 2004/06 panel, 2002/06 panel and 2002/04/06 panel. Two specifications—a household fixed effects model and a random effects model are utilized to estmation the model. In each sample, Hausman tests reject the null hypothesis that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator (see Table below), supporting the use of a fixed effects specification. All sets of coefficients are displayed in Table below.

The discussion focuses on estimates based on the 1993/98 panel and the 2002/04/06 panel. Focusing on the first panel sample, we see that female-headed households experience lower levels of consumption. Returns to white-collar jobs and sales/services jobs are higher than returns from farming while earnings for non-farm manual workers are no different as compared to those in farming. Presence of an additional male member (19-59 years of age) is associated with an increase in consumption as is a greater share of workers who have primary education.

Turning to the second period we see that returns to white-collar positions and non-farm manual work are large and statistically significant, indicating a 34.7 percent return for the former and a 14.9 percent return for the latter. These large estimates support the notion that the higher returns to such occupations is not driven by unobserved characteristics of households that may drive

them to such occupations. The other notable change as compared to the period 1993/98 is that only returns to the highest level of education are statistically discernible. Indeed higher returns to female education and statistically meaningful returns to other levels of education, the panel data estimates show that it is only the highest level of male education that is associated with higher consumption. These patterns suggest that a substantial proportion of the returns to education are not due to the effect of education, per se, but may be attributed to the correlation between unobserved ability and acquisition of higher levels of education. The time dummies are large and show that in 2006 all households consume about 41.3 percent more than households in 2002. The overall increase in consumption for these panel households over the period 2002-06 is about 30.4 percent.

To recap, these estimates suggest that changes in household consumption over this period may be attributed to mainly two factors. First, the main household specific factor that plays a role in influencing consumption is a household head's occupational status with a clear effect of non-farming work (manual or otherwise) on increasing consumption. Second, non-household specific attributes as captured by changes in the intercept account for the bulk of the increase in consumption.

Table 2. Regression results on (log) total household consumption

Variables	1993/98		2002/04		2004/06		2002/06		2002/04/06	
	RE	FE	RE	FE	RE	FE	RE	FE	RE	FE
Household characteristics										
Female head =1	-.075** (.030)	-.116* (.062)	-.023 (.032)	.071 (.077)	-.053 (.035)	.071 (.079)	-.005 (.049)	-.012 (.107)	-.009 (.044)	-.016 (.082)
Ethnic minority = 1	-.195*** (.040)	.000 (.000)	-.201*** (.057)	.000 (.000)	-.133** (.058)	.000 (.000)	-.216** (.093)	.000 (.000)	-.239*** (.090)	.000 (.000)
Household size	.222*** (.021)	.262*** (.032)	.202*** (.028)	.213*** (.045)	.197*** (.029)	.213*** (.043)	.163*** (.039)	.192*** (.057)	.174*** (.033)	.196*** (.042)
Household size squared	-.012** (.002)	-.015*** (.002)	-.011*** (.002)	-.011*** (.004)	-.011*** (.003)	-.015*** (.004)	-.007* (.003)	-.009* (.005)	-.009*** (.003)	-.010*** (.004)
Occupation of head										
White-collar job = 1	.224*** (.060)	.191** (.094)	.168** (.069)	.238** (.102)	.199*** (.065)	.097 (.104)	.367*** (.108)	.525*** (.165)	.332*** (.085)	.347*** (.110)
Sales or services = 1	.289*** (.042)	.250*** (.063)	.051 (.108)	-.013 (.149)	.014 (.089)	-.067 (.107)	.124 (.171)	-.048 (.209)	.086 (.132)	.011 (.142)
Non-farm manual work = 1	.084* (.042)	.048 (.060)	.161*** (.032)	.108* (.045)	.097*** (.031)	.064 (.045)	.158*** (.047)	.107 (.068)	.173*** (.039)	.149*** (.049)
Not working = 1	.056 (.035)	.043 (.046)	.098** (.032)	.059 (.048)	.038 (.033)	-.041 (.045)	.027 (.049)	-.049 (.071)	.032 (.040)	-.016 (.050)
Household labour resource										
Number of male members 19-59 age group (A)	.076*** (.022)	.063* (.033)	.057** (.025)	.028 (.041)	.115*** (.025)	.139*** (.040)	.084** (.036)	.069 (.051)	.085*** (.031)	.069* (.039)
Number of female members 19-54 age group (B)	.006 (.021)	-.010 (.030)	.097*** (.027)	.070* (.041)	.047* (.027)	.060 (.043)	.076* (.041)	.027 (.062)	.103*** (.034)	.060 (.044)
Number of members 15-18 age group	.052*** (.015)	.028 (.019)	.044** (.019)	.012 (.028)	.031 (.019)	.023 (.027)	.063** (.029)	.028 (.040)	.030 (.024)	.003 (.030)

Table 2 (cont.). Regression results on (log) total household consumption

Variables	1993/98 RE	1993/98 FE	2002/04 RE	2002/04 FE	2004/06 RE	2004/06 FE	2002/06 RE	2002/06 FE	2002/04/06 RE	2002/04/06 FE
Share of main labour force (A+B): males with primary education	.061 (.063)	.055 (.091)	.164** (.069)	.126 (.105)	.040 (.068)	.069 (.093)	.117 (.098)	.083 (.149)	.048 (.081)	.027 (.103)
Share of main labour force (A+B): females with primary education	.225*** (.053)	.202** (.083)	.048 (.066)	.116 (.098)	.067 (.071)	.016 (.108)	-.010 (.107)	.203 (.166)	-.036 (.091)	.068 (.117)
Share of main labour force (A+B): males with secondary education	.258*** (.066)	.271*** (.099)	.338*** (.075)	.169 (.117)	.238*** (.072)	.127 (.101)	.310*** (.102)	.316** (.158)	.261*** (.088)	.169 (.113)
Share of main labour force (A+B): females with secondary education	.345*** (.067)	.215* (.111)	.215*** (.076)	.034 (.118)	.280*** (.075)	.184* (.110)	.226** (.115)	.239 (.168)	.126 (.095)	.121 (.119)
Share of main labour force (A+B): males with tertiary education	.252*** (.086)	.048 (.138)	.642*** (.087)	.218 (.148)	.335*** (.079)	.116 (.111)	.531*** (.109)	.461*** (.165)	.461*** (.095)	.303** (.123)
Share of main labour force (A+B): females with tertiary education	.425*** (.087)	.024 (.160)	.609*** (.095)	.220 (.147)	.701*** (.101)	.236 (.175)	.486*** (.143)	.219 (.222)	.360*** (.121)	.122 (.156)
Household non-labour capitals										
Farm size (hectare)	.200*** (.020)	.088*** (.033)	.203*** (.027)	.117** (.051)	.175*** (.019)	.083** (.033)	.229*** (.041)	.219*** (.075)	.243*** (.035)	.208*** (.054)
Farm size squared	-.011*** (.003)	-.001 (.004)	-.022*** (.005)	-.011 (.008)	-.011*** (.003)	-.005 (.004)	-.024*** (.007)	-.020* (.012)	-.024*** (.006)	-.019** (.009)
Communal level variable										
Having access to paved roads = 1 [a]	-.022 (.022)	-.062** (.031)	.050** (.023)	-.013 (.035)	.066*** (.023)	.013 (.032)	.009 (.035)	-.053 (.054)	-.006 (.028)	-.034 (.035)
Time dummy										
T1 = 1998 or 2004	.146*** (.017)	.144*** (.018)	.097*** (.016)	.114*** (.016)					.123*** (.024)	.130*** (.024)
T2 = 2006					.166*** (.015)	.172*** (.016)	.329*** (.027)	.350*** (.029)	.330*** (.025)	.346*** (.025)
Constant	7.446*** (.064)	7.504*** (.104)	8.134*** (.070)	8.295*** (.109)	8.399*** (.069)	8.524*** (.106)	8.269*** (.101)	8.285*** (.157)	8.288*** (.087)	8.346*** (.115)

Table 2 (cont.). Regression results on (log) total household consumption.

Variables	1993/98 RE	1993/98 FE	2002/04 RE	2002/04 FE	2004/06 RE	2004/06 FE	2002/06 RE	2002/06 FE	2002/04/06 RE	2002/04/06 FE
Observations	1,414	1,414	1,406	1,406	1,376	1,376	626	626	939	939
Number of groups	707	707	703	703	688	688	313	313	313	313
R-squared	.499	.312	.500	.260	.494	.324	.518	.499	.513	.403
F		15.61		12.02		15.99		14.56		19.44
Prob		0.0000		0.0000		0.0000		0.0000		0.0000
Wald chi2	1,173.81		1,057.60		1,031.81		618.93		773.33	
Prob>Wald chi2	0.0000		0.0000		0.0000		0.0000		0.0000	
Hausman test—chi2	45.51		69.85		58.69		26.37		37.98	
Prob>chi2	0.0009		0.0000		0.0000		0.1541		0.0130	

Notes: *, **, *** respectively denote statistically significant at, at least the 10, 5, and 1 percent level. Figures in parentheses are the standard errors.
[a] It is a road for motor vehicles for 1993 while a road for cars for 1998, 2002, 2004, and 2006.

5. Conclusions and policy implications

This paper was motivated by a desire to understand the link between income diversification and household consumption in the rural areas of the Mekong River Delta. The analysis reported here was based on panel data samples covering a thirteen year period and drew on a framework that conceptualized diversification as a product of household capacity variables and "incentives to diversify".

The analysis showed that there is a clear link between income diversification and consumption, and that household capacity does play a role in influencing consumption. More broadly, the analysis reported in this paper supports the idea that institutional and policy changes which have occurred in Vietnam in the last twenty years have provided the impetus for the spectacular growth and poverty reduction experienced in the MRD and in Vietnam. More specifically, the combination of policies that promoted private ownership of land-use rights for agricultural land and freedom of trade were most important in the early period (1993 to 1998) while in the more recent period (2002-2006) the expansion of non-farming occupations is most likely to have been driven by changes in the enterprise law which permitted and promoted the set-up and expansion of domestic and foreign firms.

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