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Household Enterprises in Vietnam

Survival, Growth, and Living Standards

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Two-fifths of the household
enterprises that operated in
Vietnam in 1993 were still
in business in 1998, after
five years of rapid economic
growth. Constrained by
lack of education, credit,
and effective demand in
poor areas, and squeezed
by the lure of wage labor in
rich areas, household
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Summary findings

In Vietnam almost a quarter of adults worked in nonfarm household enterprises in 1998. Based on household panel data from the Vietnam Living Standards Surveys of 1993 and 1998, Vijverberg and Haughton find some evidence that operating an enterprise leads to greater affluence.

The data show that nonfarm household enterprises are most likely to be operated by urban households, by those with moderately good education, and by the children of proprietors. The authors were able to construct a panel of nonfarm household enterprises; 39 percent of enterprises operating in 1993 were still in business in 1998. Those in the (more affluent) south of the country were less likely to survive, as were smaller and younger businesses.

A pattern emerges from the data. In poor areas the lack of education, credit, and effective demand limits the development of nonfarm household enterprises. In rich areas there is the attraction of wage labor. Nonfarm household enterprises are thus most important in the period of transition, when agriculture is declining in importance but before the formal sector becomes established. The authors expect these enterprises to continue to play a modest supporting role in fostering economic growth in Vietnam.

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Introduction

Vietnam aims to double its GDP over the coming decade, an objective that the World Bank has called "ambitious but attainable" (World Bank 2000a). To achieve this end, the private non-agricultural sector will need to grow even more rapidly. For instance, industrial GDP will need to rise by 10% annually, and the output of manufacturing small and medium enterprises (SMEs) may have to rise by as much as 18-25% every year. This may need "a more vibrant private sector" (World Bank 2000b).

Non-farm household enterprises are embryonic SMEs, and the success of Vietnam's growth plans will depend in large part on the vigor of these small firms. Some authors are skeptical that they are up to the task. In a comparison with China, Perkins (1994) wonders where the private enterprises in Vietnam are, or from whence they will emerge. On the other hand the environment in which small firms operate has become more friendly. In 2000, partly as a result of easier procedures (Phan, 2000a; Nguyen, 2000), the number of new firm registrations almost doubled to 14,400 (Asia Pulse 2001), and this pace continued into 2001, as about 7700 firms were registered in the first half of the year (Ministry of Planning and Investment, 2001). Based on a survey in mid-2001, the Vietnam Chamber of Commerce and Industry estimates that about 70% of newly registered firms are "truly new," while the rest were pre-existing enterprises (McKinley 2001).

In this paper we address the issue of whether non-farm household enterprises (NFHEs) are up to the task of spawning enough promising firms, and also of creating jobs in their own right. Our analysis is largely based on the information collected by the Vietnam Living Standard Surveys of 1992-93 and 1997-98. An unusual feature of these surveys is that they allow us to construct a panel of firms, and hence to examine in some detail the factors that affect the birth and death of firms.

Household Enterprises and Living Standards

A concern about the sources of economic growth is not the only reason for looking more closely at NFHEs. They may also influence the distribution and level of income — between poor and rich households, urban and rural areas, ethnic Vietnamese (Kinh) and other groups, north and south. So we start our study with analysis of these distributional effects before turning our attention to the determinants of firm survival and formation.

Just over a quarter of all adults worked in NFHEs in 1993, as Table 1 shows;[1] this was true both for men and for women. Over the subsequent five-year interval, GDP rose by 8.9% p.a. (Haughton 2000), and the structure of employment also changed, with a sharp decline in the number of adults involved in agriculture — from 67.1% in 1993 to 60.7% by 1998, with almost all of the fall concentrated in households in the top two quintiles of the expenditure distribution.

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[1] The figures in Table 1 come from section 4A of the questionnaire, which asks whether someone worked in a NFHE. It would have been preferable to provide a breakdown of the hours worked, but unfortunately the relevant sections of the 1993 and 1998 questionnaires are not strictly comparable on this matter. However in 1993 the two breakdowns - by hours, and by participation - give broadly similar results; see Vijverberg 1998a.

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Perhaps surprisingly, the proportion of adults working in NFHEs also fell, from 25.7% to 24.2%, although the proportion relying on this as their *sole* source of earnings actually rose (9.5% to 10.2%). In very poor and very rich societies, NFHEs are rare. Between these two extremes, non-farm household enterprises first rise in importance, and then get pushed aside as better economic opportunities arise. We should probably think of employment in NFHEs as playing a bridging role, providing an attractive alternative to farming, but less appealing than most wage-paying jobs. The unexpected finding for Vietnam is that the importance of NFHEs appears to have peaked already, although they still remain a very important source of employment and income. With rapid growth in the formal sector (i.e., wage employment and large-scale private enterprises), we speculate that employment in NFHEs will continue to lose ground over the coming decade.

Table 1 also shows that adults were much more likely to be employed in an NFHE in an urban area (34.1% in 1998) than a rural area (20.8%), a feature that did not change between 1993 and 1998. Rural households are far more likely than urban ones to combine NFHE employment with other activities, particularly farming, and less than 5% of rural adults relied on an NFHE as their sole source of support. Women find employment in NHFEs as often as men do. Particularly low participation rates in NFHEs are found in the Central Highlands, Northern Uplands, and among ethnic minority households (see Table 2),[2] who tend to be found in the more inaccessible parts of the country (see chapter by Baulch et al.).

Table 1
Labor Market Participation, by residence and gender, 1993 and 1998

	Based on VLSS 1992-1993				
	Total	Urban	Rural	Male	Female
Participation in labor market activities (%)					
Wage employment	25.7	34.1	23.3	33.8	18.6
Farming	67.1	20.1	80.6	68.0	66.3
Non-farm self employment	**25.7**	**36.6**	**22.6**	**25.1**	**26.3**
Only activity	9.5	27.1	4.4	8.4	10.5
With farming only	12.3	5.4	14.3	11.5	12.9
With wage employment only	1.3	2.9	0.9	1.6	1.1
With farming and wage employment	2.7	1.2	3.1	3.7	1.7
Not employed	13.5	24.7	10.2	11.2	15.4
Number of observations	14,297	3,205	11,092	6,643	7,654
	Based on VLSS 1997-98				
	Total	Urban	Rural	Male	Female
Participation in labor market activities (%)					
Wage employment	25.7	32.6	23.3	33.9	18.4
Farming	61.7	14.8	77.5	61.7	61.7
Non-farm self employment	**24.2**	**34.1**	**20.8**	**23.7**	**24.6**
Only activity	10.2	27.6	4.3	9.4	10.9
With farming only	11.3	3.8	13.8	10.7	11.8
With wage employment only	1.2	2.4	0.8	1.6	0.9
With farming and wage employment	1.4	0.3	1.8	1.9	1.0
Not employed	16.9	29.0	12.9	14.7	18.9
Number of observations	18,698	5,673	13,019	8,808	9,890

Sources: VLSS93 and VLSS98.

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[2] Here, "ethnic minority" is taken to refer to ethnic groups other than Kinh or Hoa (Chinese).

Table 2
Labor market participation by quintile, region, and ethnicity, 1993 and 1998

	Non-farm self employment		Wage employment		Farming		Number of observations	
	1993	1998	1993	1998	1993	1998	1993	1998
Expenditure/capita quintile								
Poor	17.8	14.9	24.6	27.3	81.9	80.3	2,396	2844
Poor-mid	21.9	19.4	23.8	26.6	79.6	75.9	2,608	3114
Middle	24.1	23.1	25.0	24.8	75.5	72.9	2,817	3580
Mid-upper	27.7	27.9	26.1	22.8	67.8	60.4	3,114	4171
Upper	34.0	32.1	28.2	27.3	39.0	28.6	3,362	4983
Regions								
Northern Uplands	20.5	19.1	16.8	15.2	80.2	77.1	2,139	2,564
Red River Delta	28.4	28.3	24.4	23.5	71.2	66.8	3,203	3268
North Central Coast	24.3	27.1	18.9	23.3	84.1	75.8	1,776	2037
Central Coast	25.6	21.8	23.5	27.6	58.1	54.8	1,715	2471
Central Highlands	9.9	10.8	24.5	22.8	85.7	86.0	384	1143
Southeast	28.4	27.1	32.0	36.2	33.9	25.4	1,918	3495
Mekong River Delta	27.7	23.7	34.4	29.9	67.2	60.0	3,162	3714
Ethnic group								
Kinh	27.4	26.0	26.5	26.2	66.2	59.6	12,186	15962
Hoa (Chinese)	37.2	31.9	30.9	31.6	9.7	12.1	392	518
Other ethnic minorities	11.1	10.5	18.5	21.2	86.2	84.5	1,719	2218

Sources: VLSS93 and VLSS98.

Participation in a non-farm household enterprise is associated with a higher standard of living, as the numbers in Table 2 make clear. In the poorest quintile (as measured by expenditure per capita), just 15% of adults worked in a NFHE, compared with 32% in the top quintile.

This raises the possibility that participation in a NFHE is associated with greater economic mobility. Table 3 is designed to explore this possibility. It considers only the 4,304 households that were surveyed both in 1993 and 1998, and creates a matrix with expenditure per capita quintile in 1993 on one axis, and the quintile in 1998 on the other. For each cell we have calculated the percentage of households with a non-farm household enterprise in 1993 (Table 3.a) or 1998 (Table 3.b).

Table 3.a.
Percentage of households with a non-farm household enterprise in 1993

	Expenditure per capita quintile in 1998 (1 = poorest)					
Exp/Cap quintile in 1993:	Poorest	Low-mid	Middle	Mid-upr	Upper	Total
Poorest	30.6	30.8	39.5	37.7	25.0	778
Low-mid	34.6	38.1	38.9	34.4	52.6	851
Middle	41.8	37.4	41.6	44.4	47.7	848
Mid-upr	35.7	35.4	49.5	50.8	62.4	899
Upper	52.9	47.4	49.5	57.0	61.7	928
Total	730	828	908	947	891	4,304

Table 3.b.
Percentage of households with a non-farm household enterprise in 1998

	Expenditure per capita quintile in 1998 (1 = poorest)					
Exp/Cap quintile in 1993:	Poorest	Low-mid	Middle	Mid-upr	Upper	Total
Poorest	26.4	35.1	40.3	28.3	62.5	778
Low-mid	31.4	38.1	42.0	45.0	50.0	851
Middle	39.8	39.0	42.8	45.3	52.3	848
Mid-upr	45.2	42.5	41.0	53.0	57.6	899
Upper	47.1	26.3	41.0	53.3	55.6	928
Total	730	828	908	947	891	4,304

The first point that stands out is that poor households are less likely than rich to participate in a NFHE in either year. There is another way to make this point more forcefully. Define a household as chronically poor if it fell into one of the bottom three quintiles in 1993 and one of the bottom two quintiles in 1998.[3] And define a household as affluent if it was in one of the top two quintiles in both years. Then we find that affluent households are far more likely to participate in NFHEs than the chronically poor:

	% of households with a NFHE	
	in 1993	in 1998
Chronically poor households	35.6	35.0
Affluent households	58.0	54.9

Put another way, the persistently affluent are more likely to operate a non-farm household enterprise. What is not clear is whether this result is because NFHEs make households better off, or whether better-off households are more likely to start NFHEs (for instance, because they have better access to credit).

To get at the issue of causality, we note from Table 3 that households that *moved up* the income distribution were more likely to get involved in a NFHE. This too can be dramatized: Define households that rise at least two quintiles between 1993 and 1998 as "shooting stars" (the terminology used by Haughton et al. 2000), and those that fall at least two quintiles as "sinking stones." We find that sinking stones (who were more affluent to begin with) have reduced their involvement in NFHEs while shooting stars (who were poorer at the start) have increased their participation:

	% of households with a NFHE	
	in 1993	in 1998
Sinking stones	43.8	40.3
Shooting stars	39.5	46.4

This suggests that participating in a non-farm household enterprise does, on balance, improve household expenditure levels. It then becomes important to explore why some households operate NFHEs and others do not, because it helps clarify the roots both of income distribution and income mobility in Vietnam. We return to this issue in the next section.

The Dynamics of Non-Farm Household Enterprises

In seeking to understand the dynamics of household enterprise creation and survival, it is natural to start by asking who operated households at the beginning of the period (i.e. 1993); this is the question posed in box 1 in Figure 1, and we answer it in the next section.

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[3] The official headcount poverty rate was 55% in 1993 and 37% in 1998. Vietnam: GSO (2000).

Figure 1: *Household Choices in 1993 and 1998.*
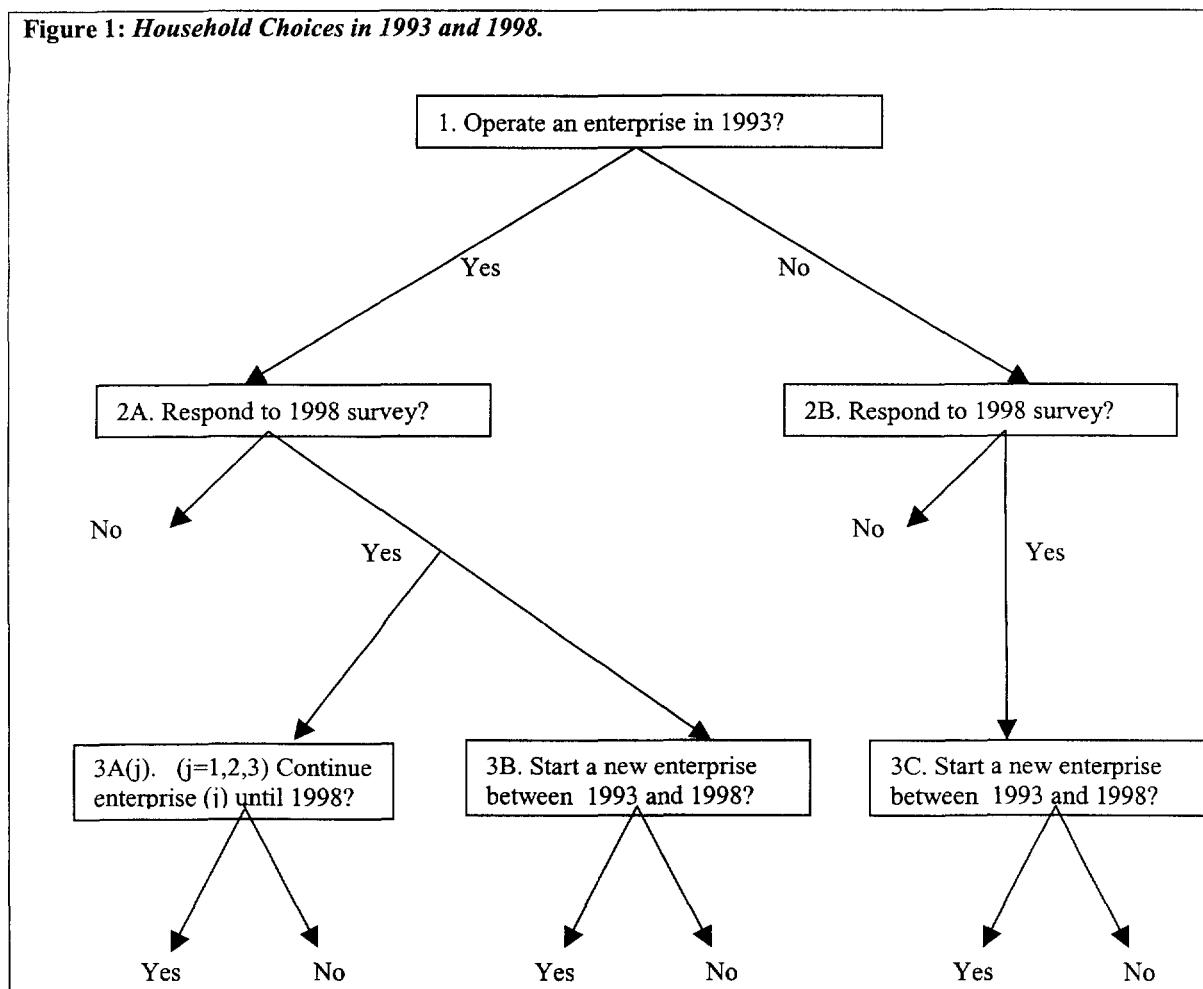
Some of the households surveyed in 1993 dropped out of the sample by 1998. This raises the possibility of attrition bias, an issue that we tackle before moving on to two key questions. First, why did some of the enterprises that operated in 1993 survive to 1998, while others did not? And second, what factors led households to start a new firm between 1993 and 1998?

To answer these two questions we first need to construct a panel of enterprises, which is possible because of the unique way in which the VLSS surveys are designed. We then address the questions themselves by estimating a series of logistic models.

Who operates non-farm household enterprises?

What determines why some households operate non-farm enterprises, and others do not? Some basic numbers are set out in Table 4. They show that adults are more likely to participate in NFHEs if they are moderately well educated (6-12 years of school), or at prime age (26-55). Employment in non-farm household enterprises appears to be less

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attractive to those with some university-level education, probably because this group is able to find wage employment more easily.

Table 4
Labor market participation by age and schooling level, 1993 and 1998

	Non-farm self employment		Wage employment		Farming		Number of observations	
	1993	1998	1993	1998	1993	1998	1993	1998
Age								
16-25	23.9	18.6	28.4	29.4	69.5	58.7	4,409	5424
26-35	32.2	31.4	34.3	34.8	73.1	68.7	3,560	3835
36-45	33.1	34.2	31.7	32.4	71.8	70.6	2,339	3705
46-55	27.4	27.5	20.1	22.6	71.8	66.2	1,448	2153
56-65	17.0	17.0	9.8	8.9	61.1	62.3	1,356	1747
Over 65	6.9	8.1	2.9	2.4	31.9	32.5	1,185	1834
Years of schooling								
0	12.6	7.5	14.2	11.9	56.5	42.7	1,888	3222
1-5	24.2	23.3	22.1	21.8	71.7	68.7	4,667	6078
6-9	29.5	29.4	27.0	31.9	71.8	67.2	2,474	2715
10-12	30.8	31.5	28.4	31.8	69.3	65.5	4,479	6101
Over 12	26.1	22.5	55.3	65.7	39.3	21.5	789	493

Sources: VLSS93 and VLSS98.

Between 1993 and 1998 there was a sharp drop in self employment among two groups: those with no schooling are working less jobs or stopping work, and are probably older workers; while those with more than 12 years of schooling are now more likely to be working for a wage (and doing just one job). There was also a noticeable drop in self employment, and jobs overall, among young workers (aged 15-25), mainly because more of them are staying in school longer.

Although tabulations of data, such as the one in Table 4, are useful, they suffer from the limitation that it is only possible to see the effects of one variable at a time. A more rigorous answer to the question, which would allow one to measure the effect of a variable while holding all other influences constant, calls for the estimation of a logistic model. Here the dependent variable is set equal to 1 if a household operated an enterprise in 1993, and to 0 otherwise. The estimation results are set out in Table 5; a similar model is found in Vijverberg (1998b, p.149). Several of the variables that are used in this model to capture the effects of the rural environment are innovative, and they are defined more fully in the Appendix. The variable called "Local producer price of rice" is constructed by Benjamin and Brandt and captures both the attractiveness of farming as a source of income and the level of income in the rural community that drives the demand for non-farm commodities; these forces work in opposite directions.

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Table 5
Logistic Model of Operation of an Enterprise in 1992-93

	Coefficient	t-statistic	New probability (base=0.45)
Dependent variable: "Household operates an enterprise in 1993."			
Intercept	-0.371	0.99	
Regional variables:			
South	-0.128	1.39	
Urban Northern Uplands	0.629	1.56	
Urban Red River Delta	0.552	1.41	
Urban North-Central Coast	-0.377	0.87	
Urban Central Coast	0.630	1.61	
Urban Southeast	-0.010	0.03	
Urban Mekong Delta	0.429	1.13	
In rural areas:			
Availability of lower and upper secondary school	0.042	0.23	
Agricultural extension index	-0.442	6.25	0.345
Presence and quality of roads	-0.578	2.71	0.315
Availability of public transportation	0.000	0.09	
Utilization of electricity and piped water	0.201	1.16	
Presence and frequency of local market	0.491	2.80	0.572
Presence of market in nearby community	0.194	0.96	
Local wage index	0.063	4.79	0.466
Dummy, =1 if local wage index unknown	2.003	5.48	0.858
Local producer price of rice	0.050	1.11	
Dummy, =1 if local price of rice unknown	-0.085	0.23	
Household characteristics:			
Number of women aged 16 years and older	0.107	1.71	
Persons aged 16-25 years	-0.143	2.17	0.415
Persons aged 26-35 years	0.035	0.48	
Persons aged 36-45 years	0.029	0.37	
Persons aged 46-55 years	-0.039	0.44	
Persons aged 56-65 years	-0.217	2.65	0.397
Persons aged over 65 years	-0.399	5.02	0.354
Persons with 1-3 years of schooling	0.215	3.37	0.504
Persons with 4-5 years of schooling	0.282	4.55	0.520
Persons with 6-9 years of schooling	0.334	5.90	0.533
Persons with 10-12 years of schooling	0.369	5.47	0.542
Persons with postsecondary schooling	-0.245	3.65	0.390
Persons with technical training	0.047	0.50	
Persons with completed apprenticeships	0.275	4.39	0.519
Characteristics of parents of head:			
Average years of schooling	0.023	1.99	
Dummy, =1 if years of schooling unknown	-0.021	0.20	
Major occupation: farmer	-0.792	6.37	0.270
Major occupation: manager	0.558	0.73	
Major occupation: proprietor	1.165	3.19	0.724
Major occupation: supervisor	-0.397	0.33	
Dummy, =1 if major occupation unknown	-0.148	0.14	
Number of observations	4800		
Proportion Affirmative	0.451		
Average log-likelihood value	-0.6134		
Likelihood ratio test of slopes	717.79		

Notes:
(i) Final column shows probability of household operating an enterprise, given a baseline value of 0.45, and then assuming that the independent variable changes by one unit. These figures are only shown for variables with statistically significant coefficients.
(ii) In this and other tables in this chapter, the 'omitted categories' against which comparisons are made are: urban Central Highlands, persons with 0 years of schooling, parents of the head who were laborers.

The first two groups of variables in Table 5 — i.e. "Regional variables" and "In rural areas" — work in tandem. The regional variables group compares each urban region

against a baseline rural area,[4] and the South against the North.[5] The second group differentiates rural communities according to their features such as accessibility, electrification, and presence of market institutions; these data come from the community questionnaire, and are only available for rural areas. The final column in Table 5 shows the probability that a household operates an enterprise, assuming that the baseline probability is 0.45 and that the independent variable in question has increased by one unit.

A number of themes emerge. Perhaps most importantly, geography matters. Households in urban areas are more likely to engage in self-employment. Within rural areas, non-farm self-employment is less common where agricultural extension programs are more active, perhaps a proxy for the greater profitability of farming in these areas. The presence and quality of local roads has an unexpected negative sign, although this variable is somewhat problematic: the 1992-93 questionnaire did not specify clearly what constitutes a viable road, and the model does not control for waterway access, which in some areas in Vietnam is important. The presence and frequent operation of a local market has a positive effect; if there is such a market, the probability that a household would operate a business rises from an (assumed) baseline of 45% to 57%, a large 12 percentage point jump. The real price of rice is unrelated to the probability that a household operates an enterprise.

The second theme is that the local wage rate is important, and *raises* the likelihood of self-employment. One might have expected a negative sign here on the grounds that when wage labor pays better, self-employment is relatively less attractive. On the other hand, a higher wage may well reflect a more dynamic non-agricultural sector, inviting more households to participate in it, or higher living standards with an attendant higher demand for items such as restaurants and retail services.

The third point is that family history is important. The children of proprietors are much more likely to be proprietors themselves. As expected, households are more likely to operate an enterprise if their members are better-educated, or of prime age.

Constructing a Panel of Enterprises

It is well known that non-farm household enterprises frequently do not survive for long. Over half of the enterprises reported by VLSS98 had been founded during the previous five years, yet the number of enterprises per household was no higher in 1998 than 1993. This essentially means that for every enterprise that was started up, another one failed.

Why do enterprises succeed or fail? If we could answer this question, then it might be possible to design policies that would help enterprises stay in business. The VLSS data are unusual in that they allow us to construct a *panel of enterprises*, with information for each

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[4] The coefficients on the urban/region dummy variables compare these areas with a baseline rural region with zero values for all the rural indices (including the wage dummy). Using the average values for rural areas, one would find that the baseline parameter for a "typical" rural area would be -0.031. This is the number with which (for instance) the urban Red River Delta figure of 0.552 should be compared.
[5] Note that, since the urban areas in all regions are separately indicated by dummy variables, the parameter on the South variable distinguishes the rural South from the rural North.

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of these enterprises for 1993 and 1998.[6] This then allows us to explore the determinants of success (or at least survival) in a rigorous way.

The construction of the panel proved to be more complex than expected. In both the VLSS92 and VLSS98 surveys, the interviewer collected information on the age of each household enterprise and its area of activity, from the "most knowledgeable" household member. The interviewer also had a household roster for each year.

In principle this allows one to match enterprises in 1993 with the same enterprises in 1998. In reality the situation was more ambiguous. The 1998 round uses a different set of industrial codes. The respondents are decidedly imprecise about the enterprise's age. There are changes in the identity of the person who is most knowledgeable. It is also not uncommon for one household member to be the respondent for several household enterprises. Last but not least, a household could list up to three enterprises in 1993 and up to four in 1998.

So we decided to make the match on the basis of the three most obvious pieces of information: enterprise age, industry code, and identity of the entrepreneur. Table 6 summarizes the outcome of the matching process. The 1993 round yielded 2,795 enterprises, of which 311 occurred in households that disappeared in the next round and 765 were located in households that did not report any enterprises in the next round. This left 1,719 enterprises in households that also reported non-farm self-employment activities in 1998. For the 1998 round, of the sample of 3,429, 1,042 were operated by households that were not part of the earlier round and 697 occurred in households that did not have an enterprise in 1993. This left 1,700 enterprises that could possibly be matched with one in 1993 ("enterprises potentially in panel").

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[6] There have been several Living Standards surveys with a rolling panel design, most notably in Côte d'Ivoire and Ghana (Glewwe and Jacoby, 2000). That is, one half of the households in one year were visited again in the following year. To our knowledge, there has not been an attempt to create a panel of *enterprises* from the household panel information.

Table 6
Accounting for the Panel Enterprises

	1993	1998	Type of ent.
Total enterprises surveyed	**2,795**	**3,439**	
- household was not included in 1998 sample	47		
- household was not included in 1993 sample		1,042	
- household dropped out of sample in 1998 ("attrition")	264		Attrited
= Enterprises potentially matcheable	**2,484**	**2,397**	
- household had no enterprise in 1998	765		Terminated
- household had no enterprise in 1993		697	Startup
= Enterprises potentially in panel	**1,719**	**1,700**	
- household has another enterprise in 1993 but not in 1998	83		Terminated
- household has another enterprise in 1998 but not in 1993		96	Startup
- no match at all on industry code, entrepreneur or age among 1998 ent.	322		Terminated
- no match at all on industry code, entrepreneur or age among 1993 ent.		309	Startup
- manual inspection found no possible match among 1998 enterprises	345		Terminated
- manual inspection found no possible match among 1993 enterprises		326	Startup
= Matched	**969**	**969**	**Panel**
of which: automatic match between 1993 and 1998 enterprise	514	514	
manual match between 1993 and 1998 enterprise	455	455	

A problem arises, which is that if one insists that the industry code be identical, the identity of the entrepreneur be the same, and the enterprise age match within a margin of two years, then only 174 enterprises are matched. So we relaxed the criteria by requiring only the same entrepreneur and industry code, which yielded 514 "automatic" matches. We then eliminated cases where there was no match on any dimension, and inspected the remaining cases manually. This turned up 455 cases where there was a reasonable match between an enterprise in 1993 and another enterprise in 1998; perhaps the entrepreneur was the same, but the industry code slightly different; or the age and industry code were consistent. The net result was a panel of 969 enterprises. This implies a survival rate of 39 percent (=969/2,484).

How does the survival rate of 39 percent compare with other research findings? Indirect evidence comes from the age distribution of non-farm household enterprises in the VLSS surveys, which is very similar to those found, based on Living Standard Measurement Surveys, for Peru in 1985, the Côte d'Ivoire in 1985-86, and Ghana in 1987-89 (Vijverberg 1998b). This suggests, but does not prove, that enterprise survival rates in Vietnam are in line with those found elsewhere. However, in a study of four countries in southern Africa, McPherson (1995) reported estimates that would imply a 5-year survival rate of 81 percent, but this is based on cross-sectional data that most likely undersampled deceased enterprises

To measure the survival rate satisfactorily, one needs panel data, obtained by observing the enterprise once and then again later after a few years. Storey and Wynarczyk (1996) examine a sample of micro enterprises from 1985 to 1994 in the U.K., 60 percent of which had less than 5 employees; they were drawn from all sectors of the economy and from all

age groups (rather than start-ups only). Of these, 70 percent survived until 1988 and 41 percent until 1994.

Most of the other evidence on enterprise survival refers to newly-established, larger firms (with at least 10 or even 20 employees) in the manufacturing sector in developed economies, and so is not directly comparable to the Vietnamese numbers. For example, Audretsch (1995) reports a 35.4 percent 10-year survival rate among U.S. manufacturing firms during the 1976-1986 period. Baldwin and Gorecki (1991) report an annual 6.5 percent exit rate, suggesting a 71 percent 5-year survival rate, in the Canadian manufacturing sector in the 1970s. Among manufacturing enterprises in the Netherlands in the 1980s, the 5-year survival rate was approximately 64 percent (Audretsch, Houweling, and Thurik, 2000). Littunen (2000) cites evidence that 45 percent of European firms close within the first five years of business and reports on Finnish data that show a survival rate of at least 55 percent after six years.

Although the survival rate of VLSS enterprises is below that found in other studies, the lack of comparability makes it difficult to conclude that the enterprise survival rate is low. Our estimate of the survival may be too low, if we have misclassified some enterprises in the 1998 round as start-ups rather than as enterprises that are continuing in a different line of business. If there was indeed more enterprise turnover in Vietnam between 1993 and 1998 it would be consistent with Goreski's (1995) finding that in a turbulent economic environment there are high rates of both firm entry and firm exit. Rapid growth yields many opportunities for new firms, while making existing firms obsolete more quickly.

The characteristics of the panel of enterprises in 1993 and 1998 are summarized in Table 7, where they are also compared with attrited (i.e. dropped out of the sample), terminated and start-up businesses. When compared with the other enterprises that operated in 1993, the panel enterprises are older and better established. They were more likely to be open for business at the time of the interview, for more months per year and more days per month, and to operate from a fixed location. Panel B shows that enterprises in retail sales and in the hotel and restaurant business appear to survive longer; those in textiles, other manufacturing, services, and the "other" category are more likely to be terminated. Panel C of the table reveals small residence and regional differences. Panel D examines enterprise performance: by all definitions, panel enterprises are larger and more profitable. None of these findings are surprising, but they do attest to the reasonableness of the panel matching procedure.

In comparing panel enterprises between 1993 and 1998, three features are worth a comment. Real household expenditures, or performance measures such as real sales revenue or enterprise income, rose less quickly than did expenditure in Vietnam as a whole—where real GDP grew 53% between 1993 and 1998 and per capita GDP increased by 40%.[7] The relatively slow growth of NFHE-related income is unexpected; one might have anticipated that dynamic NFHEs would lift their owners at least as quickly as the overall economic tide.

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[7] Because the distribution of the financial performance variables is so highly skewed, the mean values are extremely sensitive to outliers and therefore are difficult to compare over time. Therefore the table also reports median values, which are known to be less sensitive.

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It is also surprising that the reported age of panel enterprises rose by just 3.8 years on average, even though the two surveys were 5 years apart. This age variable is notoriously unreliable, particularly when the "most knowledgeable" household respondent changes between the two surveys.

Table 7						
Comparison of Panel Enterprises, Non-Panel Enterprises, and Enterprises in Attrited Households						
		1992/93			1997/98	
		Enterprises in attrited households	Terminated enterprises	Panel enterprises	Panel enterprises	Start-up enterprises
		(N=264)	(N=1515)	(N=969)	(N=969)	(N=1428)
Panel A: Enterprise Characteristics						
Age of enterprise	mean	7.6	6.7	7.9	11.7	5.6
	median	4.0	3.5	4.4	9.0	3.3
Years of schooling, entrepreneur	mean	7.5	7.3	7.1	7.0	7.4
Female entrepreneur	%	71.0	67.3	81.2	58.1	49.6
Operating between two rounds	%	78.0	69.8	86.8	89.1	83.3
Months per year in operation	mean	8.7	7.4	9.2	10.1	8.5
Days per month in operation	mean	24.7	21.7	24.7	24.9	22.9
Operating from a fixed location	%	62.9	53.8	67.7	72.7	61.5
Real hh expenditures per capita	mean	2,962	2,403	2,604	3470	2936
	median	2,246	1,919	2,090	2776	2381
Panel B: Industry						
Manufacturing: food/beverage	%	5.7	9.4	9.5	8.7	10.4
Manufacturing: textiles	%	5.3	9.1	7.2	5.8	7.6
Manufacturing: wood processing	%	4.6	3.2	3.7	6.4	7.2
Manufacturing: other	%	4.6	7.7	3.9	2.5	3.7
Construction	%	0.0	1.1	0.9	0.8	3.0
Wholesale	%	2.3	2.2	2.2	3.4	3.5
Retail sales	%	39.4	24.0	43.2	47.4	29.2
Hotel and restaurant	%	6.4	4.4	7.8	4.6	2.6
Road, railroad, pipeline transport	%	2.3	4.0	3.3	3.8	5.7
Services	%	12.1	10.4	6.4	4.5	11.7
Aquaculture	%	0.0	0.0	0.0	7.3	7.5
Other: agriculture, mining, utilities	%	17.4	24.6	11.8	4.8	8.1
Panel C: Residence						
Urban	%	43.6	27.7	33.6	33.6	23.2
Northern Uplands	%	8.0	16.3	9.8	9.8	16.7
Red River Delta	%	22.0	23.9	25.3	25.3	23.0
North Central	%	7.2	12.0	14.3	14.3	17.5
Central Coast	%	13.6	10.9	13.0	13.0	10.2
Central Highlands	%	3.0	0.9	1.6	1.6	1.1
Southeast	%	20.1	12.4	15.4	15.4	12.3
Mekong River Delta	%	26.1	23.6	20.5	20.5	19.2
Panel D: Enterprise Performance						
Total expenditures (monthly)	mean	3,010	2,420	4,169	5,853	3,517
	median	718	243	1,138	1,363	466
Sales revenue (monthly, current)	mean	4,662	3,710	6,388	7,283	4,605
	median	1,537	898	1,776	2,438	1,176
Sales revenue (monthly, whole year)	mean	3,586	2,526	4,520	6,735	4,129
	median	1,174	692	1,412	1,974	962
Enterprise income (monthly, current)[ac]	mean	1,371	907	2,053	1,245	1,647
	median	441	433	555	728	539
Enterprise income (mo., whole year)[ad]	mean	578	103	352	882	619
	median	276	255	317	438	334
Net revenue (monthly, current)[bc]	mean	736	537	792	935	666
	median	392	263	385	509	347
Net revenue (monthly, whole year)[bd]	mean	671	465	714	891	586
	median	332	222	349	461	313
Hours of family labor (monthly)	mean	282	220	280	271	213
	median	213	183	243	243	183
Number of family workers	mean	1.51	1.44	1.57	1.46	1.32
Number of paid workers	mean	0.28	0.19	0.31	0.26	0.24
Number of workers	mean	1.84	1.71	1.98	1.85	1.77
Value of capital stock (value, current)	mean	8,594	3,800	8,287	10,899	6,367
	median	220	160	300	487	419

The most curious figure relates to gender; in 1993, 81% of the panel enterprises were operated by a woman, but the 1998 survey indicated that only 57% of these same enterprises were run by a woman. Note that the identity of the entrepreneur within the household is indicated by the response to the question "who among the household members is most knowledgeable about the activities of the enterprise?" Table 1 showed that there are a roughly equal number of men and women engaged in non-farm self-employment. The increase in the number of male entrepreneurs showing in Table 7 may reflect any of a number of phenomena: (i) the high number of women entrepreneurs in 1993 may be largely an artifact of the survey procedures used in 1993; (ii) men "take over" successful household enterprises; or (iii) over time, men have taken on a more prominent role in NFHEs. Of these, (i) is not entirely likely: Vijverberg (1998b) showed that women contributed many more hours of non-farm self-employment than men and thus may indeed be "more knowledgeable" about enterprise operations. (A similar comparison of hours of work in 1998 is difficult because of the structure of the new questionnaire.) Answer (iii) is plausible in the light of the similar percentages in the columns for 1998 panel and start-up enterprises.

An Aside: Explaining Attrition of Households with NFHEs

Ten percent of the households that ran enterprises in 1993 had dropped out of the sample by 1998. This attrition raises the possibility that the panel of enterprises may be biased, and that the households (and their enterprises) that dropped out of the sample were atypical.

Table 7 (above) allows us to compare the characteristics of the attrited enterprises (column 1) with those that either went out of business (column 2) or were part of the panel (column 3). The enterprises that dropped out of the sample were more likely to be in urban areas, in the south of Vietnam, and to be operated by better-off households. On the other hand the performance measures of attrited firms do not stand out from those of other businesses.

We also captured the determinants of attrition in a logistic model where the dependent variable is 1 if the household also responds in 1998, and zero otherwise. The results of estimating this model, which is conditional on the presence of an enterprise, are shown in the middle columns of Table 8. A similar approach can also be used to model attrition among households that did not run a business in 1993 (i.e. answered "no" to question 2B in Figure 1); these results are shown in the last two columns of Table 8.

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Table 8
Determinants of the Attrition Process: A Logistic Model

	Households with enterprise in 1993		Households without enterprise in 1993	
	Coefficient	t-stat	Coefficient	t-stat
Dependent variable: "Household responds to 1998 survey."				
Intercept	-0.601	0.43	-0.774	0.59
Regional variables:				
Urban residence	-0.708	3.93	-1.235	6.03
Northern Uplands	1.767	3.21	0.196	0.41
Red River Delta	1.156	2.32	0.600	1.25
North-Central Coast	1.439	2.66	1.654	2.91
Central Coast	0.897	1.74	0.868	1.68
Southeast	0.708	1.40	-0.140	0.28
Mekong Delta	0.806	1.65	-0.553	1.21
Household Characteristics:				
Number of women aged 16 years and older	0.019	0.13	-0.205	1.19
Persons aged 16-25 years	-0.043	0.25	0.500	2.67
Persons aged 26-35 years	0.161	0.86	0.526	2.63
Persons aged 36-45 years	0.268	1.35	0.721	3.32
Persons aged 46-55 years	0.395	1.75	0.551	2.29
Persons aged 56-65 years	0.388	1.87	0.914	3.88
Persons aged over 65 years	0.229	1.11	0.321	1.61
Persons with 1-3 years of schooling	0.158	0.89	-0.065	0.38
Persons with 4-5 years of schooling	0.119	0.72	0.083	0.46
Persons with 6-9 years of schooling	0.148	0.99	-0.051	0.33
Persons with 10-12 years of schooling	0.073	0.45	-0.369	2.02
Persons with postsecondary schooling	-0.146	1.00	0.107	0.65
Persons with technical training	-0.236	1.45	-0.253	1.14
Persons with completed apprenticeships	-0.055	0.49	-0.158	0.95
Financial Performance:				
Log(Real Household Expenditures)	0.210	1.22	0.279	1.76
Log(Total Enterprise Income)	-0.097	1.37		
Number of observations	2,128		2,576	
Proportion Affirmative	0.905		0.924	
Average log-likelihood value	-0.2980		-0.2374	
Likelihood ratio test of slopes	62.4		163.2	

The estimates show that, overall, urban households were less likely to remain in the sample, and households with older members were more cooperative. Other determinants are more sporadic. By and large, households in the north were less likely to drop out of the sample between 1993 and 1998. Human capital variables matter little. There is a suggestion that better-off households are more cooperative, ceteris paribus, and that those with higher-earning enterprises are less responsive, but the effect of the financial variables, which are in logarithmic form to reduce the impact of outliers,[8] is not statistically significant.

Our conclusion is that, for all practical purposes, attrition is sufficiently small, and its correlation with enterprise performance so minimal, that attrition bias is unlikely to be a serious concern. Thus we may view the observed sample of enterprises in panel households as representative of the population of panel enterprises.

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[8] Prior to taking the logarithm, a value of 1 is added to the household's total enterprise income, because some households report zero incomes. This transformation has little impact on the measurement of the effect of enterprise income on attrition.

Which enterprises survived?

We are now in a position to address the first of our two key questions: Given that a household operated one or more enterprises in 1993, what are the chances that the enterprise survived until 1998?

Note that the unit of observation is the enterprise, not the household. Some households operate more than one business, and one might surmise that the survival of one household enterprise might depend on the existence and performance of the others within that household. On the other hand, involvement in several activities diversifies risk. The simplest approach, and the one we follow here, is to stay with the maintained hypothesis that the observations on enterprises are independent of one another.

In Table 9 we present the results of estimating a logistic model, where the binary dependent variable is set equal to 1 if the enterprise survived from 1993 to 1998. The empirical specification parallels that of other studies on firm survival, such as McPherson (1995), Storey and Wynarczyk (1996), Littunen (2000). There are two versions of the model, one that relies on the community characteristics from 1993, and the other that uses the characteristics from 1998. The estimates of the two models are similar in most respects, but there are some notable differences in the community and regional effects and, judging by the likelihood ratio, the model with the 1993 community characteristics fits marginally better.

Non-farm household enterprises were *less* likely to survive in the south of Vietnam, particularly in the Southeast region, which is dominated by Ho Chi Minh City. At first sight this is surprising, because Ho Chi Minh City is the richest and most economically dynamic part of the country. Presumably the area is so dynamic that it is pulling people into wage employment, leaving less of them to run NFHEs. Dynamism does not always have this effect, because firms are more likely to survive in rural areas where there is a nearby market (presumably a sign of vigor, or at least of high population density).

Of the firms surveyed in 1993, 39% survived in the sense that they were surveyed again in 1998. For enterprises run by women, the estimated survival probability rises by a further 9 percentage points. This effect does not arise because women are disproportionately concentrated in certain fields, since the equation holds other factors constant, including the activity in which the business operates (e.g. food manufacturing, transportation, etc.). Enterprises run by prime-age entrepreneurs were also more likely to survive, but it is surprising that the survival rate was not influenced by the educational levels of the owner, or by his or her ethnicity.

As is found in many other studies (Goreski, 1995; Agarwal and Audretsch, 2001), there is an important size effect. This is clear from Table 10, which uses the estimated parameters from Table 9 to compute the probability that a firm survives from 1993 to 1998. Larger businesses, whether measured by the size of income or capital stock, were also more likely to still be in operation in 1998. If there is a lesson here, it might be that firms have to grow to survive.

Table 9
Enterprise Survival: A Logistic Model

| | Using community characteristics from: | | | |
| | 1993 | | 1998 | |
	Coefficient	t-stat	Coefficient	t-stat
Dependent variable: "1993 enterprise is surveyed again in 1998"				
Intercept	-2.590	4.73	-2.963	7.03
Regional variables:				
South	-0.454	3.23	-0.256	1.91
Urban Northern Uplands	0.040	0.08	-0.077	0.27
Urban Red River Delta	-0.004	0.01	0.125	0.43
Urban North-Central Coast	0.686	1.21	0.479	1.20
Urban Central Coast	0.846	1.71	0.451	1.65
Urban Southeast	-0.076	0.15	-0.139	0.45
Urban Mekong Delta	0.351	0.73	-0.025	0.11
In rural areas:				
Presence and quality of roads	0.021	0.07	0.237	0.90
Presence and quality of waterways			-0.039	0.27
Availability of public transportation	-0.006	1.59	-0.009	1.28
Presence and frequency of local market	0.944	2.85	0.128	0.86
Presence of market in nearby community	0.593	1.49	-0.181	0.63
Utilization of electricity and piped water	-0.330	1.29	-0.123	0.78
Local wage index	-0.023	1.04	0.001	0.13
Dummy, =1 if local wage index unknown	-0.210	0.71	0.207	1.04
Local producer price of rice	-0.015	0.21	0.175	2.28
Dummy, =1 if local price of rice unknown	-0.237	0.49	0.232	1.24
Entrepreneur's characteristics:				
Female	0.294	2.28	0.293	2.29
Age less than 16 years	-0.100	0.30	-0.111	0.33
Age between 26 and 35 years	0.620	4.41	0.639	4.53
Age between 36 and 45 years	0.461	2.87	0.473	2.94
Age between 46 and 55 years	0.227	1.14	0.234	1.17
Age between 56 and 65 years	0.048	0.20	0.041	0.17
Age over 65 years	-0.304	0.81	-0.274	0.72
Years of schooling	-0.019	1.37	-0.018	1.29
Years of apprenticeship	-0.032	0.34	-0.034	0.36
Chinese ethnicity	0.189	0.70	0.108	0.39
Other ethnicity (non-Kinh, non-Chinese)	-0.226	0.96	-0.404	1.70
Former enterprise characteristics				
Operating from a fixed location	0.433	3.74	0.469	4.03
1992-93 enterprise age between 1.42 and 3 years	0.331	2.24	0.343	2.31
1992-93 enterprise age between 3 and 5 years	0.458	3.00	0.462	3.02
1992-93 enterprise age between 5 and 11 years	0.436	2.78	0.448	2.86
1992-93 enterprise age over 11 years	0.759	4.65	0.736	4.51
Fishery	-0.955	5.19	-0.949	5.19
Food manufacturing	-1.089	5.77	-1.087	5.76
Textiles manufacturing	-0.790	4.27	-0.792	4.29
Other manufacturing	-0.916	4.79	-0.923	4.80
Food/hotel commerce	-0.345	1.87	-0.342	1.84
Transportation/communication	-0.510	2.13	-0.544	2.26
Services	-1.170	5.59	-1.160	5.54
Other industries	-1.208	5.72	-1.239	5.87
Former scale of operation:				
Log(1992-93 Enterprise income + 1)	0.251	5.45	0.259	5.61
Log(1992-93 Value capital stock + 1)	0.066	3.73	0.062	3.47
Log(1992-93 Value of inventories + 1)	0.043	2.26	0.046	2.41
Number of observations	2376		2368	
Proportion Affirmative	0.392		0.393	
Average log-likelihood value	-0.5908		-0.5926	
Likelihood ratio test of slopes	374.22		367.21	

Note: In this table, the 'omitted categories' against which comparisons are made are: urban Central Highlands, an entrepreneur between 16 and 25 years of age of Kinh heritage, an enterprise operating from a variable location that has been in existence less than 1.42 years in the retail trade sector.

The strongest predictor of future success is past success. Firms that had survived for 3 years or more by the start of the period were more likely to survive, a clear case of duration dependence. When combined with size, the effect is striking: a firm that was small and young in 1993 had a 21% chance of surviving to 1998 (see Table 10), while a large and old firm had a 56% probability of staying in business. The magnitude of this age effect is similar to the estimates reported by many other studies. Of course, this comparison assumes that other factors are held constant. However, these other factors do matter. For example, compared to the retail sector (the excluded category among the industry dummy variables), enterprises in the manufacturing and service sectors are more likely terminated; and enterprises near local markets or operating from a fixed location are more likely to survive.

Table 10.
Probability that a 1993 enterprise survives until 1998

	Size of enterprise		
Enterprise Age in 1993:	Small	medium	large
Between 0 and 1.42 years	0.21	0.28	0.38
Between 1.42 and 3 years	0.27	0.35	0.46
Between 3 and 5 years	0.30	0.38	0.49
Between 5 and 11 years	0.30	0.38	0.49
Over 11 years	0.36	0.45	0.56

Notes: A "small" enterprise had an annual enterprise income of 83.4 thousand dong ($US72.50), used 10 thousand dong worth of capital, and had no inventories. The income and capital stock of a "medium"-sized enterprise were 178.7 and 143.2 thousand dong, but again there are no inventories. The "large" enterprise had an income of 376.1 thousand dong ($US323) and a capital and inventory stock of 771.1 and 40.2 thousand dong respectively. These values are chosen on the basis of the quartile values of the variables among the 1993 enterprises in panel households.
Source: Based on calculations from the first column of Table 10.

What explains start-ups?

Between 1993 and 1998, households started up 1,428 new non-farm household enterprises, which brings us to our second key question: What motivated the decision to start up a new business, and what features of the household's environment facilitated the task?

Conceptually there are two distinct groups involved—those that operated an enterprise in 1993 and have started another business (box 3B in Figure 1), and those that did not run a NFHE in 1993 but had set one up by 1998 (box 3C in Figure 1). For households without an enterprise in 1993, the motives for starting a business may not be the same as for those that already have experience with running a business. To allow for this, we estimated separate logistic models for the two groups, as shown in Table 11. The subsamples are statistically distinct, as witnessed by the p-value of 0.0101 on the log-likelihood ratio test of parameter equality.

A familiar pattern emerges. Start-up is less likely in the south, particularly the Mekong Delta and rural areas. If there is a secondary school nearby, fewer enterprises are expected to set up operations: it presumably reduces the availability of family labor. For new startups in inexperienced households, it greatly helps if the parents of the head were skilled manual workers or, perhaps, managers during their working lives. The same is no help in explaining whether households with established firms initiate another enterprise; but recall

from Table 5 that a history of proprietorship in the head's parental background was a strong determining factor in whether the household already operated an enterprise in 1993. Startups are also more likely if the household members are at least moderately well educated, or have completed apprenticeships.

There is a policy implication here, perhaps. Efforts to boost the level of worker skills appear to have an unexpected side effect of leading to the establishment of new firms. Although a useful result, it is hardly surprising, as skilled and semi-skilled workers such as carpenters and masons decide to go into business on their own.

Table 11
Enterprise Start-Up: A Logistic Model

	All households		Households with a 1992-93 enterprise		Households without a 1992-93 enterprise	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
Dependent variable: "Household started a new enterprise between 1993 and 1998"						
Intercept	-1.922	7.55	-1.475	4.20	-2.140	5.44
Regional variables:						
South	-0.536	5.10	-0.604	3.83	-0.541	3.63
Urban Northern Uplands	0.265	1.01	-0.233	0.69	0.477	0.99
Urban Red River Delta	0.279	1.25	-0.106	0.34	0.312	0.90
Urban North-Central Coast	0.492	1.39	-0.785	1.24	1.038	2.20
Urban Central Coast	0.695	3.13	0.333	1.14	1.109	2.97
Urban Southeast	0.967	3.78	0.721	2.14	0.787	1.82
Urban Mekong Delta	0.505	2.53	0.329	1.28	0.676	1.97
In rural areas:						
Availability of lower and upper secondary school	-0.475	2.83	-0.462	1.91	-0.696	2.80
Agricultural extension index	-0.116	0.87	-0.059	0.29	-0.160	0.86
Presence and quality of roads	0.064	0.32	0.341	1.14	-0.154	0.55
Presence and quality of waterways	0.321	2.93	0.258	1.59	0.320	2.06
Availability of public transportation	0.001	0.11	0.015	1.85	-0.010	1.33
Utilization of electricity and piped water	0.302	2.73	0.344	1.97	0.228	1.50
Presence and frequency of local market	0.442	1.89	-0.103	0.34	1.123	2.84
Presence of market in nearby community	-0.002	0.01	-0.004	0.02	0.006	0.03
Local wage index	0.021	3.40	0.020	2.52	0.022	2.00
Dummy, =1 if local wage index is missing	0.281	1.70	0.420	1.84	0.064	0.24
Local producer price of rice	0.038	0.82	-0.052	0.81	0.110	1.61
Dummy, =1 if local price of rice unknown	-0.457	1.03	-0.521	0.88	-0.305	0.44
Household characteristics:						
Number of women aged 16 and older	0.014	0.22	0.051	0.57	0.018	0.19
Persons aged 16-25 years	-0.037	0.46	0.057	0.47	-0.092	0.81
Persons aged 26-35 years	0.246	2.77	0.276	2.10	0.235	1.84
Persons aged 36-45 years	0.133	1.41	0.173	1.24	0.107	0.79
Persons aged 46-55 years	-0.070	0.67	-0.028	0.18	-0.097	0.66
Persons aged 56-65 years	-0.077	0.77	0.076	0.53	-0.224	1.54
Persons aged over 65 years	-0.228	2.23	-0.042	0.28	-0.364	2.49
Persons with 1-3 years of schooling	0.183	2.38	0.143	1.19	0.199	1.88
Persons with 4-5 years of schooling	0.326	4.42	0.306	2.65	0.280	2.73
Persons with 6-9 years of schooling	0.214	3.10	0.095	0.87	0.271	2.83
Persons with 10-12 years of schooling	0.089	1.14	0.014	0.12	0.102	0.91
Persons with postsecondary schooling	-0.135	1.25	-0.272	1.87	0.062	0.37
Persons with technical training	0.111	1.66	0.126	1.41	0.087	0.83
Persons with completed apprenticeships	0.160	2.58	0.111	1.36	0.230	2.34
Characteristics of parents of head:						
Average years of schooling	0.008	0.73	0.010	0.60	0.006	0.37
Years of schooling unknown	0.023	0.16	-0.014	0.07	0.001	0.00
Major occupation: farmer	-0.109	0.75	-0.099	0.51	0.025	0.11
Major occupation: manager	0.707	1.05	-0.227	0.22	1.669	1.83
Major occupation: skilled manual	0.950	3.19	0.354	0.97	2.404	4.32
Major occupation unknown	-0.288	1.17	-0.597	1.68	0.024	0.07
Number of observations	4289		1919		2370	
Proportion Affirmative	0.286		0.328		0.252	
Average log-likelihood value	-0.5661		-0.5994		-0.5261	
Likelihood ratio test of slopes	276.67		127.45		181.67	

Likelihood ratio test of sample difference	61.79
p-value	0.0087

Enterprise Performance Over Time

Survival is a minimalist measure of performance. It is at least as important to ask whether those firms that survived between 1993 and 1998 also thrived. Are the most profitable NFHEs in 1993 still among the high-performing firms in 1998, or did they just have a lucky year?

The simplest way to address this question is with the transition matrices that are presented in Table 12. The columns of Table 12, panel A, split the 1993 enterprises into quintiles according to their reported adjusted net revenue (i.e. sales minus operating costs plus purchases of durable goods). The rows reflect where enterprises ended up: either in various income quintiles or as a terminated case or as an enterprise that disappeared when the household attrited. Thus, each column adds up to 100 percent and contains one fifth of the 1993 enterprise sample.

Table 12
Dynamics in Enterprise Income

Panel A: What happened to the 1993 enterprises in 1998?

Quintile of 1998 Enterprise Income:	Quintile of 1993 Enterprise Income				
	Low	Low-mid	Middle	Mid-upr	Upper
Low	6.44	6.80	6.62	3.58	1.25
Low-mid	4.83	7.87	8.77	7.33	3.04
Middle	4.47	6.08	10.73	9.84	6.62
Mid-upper	2.68	3.58	7.33	12.88	10.91
Upper	0.89	2.50	5.01	7.87	25.40
Enterprise terminated	69.23	63.86	52.06	44.90	40.97
Household attrited	8.05	8.23	8.05	11.63	11.09
Household dropped	3.22	1.07	1.43	1.97	0.72
Total (%)	100.00	100.00	100.00	100.00	100.00
N of obs.	559	559	559	559	559

Panel B: Where were the 1998 enterprises in 1993?

Quintile of 1998 Enterprise Income	Quintile of 1993 Enterprise Income					Enterprise started up	Enterprise in new sample	Total (%)	N of obs.
	Low	Low-mid	Middle	Mid-upr	Upper				
Low	5.27	5.56	5.42	2.93	1.02	60.18	19.62	100.00	683
Low-mid	3.95	6.43	7.16	5.99	2.49	51.46	22.51	100.00	684
Middle	3.65	4.97	8.77	8.04	5.41	39.18	29.97	100.00	684
Mid-upper	2.19	2.92	5.99	10.53	8.92	31.87	37.57	100.00	684
Upper	0.73	2.05	4.10	6.44	20.79	24.45	41.43	100.00	683

Three conclusions follow from this table. First, here is clearly some stability in the distribution of enterprise income. The best performing enterprises in 1993 are much more likely to be near the top in 1998, the middle class remains in the middle, and the poor have difficulty rising from the bottom, although this is not impossible. For most households, the probability of building up a highly profitable enterprise in just a few years is very low.

The second important finding is that enterprise termination is clearly related to past enterprise performance, with the low performers being the most likely to go out of business. However, even in the highest quintiles, 40 percent or more of the enterprises do not survive until the fifth year. Thirdly, as noted above, we again see that attrition is not strongly related to the recent performance of the enterprise.

Part B of Table 12 expands on this analysis by asking where the 1997-98 enterprises were in 1992-93, distinguished by their quintile of 1997-98 performance. Here, the rows add up to 100 percent, and the columns describe the origin. The first five columns (with quintile headings) once again contain the panel enterprises and again demonstrate the stability in income that was seen in Panel A. The next column provides evidence that start-up enterprises are more likely to be among the poor performers, which is to be expected given that they have not yet been winnowed out to the same degree as the more established firms. The last column (with the heading of "Enterprise in new sample") describes the position of the enterprises in households that were not a part of the 1993 VLSS sample but were added in 1998; see also Table 6. Enterprises in this subsample tended to perform relatively well.

Table 13 goes a step further and asks what the sources of *growth* in enterprise net revenue (i.e. sales less expenses) might be; regressions that explain the *level* of enterprise income have appeared elsewhere, both for 1993 (Vijverberg 1998) and 1998 (Trung 2000).[9] The average value of the proportional difference in income is 0.418, which means that the average enterprise collected 41.8 percent more income in 1998 than in 1993.

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[9] The dependent variable is the difference in the natural logarithm of enterprise income, which gives the proportional difference in income. However, due to the zero-valued incomes that a few enterprises report, we have added a value of 1 to the argument under the log function, so the dependent variable measures the proportional change relative to (enterprise income + 1). Income values are expressed in thousands of dong, are measured in 1998 prices, and are deflated for differences in prices across regions and survey months.

Table 13
Determinants of Growth in Enterprise Income

	Without selectivity correction		With selectivity correction	
	Parameter estimate	t-stat	Parameter estimate	t-stat
Dependent variable: "Log(Annual 1998 Enterprise Income + 1) - Log(Annual 1993 Enterprise Income + 1)"				
Intercept	1.332	2.77	0.235	0.13
Enterprise inputs				
ln(Capital+1)	-0.053	-3.06	-0.027	-0.64
ln(Inventory+1)	-0.018	-0.96	-0.004	-0.12
Enterprise characteristics				
Operating from a fixed location	-0.121	-1.00	0.009	0.04
Enterprise age between 1.42 and 3 years	-0.343	-2.16	-0.238	-1.05
Enterprise age between 3 and 5 years	-0.433	-2.68	-0.287	-1.03
Enterprise age between 5 and 11 years	-0.664	-4.02	-0.521	-1.88
Enterprise age more than 11 years	-0.540	-3.20	-0.302	-0.74
Fishery	-0.203	-1.00	-0.464	-1.03
Food manufacturing	0.085	0.45	-0.143	-0.36
Textiles manufacturing	0.123	0.61	-0.164	-0.34
Other manufacturing	-0.127	-0.62	-0.447	-0.84
Food/hotel commerce	-0.237	-1.32	-0.306	-1.45
Transportation/communication	-0.352	-1.39	-0.474	-1.49
Services	-0.063	-0.26	-0.427	-0.70
Other enterprises	-0.331	-1.36	-0.654	-1.18
Family worker characteristics				
Years of schooling	0.021	1.41	0.015	0.88
Age less than 15 years	0.248	0.68	0.204	0.55
Age between 25 and 35 years	0.228	1.49	0.397	1.31
Age between 35 and 45 years	0.110	0.64	0.240	0.90
Age between 45 and 55 years	0.134	0.63	0.176	0.78
Age between 55 and 65 years	-0.232	-0.90	-0.239	-0.91
Age over 65 years	-0.438	-1.02	-0.569	-1.19
Female	0.011	0.08	0.063	0.38
Chinese	-0.286	-1.10	-0.245	-0.90
Non-Kinh, non-Chinese	-0.186	-0.70	-0.252	-0.89
Regional characteristics				
South	0.187	1.46	0.083	0.40
Urban Northern Uplands	0.061	0.12	0.193	0.36
Urban Red River Delta	-0.332	-0.70	-0.165	-0.30
Urban North-Central Coast	0.551	0.98	0.868	1.15
Urban Central Coast	-0.081	-0.17	0.264	0.37
Urban Southeast	-0.176	-0.37	-0.027	-0.05
Urban Mekong Delta	-0.445	-0.95	-0.217	-0.37
Presence and frequency of local market	0.127	0.37	0.384	0.73
Presence of market in nearby community	0.294	0.69	0.465	0.93
Presence and quality of roads	-0.494	-1.42	-0.457	-1.28
Utilization of electricity and piped water	-0.357	-1.46	-0.435	-1.58
Selectivity correction term				
Heckman's lambda	n.a.		0.698	0.65
R-squared	0.087		0.088	
Number of observations	931		931	

The independent variables refer to conditions in 1993, so the regression attempts to find determinants of future income growth. The middle two columns ("without selectivity correction") of Table 13 show the results of estimating an ordinary least square regression on enterprises that were included in the panel; it is thus conditional on the enterprise surviving from 1993 to 1998. This does not, however, reflect the experience of all firms, since over 60% of firms that existed in 1993 were no longer in existence in 1998 (i.e. had

no profit then). The two right hand columns ("with selective correction") show estimates that in principle apply to all firms, using a Heckman adjustment (i.e., first estimate a probit regression of a model that tries to explain which enterprises survive, and then use the conditional mean of the disturbance term, also called "Heckman's lambda, as an additional explanatory variable in the initial regression).[10]

The regression models do not have much explanatory power: the R^2-values are around 0.088. Thus, less than 10 percent of the variation in enterprise growth is explained by the model. This is in line with previous research that regression models of enterprise earnings leave most of the variation unexplained (e.g., Vijverberg 1998ab; Trung 2000). Because the dependent variable here refers to the difference in income between two moments in time, the noise that one typically has to deal with in enterprise earnings models is essentially doubled. Furthermore, whereas there are around 3,000 enterprises in each annual sample (see Table 6), the requirement that income is observed in both 1993 and 1998 lowers the sample size to only 931 enterprises. This further reduces the precision of the parameter estimates. All this suggests that a more adequate answer about the determinants of enterprise income growth can only be derived from much larger datasets.

A number of interesting conclusions emerge from these estimates, although they are tentative given the low levels of statistical significance. First, the size of the enterprise, as measured by the capital and inventory stocks, has little impact on enterprise income growth. Second, the youngest enterprises seem to grow the fastest, although this should be seen more as a learning effect than as an inherent long-term productivity determinant. Third, the highest income growth rates are in retail trade (the excluded category among the market sectors). Fourth, there is a hint that educated and prime-age workers generate more growth. Differences across regions are minor, and the presence of markets appears to help.

Conclusions

Almost a quarter of all adults worked in non-farm household enterprises in 1998, typically in combination with farming or another occupation. About one worker in ten relied on NFHEs as their sole source of earnings. These averages hide more than they reveal, because participation in a non-farm household enterprise is strongly related to living standards: just 35% of chronically poor households operated such a enterprise in 1998, compared with 55% of solidly affluent households.

It is difficult to identify the direction of causality, but it is probably bi-directional. We find some evidence that operating an enterprise leads to affluence: Those households that

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[10] As is well known, it is highly recommended that the first-stage probit analysis incorporates some variables that are unique to the selection process and are not part of the explanatory variable set that is used in the second stage. This helps identify the explanatory influence of the added Heckman's lambda. In our case, the first-stage probit equation is the survival model reported in Table 9 (estimated with probit instead of logit in line with the standard selectivity correction protocol). The identifying first-stage variables are: availability of public transportation, local wage index, local producer price of rice, and the dummy variables indicating whether the latter two variables are missing (all pertaining to 1993 community characteristics). None of these are theorized to have a direct impact on the growth in enterprise income. Unfortunately, as shown in Table 9, they also lack a strong impact on enterprise survival. As a result, adding the Heckman's lambda variable to the model raises the degree of multicollinearity among the explanatory variables in a regression equation that already has low explanatory power. This is one more reason why the two right hand columns show low t-values.

jumped at least two expenditure quintiles between 1993 and 1998 ("shooting stars") began poor and ended up relatively rich; they also were more likely to be operating an enterprise in 1998 than in 1993. Conversely, households whose relative expenditure level fell sharply ("sinking stones") were less likely to run a business in 1998 than in 1993. To the extent that operating a business boosts a household's standard of living, it makes sense to encourage the establishment of such enterprises if the goal is faster economic growth.

But what determines who operates a business? A formal analysis shows that geography matters, although perhaps not in the way that would be expected. Households in urban areas are more likely to engage in self employment, but this effect is relatively weak in Ho Chi Minh City. Family history is also important, and the children of proprietors are much more likely to be proprietors themselves. Education helps, but only up to a point, and university graduates are less likely to operate a family enterprise than those with just a high-school diploma.

Perhaps more interesting is the information on enterprise survival and formation. There is little published work on this subject, mainly because household survey data do not usually allow for the construction of the requisite panel of enterprises. We found that non-farm household enterprises were less likely to survive between 1993 and 1998 in the south of the country, particularly in and around Ho Chi Minh City. Older and larger firms were more than twice as likely to survive during this period as their smaller, younger peers. Start-ups were less common in the south of Vietnam, but were more common in households in which there was a skilled manual worker.

An interesting pattern emerges from the analysis. As one moves from poor rural areas, through middle-income cities, to the most affluent part of the country (Ho Chi Minh City), the importance of non-farm household enterprises first rises and then falls. In poor areas there is often a lack of education, credit, and effective demand for the products of household enterprises. In rich areas there are better alternatives to family business, typically in the form of wage labor. Non-farm household enterprises thus play an important role in the period of transition, when agriculture is declining in importance but before the formal industrial and services sector is large enough to take up all of the slack.

As Vietnam seeks to double GDP over the decade ahead, what role will non-farm household enterprises play? Our findings are not particularly encouraging. The number of enterprise terminations is high, at 60% between 1993 and 1998. During the same period, the proportion of adults working in NFHEs fell, as did the proportion of households with such an enterprise. The growth in NFHE sales, expenditures and income lagged behind GDP growth. This is not to argue that NFHEs should be neglected, but rather that, based on the experience of recent history, non-farm household enterprises play only a modest supporting role in fostering rapid economic growth in Vietnam.

We ought to qualify our findings by noting that the economic environment surrounding the private sector enterprises has changed after the VLSS data were collected. Household enterprises can register quite easily now: they are only required to file the name and address of the business owner, the location of the business, the line of operation of the

business, and the amount of business capital (Phan, 2000a). Rural enterprises receive more support than before in regard to access to credit, assistance with marketing, and favorable tax treatment (Nguyen, 2000). It is quite possible that these policies induce capable entrepreneurs to enter the private sector, but it still appears that private (household) enterprises start up with only one third of the capital that a typical other enterprise (such as a limited companies, joint stock companies, partnerships, or state owned enterprises) begin with (Ministry of Planning and Investment, 2001). Of course, it may be that, for purely financial reasons, successful NFHEs re-register under a more protected organizational form (Phan, 2000b), which the VLSS does not capture. But this was not yet an issue when the VLSS data were collected. If the only thrust of the new policy direction lies in the facilitating of enterprise registration, we feel that it is not likely that the main conclusions of this study are invalid under the new economic conditions, because such policies do not address the long-term survival and success of small enterprises; however, given the rural policy initiative, it is certainly worth reexamining the issues with new data in the future.

Appendix: Constructing Community Variables

A number of rural infrastructure indices are constructed from the rural community questionnaires. Here we define each index, and comment on them in turn.

$$\text{Road Index} = \left(1 - \frac{\text{Km. to nearest road}}{10}\right)\left(1 - \frac{\text{Months with impassable road}}{12}\right)$$

This measures the availability of a viable road system. Distances greater than 10 are truncated at 10. The index declines if the nearest road that a car can travel on is further away, or impassable for longer periods.[11] Our expectation is that a higher value of the road index, by opening up opportunities for business, will be associated with more involvement in non-farm household enterprises.

$$\text{Waterways Index} = \left(1 - \frac{\text{Km. to nearest waterway}}{10}\right)$$

This measure is only available for the 1998 sample, and is only computed if the respondent indicated that waterways were an important means of transportation for the community. Whenever the distance exceeds 10 km. or waterways are not deemed important, the index takes on a value of 0.

$$\text{Public Transport Index} = \left(1 - \frac{\text{Km. to nearest train, bus or water transport}}{50}\right) \times \text{Daily Frequency}$$

The distance is truncated at 50 kilometers. The index is an indicator of "connectedness."

$$\text{Daily Market Index} = \left(1 - \frac{\text{Distance to nearest daily market}}{72}\right)$$

$$\text{Periodic Market Index} = \left(1 - \frac{\text{Distance to nearest periodic market}}{50}\right) \times \text{Daily Frequency}$$

For both market indexes, the truncation points are chosen according to values indicated in the survey. The daily frequency is a proportion, so a market that operates once a week has a daily frequency of 1/7. It is hypothesized that the presence of frequently operating markets enhances the viability of non-farm household enterprises.

$$\text{School Index} = \left(2 - \frac{\text{Km. to lower secondary school}}{10} - \frac{\text{Km. to upper secondary school}}{10}\right)$$

Again, the distances are truncated at 10. A commune with both a lower and an upper secondary school in its center would have a school index value of 2. A bigger school index may reflect higher levels of educational attainment locally, which should enhance enterprise performance. On the other hand it also keeps children at school longer, reducing the supply of labor.

$$\text{Agricultural Extension Index} = \left(1 - \frac{\text{Distance to nearest extension center}}{50} + \frac{\text{Number of extension visits per year}}{40}\right)$$

The truncation points are once again selected on basis of values in the sample. The visits component on the second line contributes a maximum value of 1 to the index. Thus, the maximum possible value for this index equals 2.

$$\text{Utilities Index (1998)} = \left(\text{Proportion of households using electricity} \times \text{Usability factor}\right)$$

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[11] The 1993 community survey did not specify that the road must be accessible by car.

The usability factor measures the proportion of the day that there is no outage. It is assumed that, if the respondent indicates that outages occur, a daily outage lasts two hours on average or that weekly (or monthly) outages happen twice per week (or month) for two hours at the time.

Utilities Index (1993) = (Proportion of households with electricity + Proportion of households with piped water)

The 1993 questionnaire did not provide information on electricity outages, so this simpler measure is used. The proportions take on values of 0, 1/3 and 2/3 depending on whether no, a few, or most households have the specified access. The objective of this index is to measure productive opportunities offered to the enterprise through access to electricity and water. Higher values of this index should benefit the enterprise.

Wage Index = (Average male and female wages for agricultural tasks)

For a substantial number of communities in the 1997-98 survey, this average could not be computed with a reasonable level of confidence; in these cases a dummy variable is added. The effect of this index on NFHE employment is ambiguous; higher wages imply that there are good alternative sources of income, making it less attractive to operate a business and more expensive to hire workers. On the other hand, higher wages indicate greater affluence, and a higher demand for small-business services such as shops and restaurants.

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