

OCCASIONAL PAPER

How reasons for not completing apprenticeships and traineeships change with duration

TOM KARMEL
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The views and opinions expressed in this document are those of the author/project team and do not necessarily reflect the views of the Australian Government or state and territory governments.

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About the research



How reasons for not completing apprenticeships and traineeships change with duration

Tom Karmel and Peter Mlotkowski, NCVER

This short paper adds to the considerable literature on low completion rates for apprenticeships and traineeships by looking at whether the reasons given for not completing vary by how far the individual is into their contract of training.

The approach we take is to calculate the probability of apprentices and trainees giving a particular reason as their main reason for not completing, at each point in the training contract. The results are then disaggregated into three groups: trades, non-trades (male) and non-trades (female).

Key messages:

- ✧ Most of the reasons given for not completing an apprenticeship or traineeship vary by how far the individual is into their training contract, with the patterns being largely consistent between the three groups.
- ✧ The desire to do something different (such as study at university) or better (such as getting a better-paid job) is the only reason remaining constant throughout the duration of the training contract. It appears that apprentices and trainees are always looking out for a better alternative.
- ✧ By contrast, poor working conditions or non-sympathetic bosses or workmates have an immediate effect for many, but then decrease in importance with duration.

These patterns provide useful indications on how policy responses to low completion rates may be framed to address the different stages of the training contract.

Tom Karmel
Managing Director, NCVER

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Introduction

The issue of low completion rates for apprenticeships and traineeships is by no means new. A considerable amount of work has been done to identify the factors influencing low completion rates and how these can be addressed. The latest work, Karmel and Mlotkowski (forthcoming), focuses on the impact of wages on the probability of completing. Other studies to report the importance of wages include Huntly Consulting (2008) and Fullager and Tonkin (2008), while the Department of Education, Science and Training et al. (2007) and Mitchell, Dobbs and Ward (2008) focus on other factors such as appropriate selection, making work meaningful, pastoral support, and effective training.¹ This paper adds to the literature by looking at whether the reasons given for not completing vary by how far the individual has progressed into their apprenticeship or traineeship.

We can expect reasons for non-completion to vary by duration for a number of reasons. First, for some, it takes time to decide whether the type of work is enjoyable and whether the workplace is a good place to work, while for others these decisions are made more immediately. Second, alternatives, particularly in the form of better-paying jobs, change as apprentices and trainees go through their training and become older and more skilled. On the other hand, wages change with duration; for example, a third year trade apprentice gets paid considerably more than a first year apprentice. The idea is that, as apprentices and trainees progress through their training, their circumstances change and so also will their reasons for non-completion.

The analysis makes use of data from the National Centre for Vocational Education Research (NCVER) Apprentice and Trainee Destination Survey. This survey obtained information on a range of variables (see appendix A or NCVER 2009a) from an initial sample of 5319 individuals who either completed or withdrew from their apprenticeship or traineeship in the final quarter of 2007. One of the questions in the survey (that is, one of the variables) asked for the main reason for choosing not to continue with the training contract, with the non-completers being able to choose one of 20 responses. These cover reasons such as wanting to do something better or different, dissatisfaction with the working conditions or workmates or the training, personal reasons, and redundancy, and so we group them accordingly. The approach we take is to calculate the probability, at each point in the training contract, of apprentices and trainees giving a particular reason as their main reason for non-completion. Finally, we disaggregate the results into three groups: trades, non-trades (male) and non-trades (female).

The results are quite informative. We find that only the desire to do something different (such as study at university) or better (such as getting a better paid job) remains constant throughout the duration of the contract. Every other reason for non-completion either increases or decreases with duration, with the patterns being mostly consistent across the three groups. For example, unhappiness with the training or study increases in importance as apprentices and trainees progress through their training contracts. By contrast, poor working conditions or relationships decrease in importance with duration; presumably these have an immediate effect for many.

¹ See also Karmel and Misko (2009) for a survey of initiatives to improve apprenticeship and traineeship completion rates.

The paper concludes with a brief discussion on the implications of these results. The patterns we observe provide useful indications on how policy responses to low completion rates may be framed to address the different stages of the training contract. For example, if the focus were on reducing early attrition, then better matching of apprentices and trainees to workplaces would have the greatest effect, given the significance of perceived poor working conditions and relationships for those who leave at an early stage. If the focus were on encouraging apprentices and trainees who are at a more advanced stage in their contracts to complete their contract of training, then other factors, such as maintaining effective training and study, are the key.

How reasons for non-completion change with duration

The Apprentice and Trainee Destination Survey asks individuals for their main reason for choosing not to complete their contract of training, and individuals may give one of 20 reasons. Such a large number of possible responses is difficult to get to grips with and our natural inclination is to group them in some way. However, analysing another question in the survey that asks for multiple reasons rather than the main reason for not completing gives few clues about possible groupings because the vast majority of individuals gave only one response. So we group the responses as shown in table 1.

The first grouping, *Doing something different/better*, brings together people who thought their pay was too low and those who discontinued their contract of training for something different (studying at university/school) or better (got offered a better job). The other groupings are fairly self-explanatory, covering broad reasons such as dissatisfaction with working conditions or workmates, dissatisfaction with training or study, personal reasons, and redundancy.

Table 1 Groupings of main reason for non-completion

What was your main reason for choosing not to continue your apprenticeship or traineeship?		
Original reasons		New groupings*
1	Got offered a better job	Doing something different/better (1+2+16+18)
2	Pay was too low	
3	Poor working conditions	Poor working conditions/didn't like boss (3+6)
4	Wasn't happy with job prospects in industry	Didn't like work or industry/transferred (4+5+8)
5	Didn't like type of work	Wasn't happy with training or study (9+10+11)
6	Didn't get on with boss or other people at work	
7	Lost job/was made redundant	Personal reasons (12+13+14+19+20)
8	Transferred to another apprenticeship/traineeship	Lost job/made redundant (7)
9	Wasn't happy with on-the-job training	Other (15+17)
10	Wasn't happy with off-the-job training	
11	Found study too difficult	
12	Problems with travel/transport	
13	Illness/health reasons	
14	Family reasons	
15	Other reason	
16	Left job/changed career	
17	Apprenticeship/traineeship cancelled/ discontinued	
18	Studying elsewhere (university/school)	
19	Lack of time	
20	Moved	

Note *The broader 'new groupings' are created by combining similar 'original reasons'. The numbers in parenthesis after each grouping represent the numbered original reasons that comprise the new category.

Given the above groupings, we are interested to see whether the reasons given for not completing vary by how far the individual is into their apprenticeship or traineeship. Table 2 presents one set of tabulations—for the trades.

Table 2 Main reason for non-completion by duration, trades

	Up to 3 months	Over 3 months and up to 6 months	Over 6 months and up to 1 year	Over 1 year and up to 2 years	Over 2 years	Total
	%	%	%	%	%	%
Doing something different/better	23.9	14.3	29.1	21.1	27.1	23.4
Poor working conditions/didn't like boss	24.8	22.0	12.8	23.4	7.1	19.1
Didn't like work or industry/transferred	11.4	22.4	17.5	22.9	0.9	16.7
Wasn't happy with training or study	4.9	8.3	8.4	10.3	7.4	7.9
Personal reasons	9.6	10.3	4.6	5.3	34.2	9.4
Lost job/made redundant	12.6	6.8	10.4	7.1	9.8	9.5
Other	12.9	15.8	17.1	9.9	13.5	13.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

It is difficult to see any clear trends. Overall, *Doing something different/better* and *Poor working conditions/didn't like boss* are the most important factors in the decision not to complete a trade apprenticeship, but there don't appear to be any clear patterns by duration. *Wasn't happy with training or study* increases steadily in importance for those withdrawing in the first two years, but then decreases for those withdrawing after two years. Finally, *Lost job/made redundant* appears to decrease in importance as trade apprentices get further into their contracts of training, but again the pattern is not entirely consistent.

All of this could, of course, be attributable to the intervals we have used for duration, and a different set of intervals may well reveal clearer trends. However, it is more likely that our approach here is a bit too simplistic and we need to think of another way of observing the significance of duration on the reasons given for not completing contracts of training.

We now take a more sophisticated approach. We have three groups of non-completers: trades, non-trades (male) and non-trades (female). For each group, we calculate the probability of apprentices or trainees giving each of the seven (grouped) reasons as their main reason for not completing, at each point in the training contract. This requires running 21 regression models, one for each main reason for each group of non-completers. These regression models have a binary dependent or response variable (whether the apprentice or trainee in a particular group chose a particular reason for not completing) and two explanatory variables (duration and duration squared). However, the duration squared term is dropped from the models when it is found to be highly insignificant.

Appendix B sets out the mathematical basis and presents the results of all of our calculations. Here we merely give an example, showing the probability of apprentices and trainees who do not complete giving *Poor working conditions/didn't like boss* as their main reason, at each point within the first three years (trades) and within the first 18 months (non-trades male/female) (figure 1).

Figure 1 Probability of poor working conditions/didn't like boss being main reason for non-completion by duration, trades and non-trades (male/female)

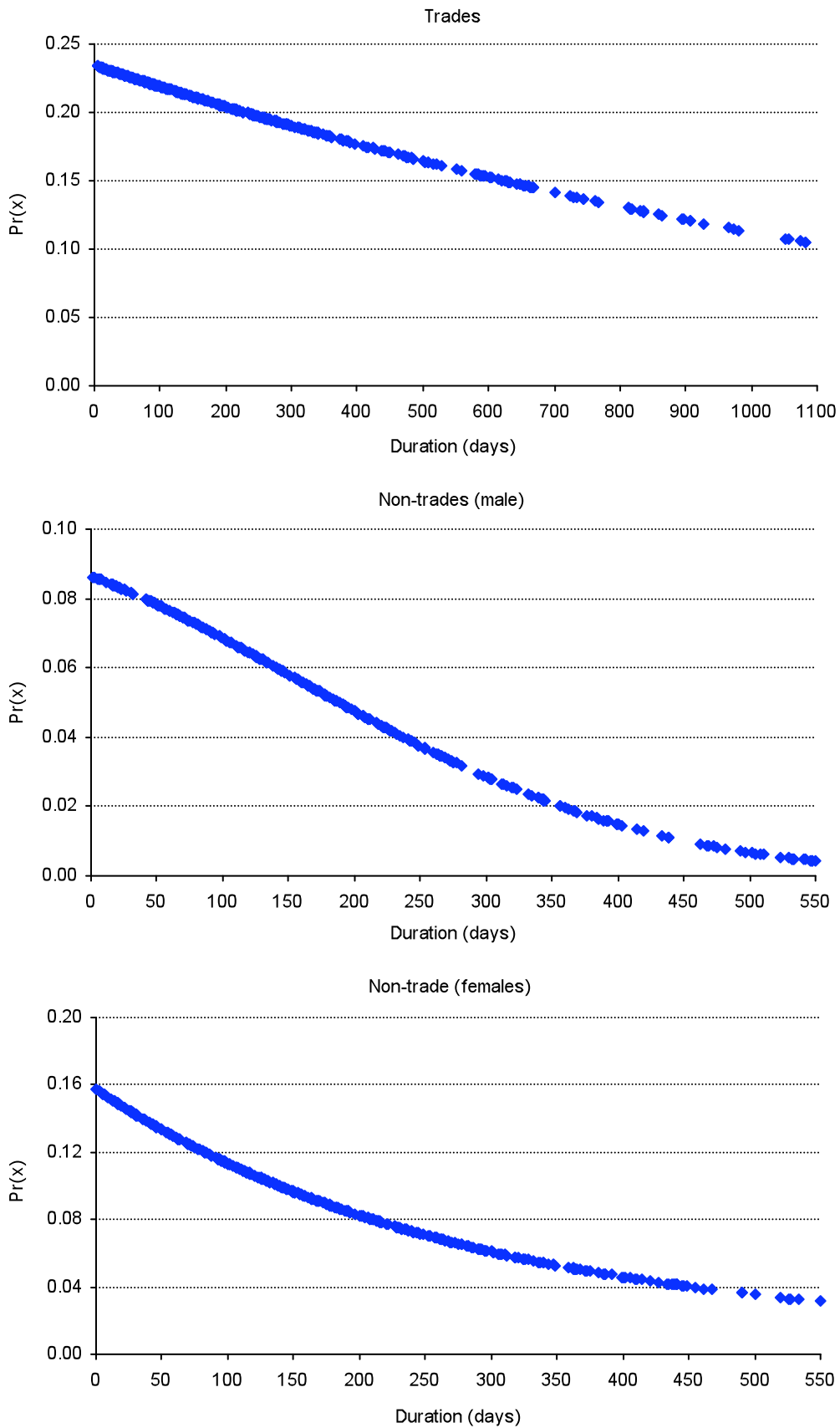


Figure 1 shows that the probability of *Poor working conditions/didn't like boss* being the main reason for not completing decreases as apprentices and trainees get further into their contracts of training. This relationship exists for each of our groups. Overall, this reason for non-completion is more important in the trades than in the non-trades; perhaps the working environment in trade occupations is more challenging, at least to the group who makes up the majority of trade apprentices—young males entering employment for the first time.

Table 3 now summarises our analysis. The table shows the probability of each reason being the main reason for non-completion at the beginning of the contract, and whether this probability increases or decreases as apprentices and trainees get further in. For example, the probability of *Doing something different/better* being the main reason for not completing varies very little by duration. For each of our groups, this is the most important reason at the outset and it changes little, no matter how far into the training contracts the apprentices and trainees withdraw. By contrast, every other reason for non-completion either increases or decreases with duration. These patterns are largely consistent across the three groups. For example, *Wasn't happy with training or study* and *Personal reasons* increase in significance as apprentices and trainees get further in, while the opposite is true of *Poor working conditions/didn't like boss* and *Lost job/made redundant*, for each group.

Table 3 Summary of effect of duration on main reason for non-completion, trades and non-trades (male/female)

	Trades		Non-trades (male)		Non-trades (female)	
	Pr (x=0)	Effect of duration	Pr (x=0)	Effect of duration	Pr (x=0)	Effect of duration
Doing something different/better	0.24	↔	0.39	↔	0.34	↔
Poor working conditions/didn't like boss	0.23	↓	0.09	↓	0.16	↓
Didn't like work or industry/transferred	0.11	↑	0.11	↓	0.10	↓
Wasn't happy with training or study	0.05	↑	0.01	↑	0.07	↑
Personal reasons	0.07	↑	0.11	↑	0.13	↑
Lost job/made redundant	0.11	↓	0.15	↓	0.12	↓
Other	0.16	↓	0.16	↑	0.11	↑
Total	0.98		1.01		1.02	

Notes: Pr (x=0) denotes probability at the beginning of the contract.
The effect of duration is considered for the first 18 months for each group.

Table 4 provides an alternative way of summarising the trends, by providing the probability that a particular reason is given for non-completion at the beginning of the contract and 18 months into it (for trades), and nine months in for the non-trades.

Table 4 Effect of duration on main reason for non-completion, at beginning of contract and 18 (trades) and 9 (non-trades) months in

	Trades		Non-trades (male)		Non-trades (female)	
	Start	18 months in	Start	9 months in	Start	9 months in
	Pr (x=0)	Pr (x=550)	Pr (x=0)	Pr (x=275)	Pr (x=0)	Pr (x=275)
Doing something different/better	0.24	0.23	0.39	0.39	0.34	0.35
Poor working conditions/didn't like boss	0.23	0.16	0.09	0.03	0.16	0.07
Didn't like work or industry/transferred	0.11	0.20	0.11	0.10	0.10	0.07
Wasn't happy with training or study	0.05	0.10	0.01	0.07	0.07	0.12
Personal reasons	0.07	0.11	0.11	0.19	0.13	0.16
Lost job/made redundant	0.11	0.08	0.15	0.04	0.12	0.06
Other	0.16	0.13	0.16	0.20	0.11	0.16
Total	0.98	1.00	1.01	1.01	1.02	1.00

Two of the more important reasons across the three groups are *Doing something different/better* and *Poor working conditions/didn't like boss*. As stated earlier, the first of these maintains its importance throughout the duration of the contract. It appears that apprentices and trainees are looking out for a better alternative, and this remains relatively constant as a reason for non-completion. By contrast, the second reason tapers off; presumably poor working conditions or non-sympathetic bosses have an immediate effect for many. That is, it does not take apprentices and trainees long to decide whether the workplace is a good place to work and whether they like their workmates. Another important reason for non-completion at the outset is *Lost job/made redundant*. This reason decreases in importance with duration for each of our groups but particularly for non-trade males, becoming one of the least important reasons nine months in.

Discussion

Perhaps the most useful insight from this study is that nearly all of the reasons given for not completing apprenticeships and traineeships vary depending on how far the individual is into the contract. These patterns might well influence the policy response to low completion rates. For example, we know that drop-out rates tend to be higher at the beginning—overall, around 10% of apprentices and trainees withdraw within the first three months and around 20% withdraw within the first six months (NCVER 2009b). If, as stated, poor working conditions or non-sympathetic bosses or workmates have more of an influence on the decision to withdraw at the start of the contract than later on, then better matching of apprentices and trainees to workplaces would be the best way to reduce early attrition. By contrast, if the policy response is to target apprentices and trainees further into their contracts, then the focus should be on other factors, such as maintaining effective training and study.

What may be done about the most important and only persistent reason for non-completion, the attraction of better alternatives, is unclear. One possibility might be to better inform apprentices and trainees of the benefits of completion, particularly in terms of being able to secure better-paying jobs. However, in terms of the three groups considered in this paper, Karmel and Mlotkowski (forthcoming) find that it is only in the trades that expected wages on completion of the training contract significantly exceed expected wages in alternative employment. In the non-trades, the premium attached to completion is small for females and virtually zero for males. That report also suggests that increasing training wages, thereby making the apprenticeship or traineeship more attractive relative to the alternative, would only have an effect on completion rates for males in the non-trades. For apprentices, it is the premium associated with becoming a tradesperson that counts, not training wages. And for females in non-trade traineeships there is no relationship between wages and completion rates.

In the same vein, it is difficult to see what may be done about the other reasons for non-completion, such as personal reasons, even though we know how these change with duration. Issues such as illness, family problems or moving home will always arise for some, meaning that it is not worthwhile continuing with the apprenticeship or traineeship. The focus should be on factors that are amenable to change, such as matching apprentices and trainees more appropriately to workplaces. Here it seems there are two possibilities. One is to select apprentices and trainees who can cope with perceived poor working conditions and relationships. At the very least, prospective apprentices and trainees should be adequately informed about the nature of the work and what the boss expects. The other is to work with employers to improve conditions and relationships. Finally, the focus should be on different factors at different stages of the training contract.

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Appendix A: Apprentice and Trainee Destination Survey

The Apprentice and Trainee Destination Survey provides information about the destinations of apprentices and trainees approximately nine months after they have left their training. The findings relate to apprentices and trainees who completed their training (completers) between October and December 2007, or who cancelled or withdrew from an apprenticeship or traineeship and did not return to finish (non-completers) during this period.

The statistical publication from the survey presents employment outcomes, reasons for non-completion, satisfaction with the apprenticeship or traineeship, and further study destinations. A number of supporting documents are also available, including additional data tables and technical notes. See *Apprentice and trainee destination 2008*.

Appendix B: Probability plots

This appendix sets out the mathematical formula used to calculate the probabilities for the main reason for non-completion and presents the results of the calculations.

We have three groups of apprentices and trainees: trades, non-trades (male) and non-trades (female). For each group, we calculate the probability of apprentices or trainees giving each of the seven reasons as their main reason for not completing, at each point in the training contract.

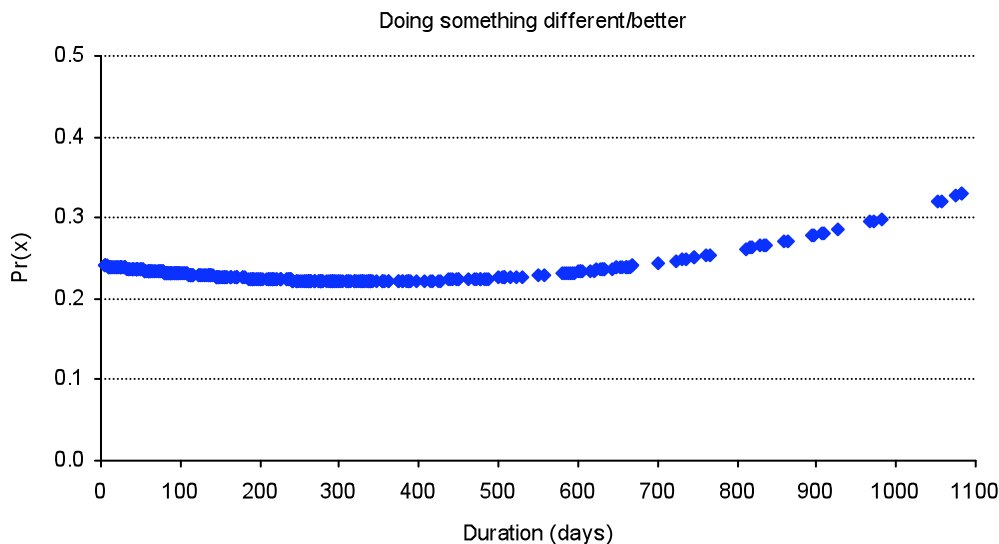
We run 21 logistic regressions, one for each main reason in each group of apprentices and trainees. These logistic regressions have two explanatory variables: duration and duration squared. However, the duration squared term is dropped from the models when it is found to be highly insignificant. The logistic prediction equation is as follows.

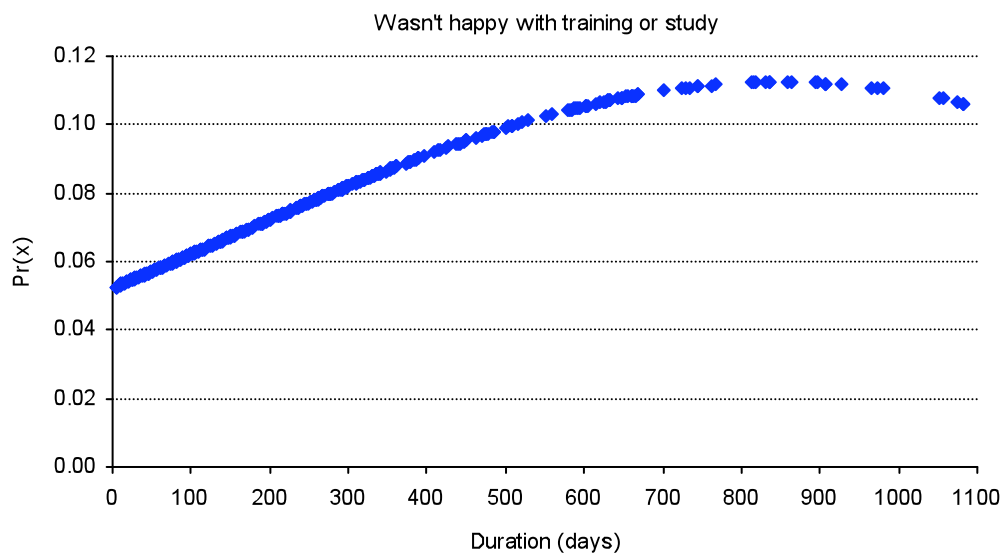
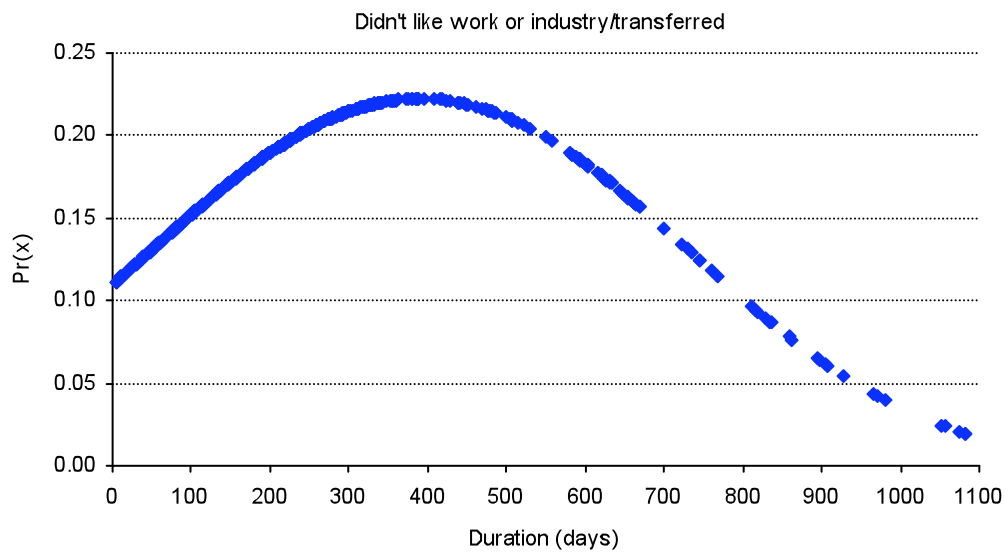
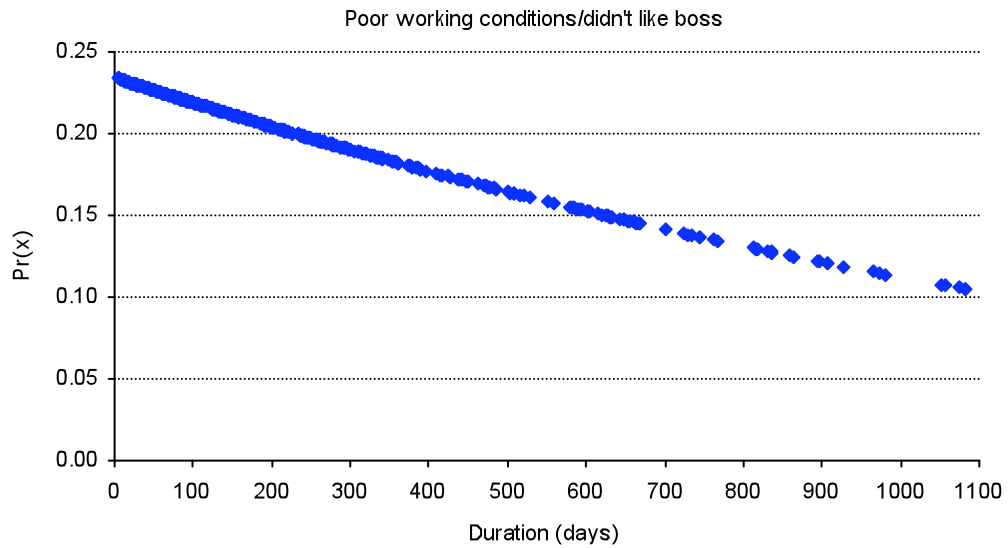
$$pr(x) = 1/(1 + \exp^{-f(x)})$$

$$\text{where } f(x) = b_0 + b_1x + b_2x^2$$

$$\text{and } x = \text{duration}(\text{days})$$

Figure B1 Probabilities for main reason for non-completion by duration, trades





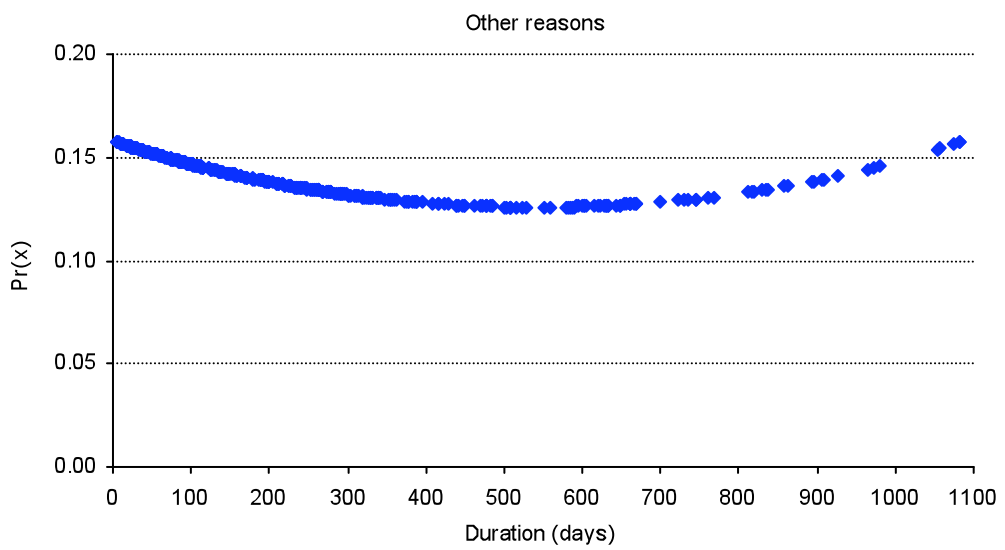
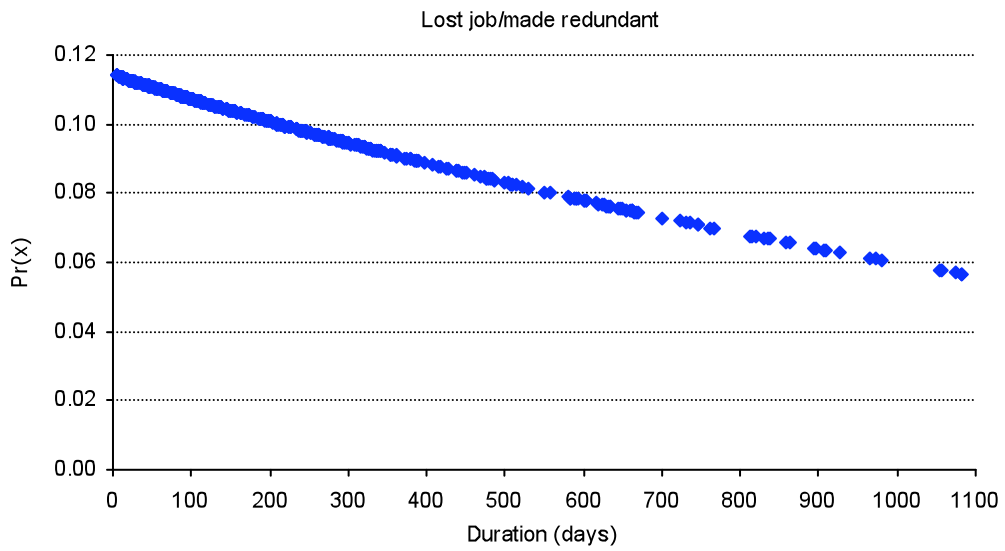
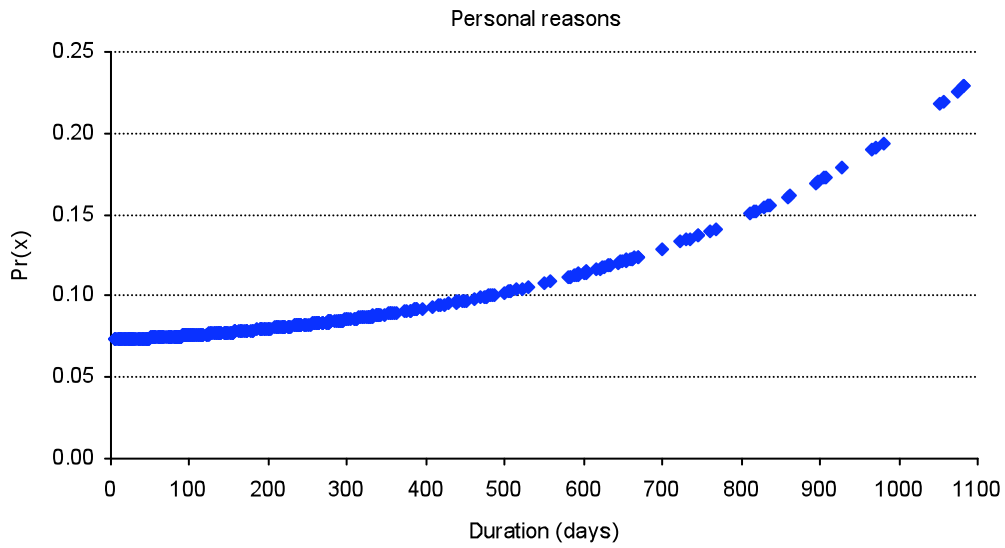
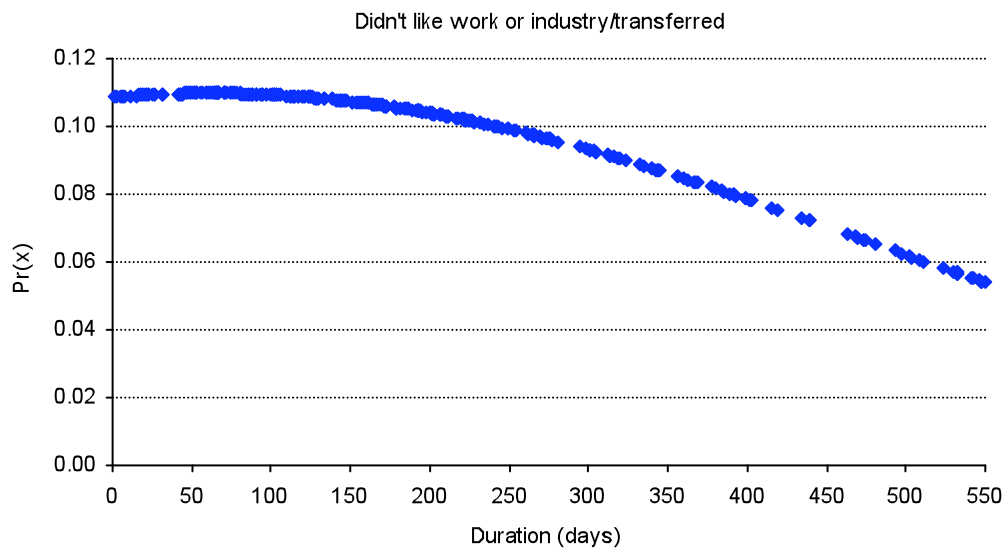
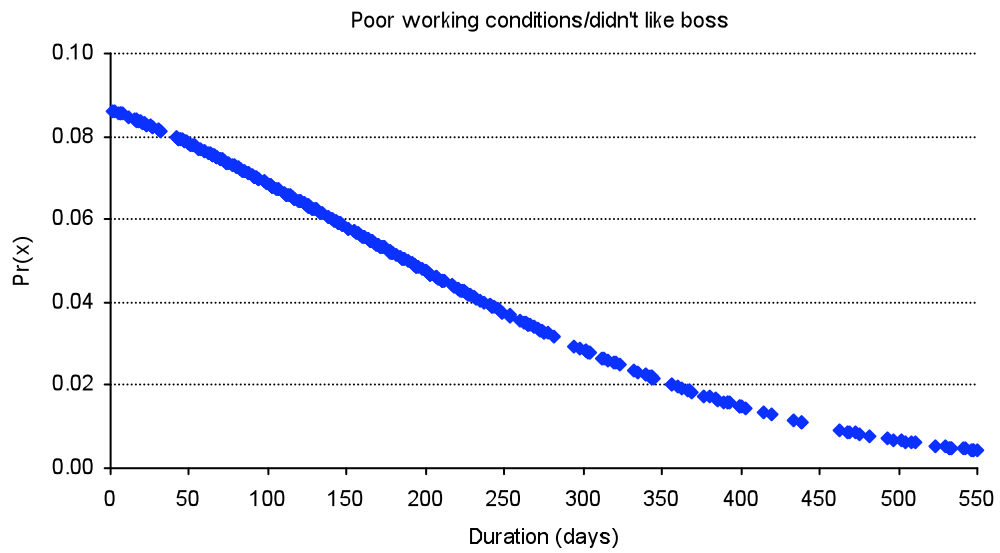
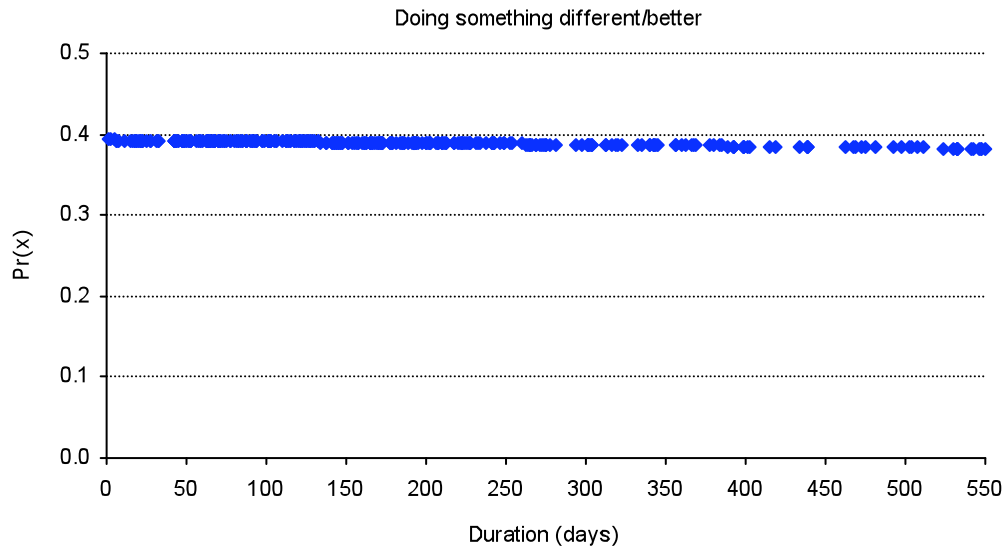
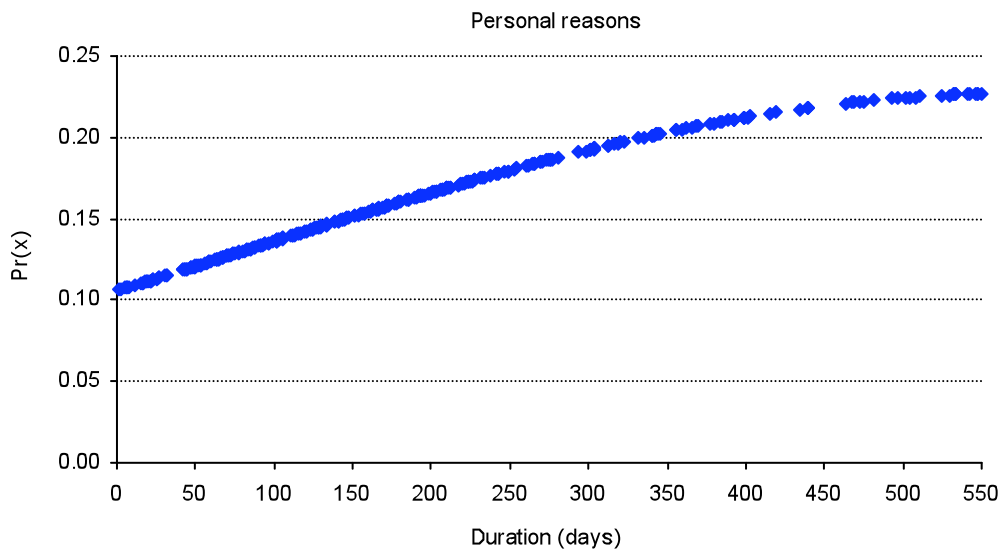
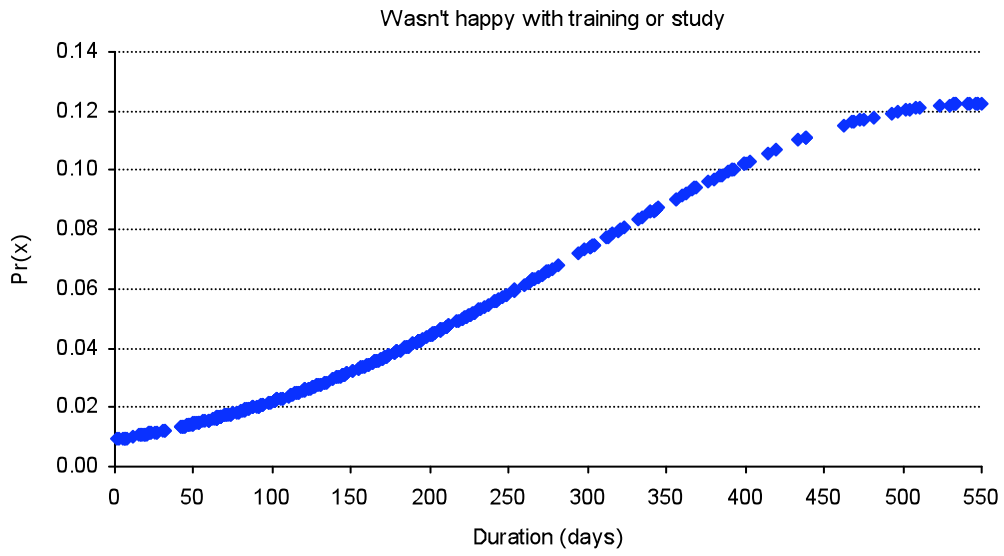


Figure B2 Probabilities for main reason for non-completion by duration, non-trades (male)





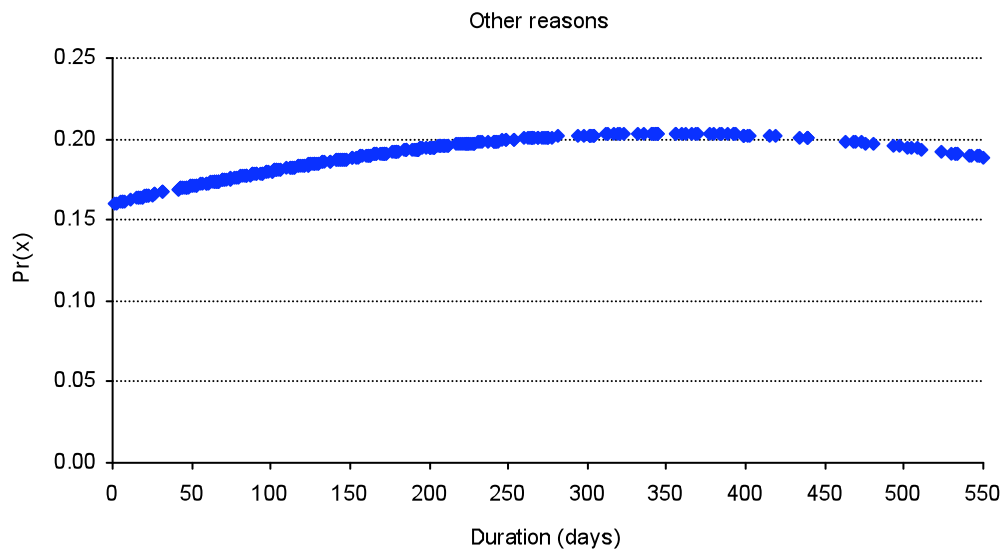
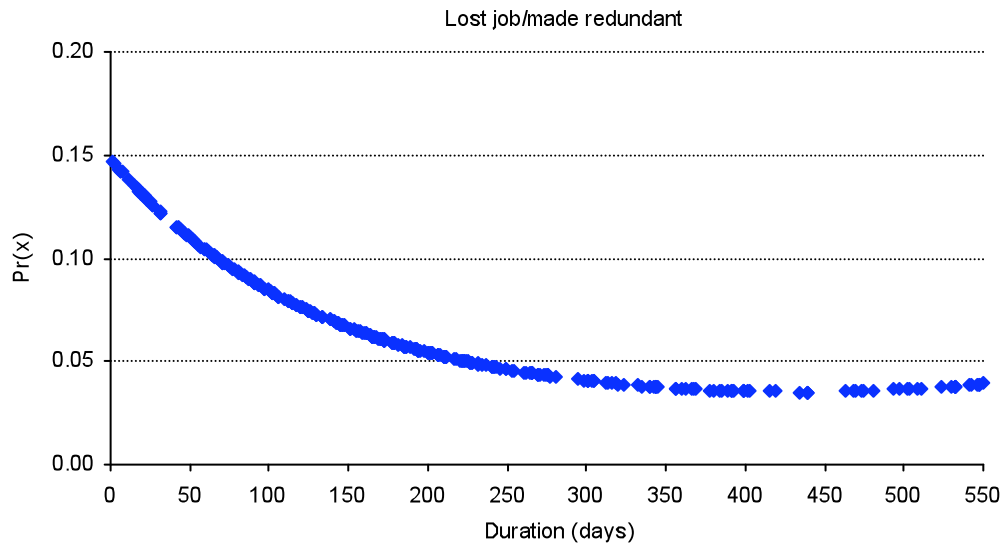
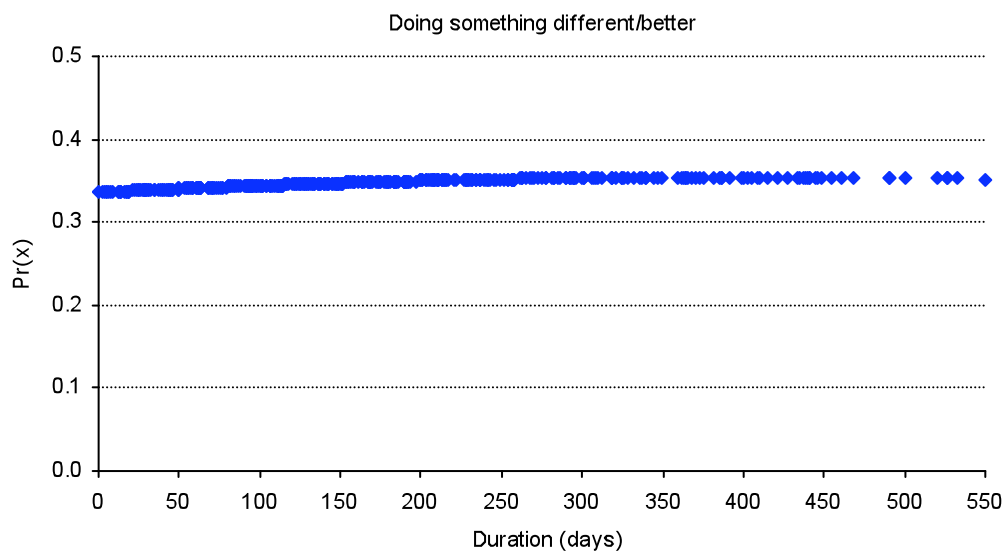
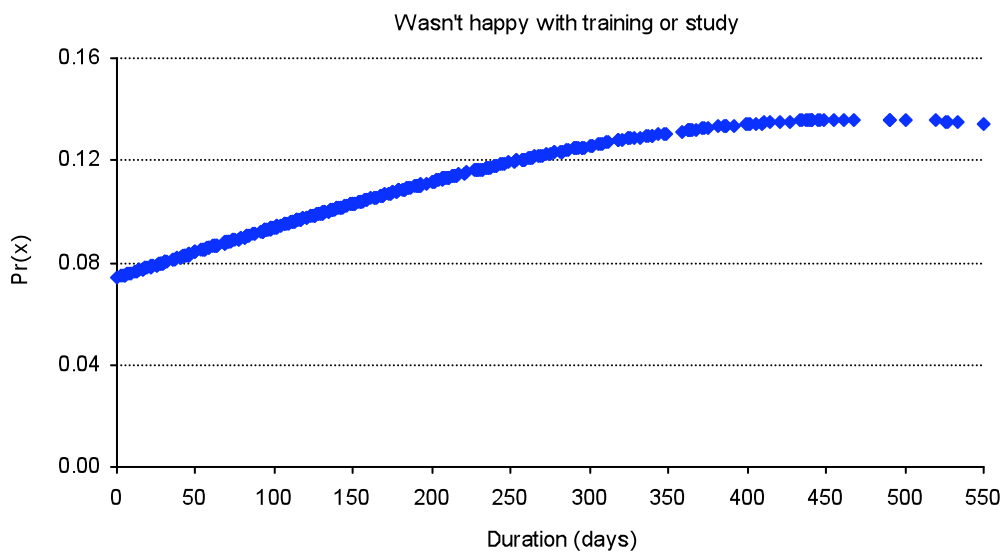
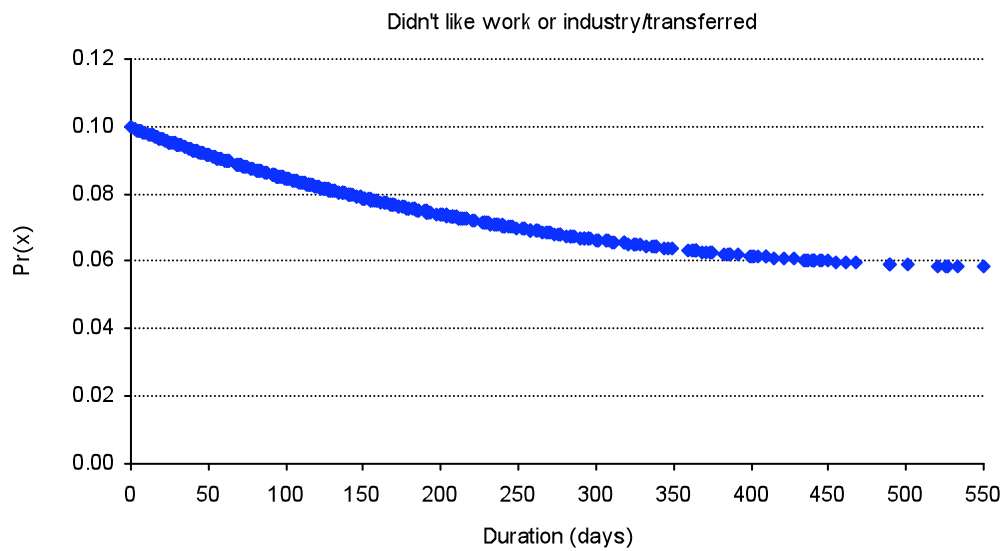
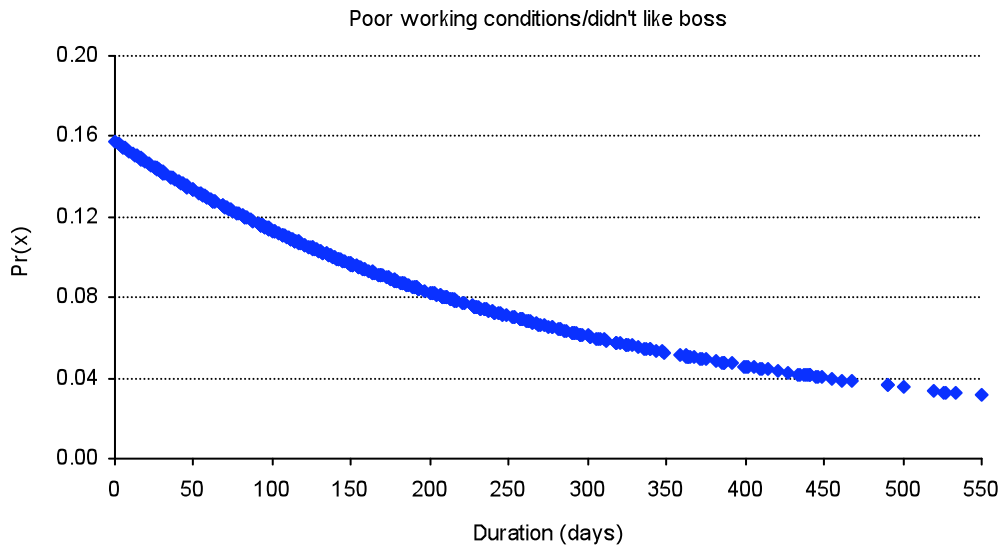
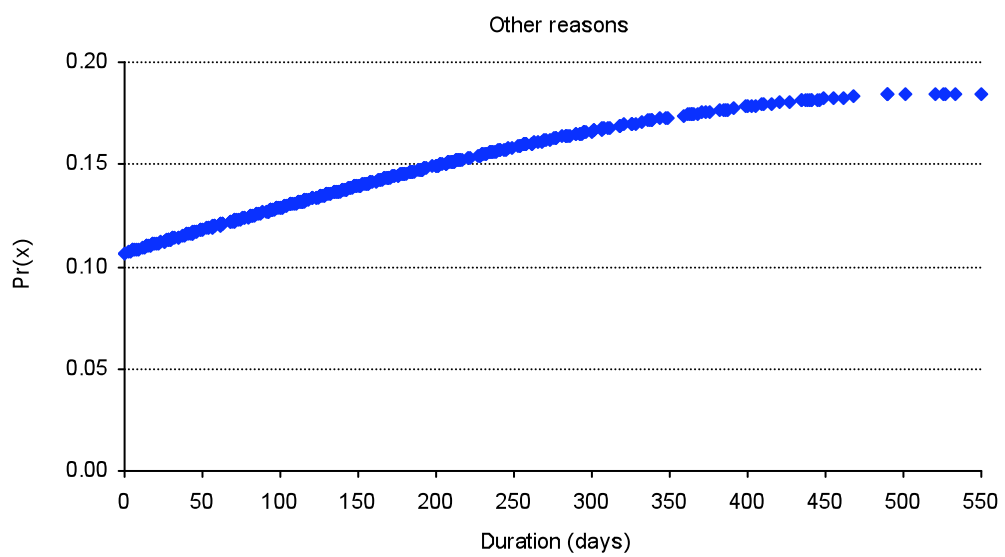
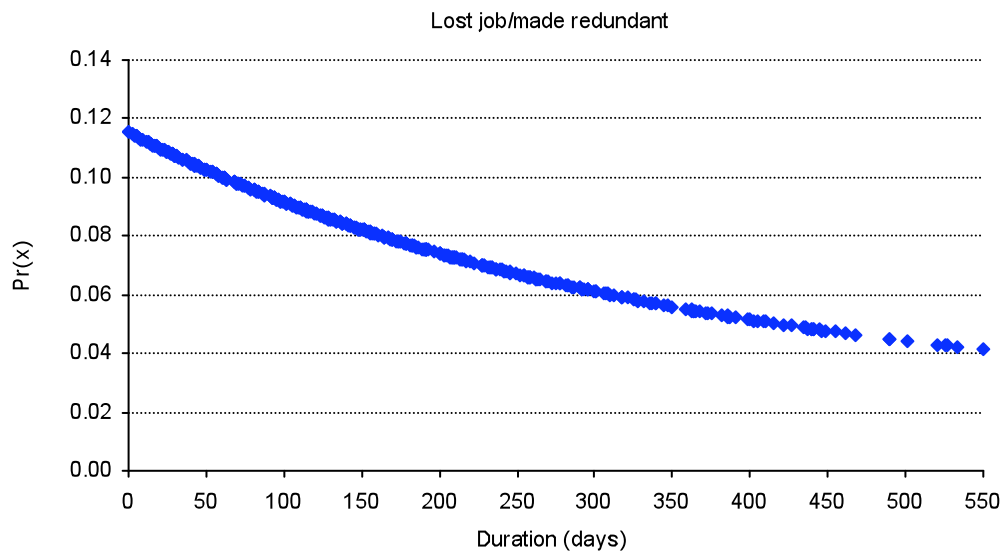
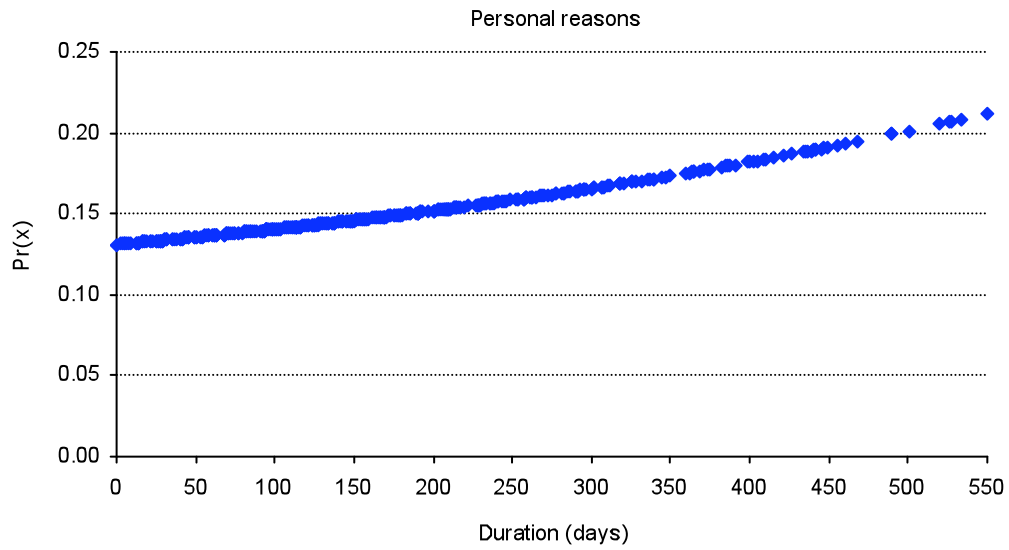


Figure B3 Probabilities for main reason for non-completion by duration, non-trades (female)







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