The context of church planting:
Are there differences between more and less fruitful teams?

By

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A ministry of Frontiers

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Introduction

Many agencies and denominations have as a goal the establishing of churches. Clearly worldwide there are places where this is happening more often than in other places. Is this simply a matter of time, geography and a work of the Spirit? Or are there ways in which we can watch what the Father is doing in places where church planters are more fruitful? One of the ways in which we can watch what the Father is doing in our time is by a critical examination of the principles, practices and innovations of those individuals and teams who are bearing the most fruit. This methodology does not relegate the Holy Spirit to a non-factor, but recognizes that we must diligently study how He is working and try to better partner with Him. Very few today would try to replicate an African village church in a western urban setting. We have learned, through analysis of fruitfulness, that there are cultural distinctives that need to be considered when beginning a new church. Towards this end, a gathering of church planters among a major ethno-religious group gathered to examine their ministries and try to discern how God was working.

Several methods were used to examine if observed patterns of fruitfulness were related to distinct practices, principles or innovations. Additionally, we used a survey to examine the context of each church planting team. A series of questions was asked in order to gather information on factors such as team size, length of service, the local milieu and level of contextualization. We were then able to examine whether or not these factors were different between more and less fruitful church planters.

We begin by giving an overview of our methodology and important qualifications on the extent of application from this research. We recognize and state many biases and the need for care in the application of the research. We then examine one model which was found to be

statistically significant in relating the variables under consideration to fruitfulness. An analysis of this model indicates that certain variables appear to be more closely related to the participant's fruitfulness than others. The needs for future research and data collection are outlined, again acknowledging our sampling biases and the limitations of our surveys. We then conclude that this exercise has been valuable for identifying factors that need to be investigated further and give a concise plan for doing this.

Methodology

We examine one measure of fruitfulness in this report: an ordered, categorical variable named "Churches Planted" which can have the values of no churches, one church or multiple churches. Participants mostly worked in some form of a team (average team size 9 adults, range 1-50) and were asked to place their ministry in one of these three categories. This dependent variable was examined using ordered logistic regression (Long and Freese 2006). This methodology seeks to examine the potential relationship between independent variables which may impact fruitfulness (Table 1) and the dependent variable Churches Planted. One of the most common statistical techniques in the social sciences is linear regression (Long and Freese 2006). However, this type of method which relates a number of independent variables to the dependent variable under consideration applies only to continuous data. Much of the survey data collected in the social sciences is categorical. The application, then, of linear regression to categorical models would be inappropriate and result in wrong interpretations of coefficients (Long and Freese 2006). One approach that has been shown to be very useful in this situation is to apply existing regression techniques for categorical models. Several types of regression analyses can be used, depending upon the type of categorical data under consideration and include binary outcomes, ordinal

Table 1: Independent variables used for testing with logistic regression

Description	Variable type
Gender	Categorical (male or female)
Age	Categorical (20-30, 31-40, etc.)
Affinity Bloc	Categorical (Johnstone 2007)
Number of adults on team	Integer from 1-99
Number of years working in the people group	Integer from 1-99
Number of years any effort among people group	Integer from 1-999
Number of nationalities on team	Integer from 1-99
Language of ministry	Categorical (local or regional trade)
Language skill	Categorical (level 5 or higher on team or not)
Work with other agencies on field	Categorical (yes or no)
Team relational dynamics	Categorical (excellent, good, poor or not working out)
Learning preference of people group	Categorical (literate or oral)
Team strategy incorporates learning preference	Categorical (yes or no)
Urban context	Categorical (urban or rural)
People group considers itself oppressed	Categorical (yes or no)
Social upheaval or natural disaster in last 3 years	Categorical (yes or no)
Sect	Categorical (Sunni, Shia or other)
Sufi[1]	Categorical (yes or no)
Contextualization	Categorical (C1-C6)

1 Sufism is generally understood by scholars to be the inner or mystical dimension of Islam (http://en.wikipedia.org/wiki/Sufi)

outcomes, nominal outcomes and count variables (Long and Freese 2006). These regression techniques produce maximum likelihood estimates of the model parameters.

"Regression models analyze the relationship between an explanatory variable and an outcome variable while controlling for the effects of the other variables (Long and Freese, 2006)." In our case, the outcome variable is the afore-mentioned Churches Planted. The explanatory variables are the answers to the other questions asked in the survey. Regression can determine if there is a consistent relationship between these types of variables and our fruitfulness outcomes. Thus we can answer, in part, given our sample universe, the question as to whether or not there are factors which are significantly statistically related to the fruitfulness of the teams under study.

The interpretation of the relationships found in the regression analysis is examined in terms of probabilities of being in a particular category (e.g. what is the probability of planting multiple churches given that factor "A" is true) or the effect of changing the value of an explanatory variable on the probability of being in a certain category (e.g. what is the effect of Factor "A" changing from false to true on the probability of planting multiple churches) (Gould 2000). In the case of models which have more than one explanatory variable, we will examine the relative impact of changing one or more variables on the probabilities of fruitfulness.

Analyses followed closely the approach of Long and Freese (2006) and researchers should consult this work or they can find an excellent online lecture concerning these techniques at http://www.ats.ucla.edu/stat/seminars/default.htm. The general approach is thus:

1.   Examine the dependent variable using logistic regression and various combinations of independent variables.

2.   Determine which models and variables most effectively describe significant patterns of influence among the variables.

3.   Interpret the models using the predicted values of outcomes given the model parameters.

We used the Stata program for analysis (www.stata.com). Independent variables where excluded from models when the resulting z-score and associated probability of inclusion in the model was greater than 0.05. Postestimation procedures where used to test model assumptions (omodel in Stata). Additionally, Wald tests were used to examine model significance. SPost commands (listcoef, prchange, prtab) were used to interpret the logistic coefficients in terms of probabilities (Long and Freese 2006). This is a standard methodology that has been used extensively in the educational and behavioral sciences (Isaac and Michael 1995), political

science (Pollock 2006), religious studies (Smith 2003) and throughout the sociological literature (Long and Freese 2006). While tending towards more qualitative techniques, this type of multi-variate quantitative methodology has also made inroads into anthropology (Bernard 1988).

Measures of high education and high language skills were developed from the data. Dummy variables were created for categorical independent variables (Zar 1984, Draper and Smith 1981). Additionally, it is recognized that some of the dichotomous variables may not provide as much detail as a respondent might have preferred (Sogaard 1996). For example, respondents were asked whether or not they worked primarily in an urban or rural environment. There is obviously a gradation between these two extremes which we could not capture due to time limitations.

An important point to remember is that the sample upon which this analysis is based is NOT a random sample. The most fruitful church planters from numerous agencies were invited to this consultation. Thus the analysis attempts to describe some of the factors that may have influenced the fruitfulness of this sample of people. The results here are not to be construed as typical. However, the factors which these teams practice will likely have use for other teams hoping to be fruitful at church planting.

This methodology is descriptive, not proscriptive. The suggestion that given X, Y and Z there is a certain probability of having planted n churches is reflective of the participants being sampled, not a suggestion of an equation that will predict future success. These probabilities can tell us which variables are significantly different statistically between more and less fruitful participants in our sample only. They also tell us the relative statistical impact of certain variables against others.

A simple way to think about how to interpret the probabilities given in the results is the following. Imagine that you take a model which has say three variables. And that the model suggests that someone who answers positively to all three variables has a 70% chance of having planted a church while answering negatively the probability is only 10%. Now let's say that someone arrived late to the study location and you meet them at the door. If that person generally conforms to the sample, you could ask them those three questions in the model. If they answered positively to all three, you would have a 70% chance of being right if you guessed that they had planted a church. If they had answered no to all three questions, you would have a 90% probability of being right if you guessed that they had not planted a church.

Results

The dependent variable Churches Planted is a categorical variable which has one of three values: no churches planted, one church planted, multiple churches planted (Figure 1). The participants were almost equally divided into thirds, with a slightly higher number of individuals having planted one church.
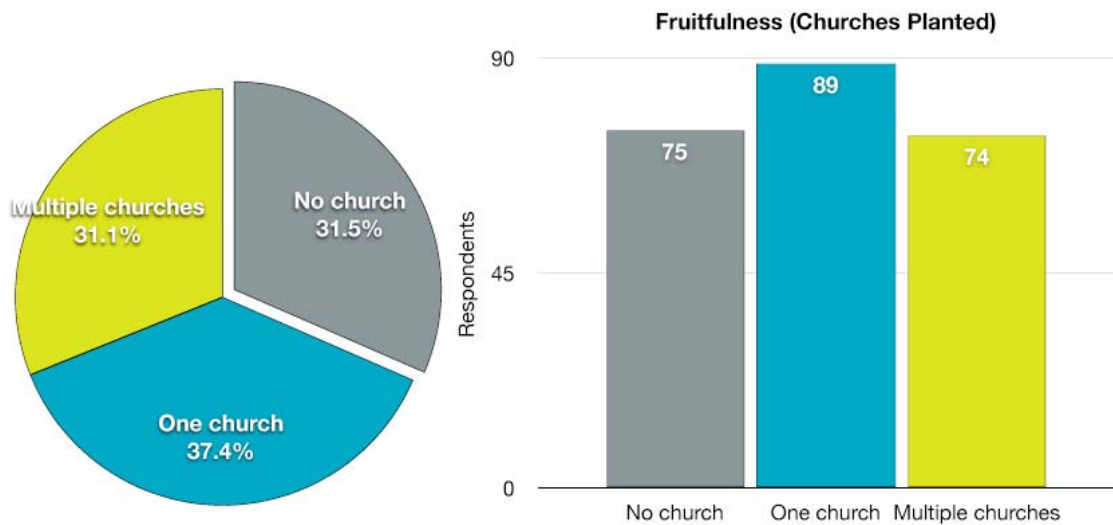
Figure 1: Percentage of participants who had planted no church, one church or multiple churches (A) and the number of participants for each category. Total n = 229.

The model which best fit the data included five variables: whether or not the team worked in the local or regional trade language, whether or not they understood the learning preference of their people group (literate vs. oral) and had incorporated that into their team's strategy, and whether or not they had one person on their team who had high language skills. The later variable was defined as someone who "When he/she joins conversations between native speakers they do not have to slow down or simplify their speech to accommodate him/her in their conversation." Additionally, the influence of age of the participant and the affinity bloc (Johnstone 2007) they work in was examined for their significance. When added to the model, both variables were significant. Gender did not significantly influence fruitfulness. Since a number of age and affinity bloc combinations had very few observations, categories included in the analysis were ages 30-39, 40-49, 50-59 and affinity blocs Arab world, Iranian-Median, Malay peoples, South Asian Peoples, Sub-Saharan African, and Turkic peoples (Johnstone 2007).

A team with no one of high language skill, without incorporating learning preferences into their team strategy and working in the regional trade language, had a 93% probability that

they will not have planted a church (Figure 2). Conversely, there is a 41% probability that a team with at least one person of high language skill, having incorporated learning preference into their strategy and working in the local language will have planted multiple churches.
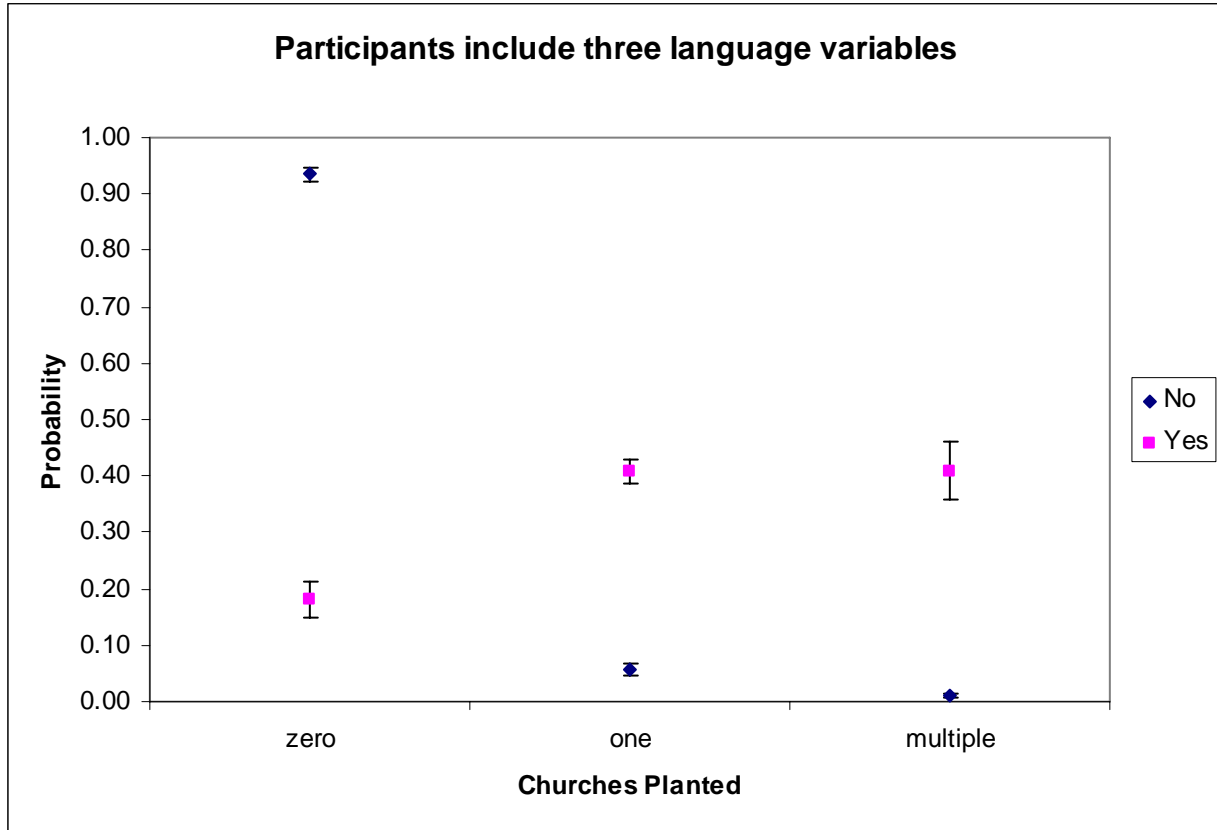

Figure 2: The probability of participants having planted zero, one or multiple churches for those who worked in the local language, include learning preference (oral/literate) in their team strategy AND had one person of high language skill (Yes) and those who worked in the regional trade language, did not include learning preference (oral/literate) in their team strategy AND did not have one person of high language skill (No). Each data point is an average with the associated 95% confidence interval of 18 points representing all age and affinity block combinations mentioned in the text.

For this last case, the probability of having planted at least one church is 82% (one and multiple churches planted combined).These results are for all age groups and affinity blocs averaged (18 combinations) in order to examine the overall effect of these three variables.

Another way to look at this is shown in Figure 3 where the average across all age and affinity bloc groups is shown as a percentage of the total. This figure shows that the probability

of planting one or multiple churches dramatically increases when a participant's team worked in the local language, include learning preference in their team strategy AND had one person of high language skill. Figure 4 shows the impact of working in the local versus regional trade language on participant fruitfulness.
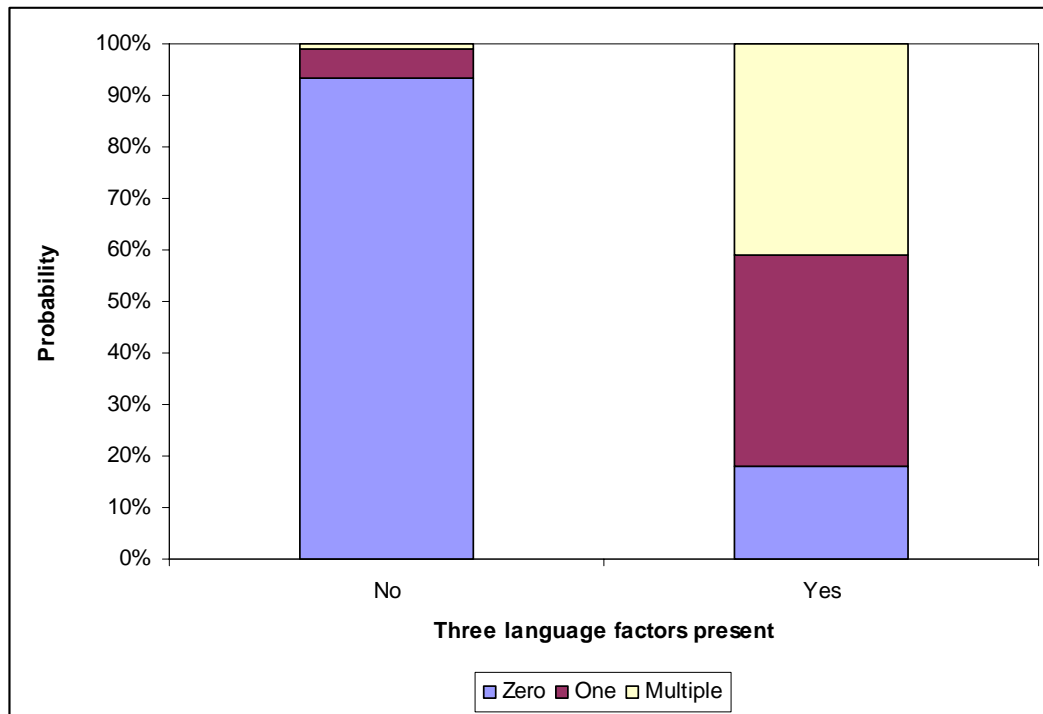

Figure 3: The probability of participants having planted zero, one or multiple churches for those who worked in the local language, include learning preference (oral/literate) in their team strategy AND had one person of high language skill (Yes) and those who worked in the regional trade language, did not include learning preference (oral/literate) in their team strategy AND did not have one person of high language skill (No). Each data point is an average with the associated 95% confidence interval of 18 points representing all age and affinity block combinations mentioned in the text.
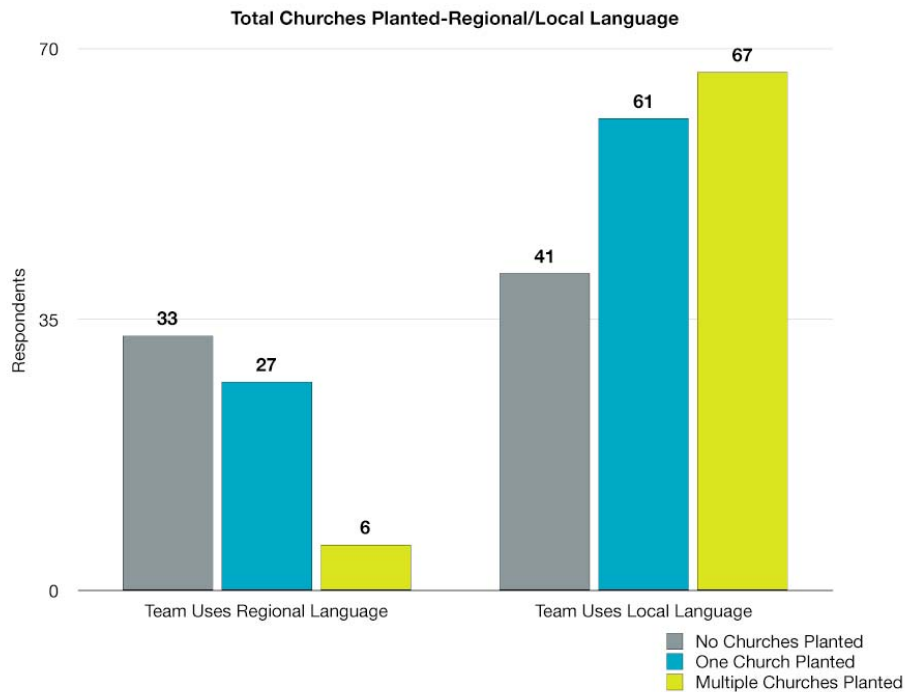
Figure 4: The number of participants having planted churches for those who worked in the regional trade language and those that worked in the local language.

The probability of planting zero, one or multiple churches was examined for the age and affinity bloc categories listed above. Figure 2 shows that there is very little variation about the mean for those participants who used the regional trade language, did not incorporate learning preferences into team strategy and had no one of high language skill on the team ("No" series). This indicates that there is a great consistency among age and affinity bloc groups when these three characteristics are not present. When all three are present, age and affinity bloc show several consistent trends (Figure 5).
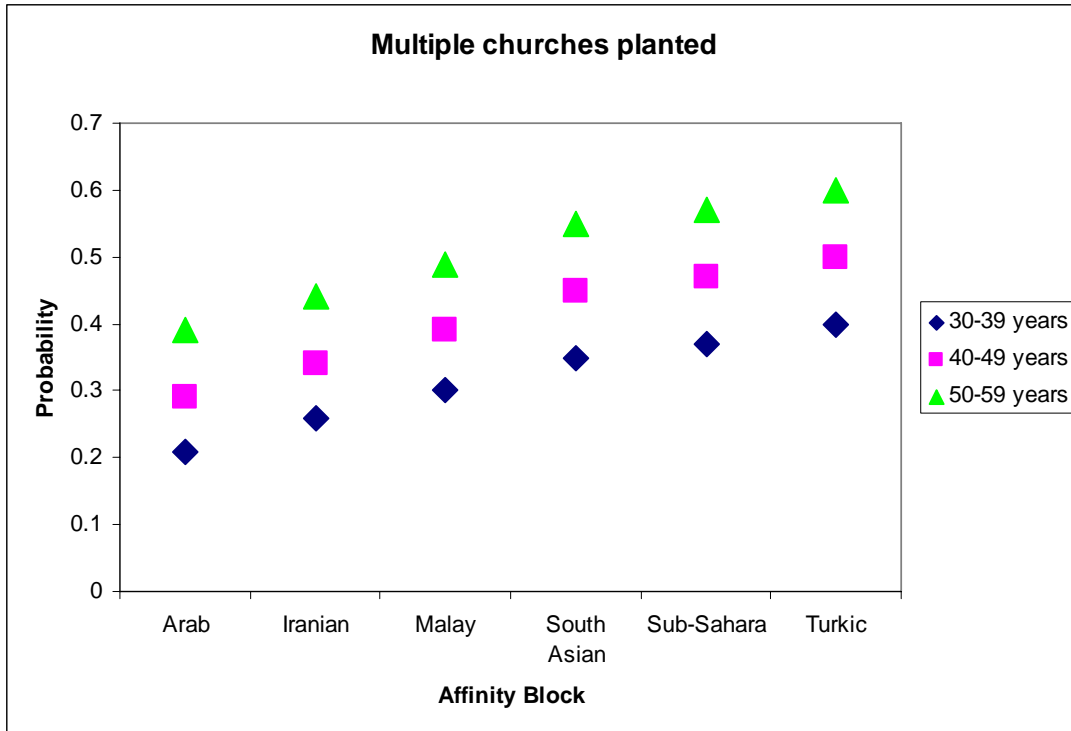
Figure 5: The probability of participants having planted multiple churches for those who worked in the local language, include learning preference (oral/literate) in their team strategy AND had one person of high language skill by age and affinity block categories

Older participants had a higher probability of planting multiple churches than did younger participants. The mean number of years a team had been on the field increased with increasing age of the participant. Other variables that correlate with participant age were not investigated, but clearly more work should be done to examine the underlying reasons behind the relationship between fruitfulness and age. There were also consistent affinity bloc trends with the highest probability of planting multiple churches among Turkic peoples and the lowest among the Arab world. A 50-59 year old participant working among Turkic peoples had a 60% probability that they had planted multiple churches whereas the probability for a 30-39 year old working in the Arab world was 21%.

Discussion

The value of logistic regression

One of the main approaches to the analysis of categorical data is the use of cross-tabulations (Pollock 2007). If we have an hypothesis that the levels of a dependent variable could be related to a particular independent variable, we can create a cross-tabulation displaying the counts of those in all combinations of categories for the two variables under consideration. Depending upon the nature of the data, a number of statistical tests are available for testing the independence of these two variables, for example, the commonly used Chi-square test (Zar 1984). Additionally, if one of the variables is continuous, cross-tabulations can be valuable especially when combined with formal testing of means using t-tests or ANOVA (Zar 1984, Pollack 2007, Rabe-Hesketh and Everitt. 2007). If a dependent variable is continuous (interval scale) then ordinary linear regression might be appropriate (Draper and Smith 1981). Often, as is the case in this study, the dependent variable has a categorical outcome. In this case, logistic regression is an appropriate technique for analyzing the impact of one or more independent variables on the categorical dependent variable (Long and Freese 2006, Rabe-Hesketh and Everitt 2007). There are also advanced multi-variate techniques for examining the patterning in multiple independent variables such as cluster analysis (Everitt , Landau and Leese 2001) and multidimensional scaling (Johnson and Wichern 1992) to name only two. However, logistic regression appears to be a well-tested and much-used technique across a variety of different disciplines. With the advent of statistical packages to make the interpretation of the logistic regression results easier (Long and Freese 2006), this is a technique that can be used by analytically minded researchers without needing a degree in statistics.

We are often interested in the relationship between two variables. Does gender impact fruitfulness? Are teams with a higher level of education more fruitful? These types of relationships can be analyzed very successfully using cross-tabulations with the appropriate statistical test to determine significance. However, if we are concerned about questions that involve more than 2 or 3 independent variables, an approach such as logistic regression can provide insight that multiple cross-tabulations cannot. For example, we may find that each of 5 independent variables, when examined separately using cross-tabulations, are significantly impacting fruitfulness. However, which of these is most important? A graph might help us to sort this out. But, the logistic regression of these 5 variables on our fruitfulness measure will examine whether or not one or more of these variables is more closely related to fruitfulness than the others. Additionally, we can find that when the variability associated with one variable is removed from the analysis, variables which were statistically significant individually are no longer significant. A researcher could report all the results of individual cross-tabulations, but it would be very tempting to show only the results which the researcher can explain easily or which agree with their own presuppositions.

It is important to consider that not only alternative statistical approaches to the data be examined, but that alternative approaches to data collection be used to verify and "triangulate" results. In addition to our surveys, we also conducted interviews and focus-group studies. These two narrative approaches will provide results which we can use to illustrate the results of our surveys. These other methodologies will also allow us to conduct a meta-analysis of major results to determine where there is overlap in conclusions. This type of data triangulation will allow for more robust conclusions.

Needs for future data collection and research

The approach taken at the consultation can be likened to using a shotgun. All of the factors that were examined for statistical relationship with dependent variables were suspected to impact fruitfulness. The value of the multivariate approach is that we can examine all of these variables relative to each other, rather than simply comparing them one by one. This gives us some sense of the importance of some variables relative to others. Future work needs to clarify the questions that these models generate and to use multiple research techniques to triangulate answers.

One of the difficulties in a multi-agency research program is that there are different definitions of basic terms. Are the terms church, community and fellowship synonymous? Our definitions of terms like "church" impact our answers to questions like "How many churches have you planted?" One of the key areas for clarification in the future is how to accurately and precisely record fruitfulness. We asked over 40 questions that would help to qualitatively understand the maturity of the most mature planted community by each participant. Could some sort of index of maturity be developed that relates to fruitfulness? This is an area that needs to be explored.

In the course of this research the adage "Correlation does not equal causation" was heard more times than we care to mention. Despite its overuse, it is critically important to understand deeply that the models developed in this study do NOT imply causation. Similarly, they apply to a certain set of people with a certain set of characteristics. Future research needs to confirm their general applicability. Additionally, we need to follow teams that implement or experiment with certain fruitful practices or variables and see if there is some impact on fruitfulness. These longitudinal studies are very difficult and time consuming and full of factors which obscure the

14

clear interpretation of causation. However, without such studies, those who do not like the results or for whom they disagree with dearly held presuppositions can always hide behind clichés about correlation and causation. Teams that are willing to experiment and then to reflect upon those experiments and record those reflections would be doing a great service to the cause of understanding how contextual factors and implementing practices and principles impact fruitfulness.

The consultation had multiple purposes and successfully gathered a wealth of information on church planting fruitfulness. However, it was not representative of the church planting force world-wide. Several gaps in the data include gender and nationality. Additionally, the sample at the consultation was hand-picked because of a certain level of fruitfulness or experience. Random, or in reality haphazard, samples from among agencies would help us to examine the general applicability of these results across broader cross-sections of workers globally.

Conclusion

King Solomon exhorted us that there is no end to the making of books. The same could be said of research. This study highlights some important factors that were different among participants who were more and less fruitful. Clearly to move ahead we need to examine the general applicability of these results to a more general population of workers. Then we need to systematically work towards a representative sample of workers. We also must use multiple types of data to corroborate and deepen our understanding of the impact of the factors on fruitfulness. As we continue to dig deeper and examine more broadly the principles, practices and innovations which impact fruitfulness, our desire is to marvel at what God is doing in our days. May He be glorified as we try to watch the Father.

Acknowledgements

References

Bernard, H.R. 1988. Research Methods in Cultural Anthropology. Sage Publications Inc. London, England. 520pp.

Draper, N. and H. Smith. 1981. Applied Regression Analysis. John Wiley & Sons, New York. 709 pp.

Everitt, B.S., Landau, S. and M. Leese. 2001. Cluster Analysis, 4th Edition. Arnold, London, England. 237pp.

Gould, W. 2000. Interpreting logistic regression in all its forms. Stata Technical Bulletin STB-53: 19-29.

Issac, S. and W.B. Michael. 1995. Handbook in Research and Evaluation, 3rd Edition. Educational and Industrial Testing Services, San Diego, CA. 262 pp.

Johnson, R.A. and D.W. Wichern. 1992. Applied Multivariate Statistical Analysis, 3rd Edition.

Johnstone, P. 2007. Affinity Blocs and People Clusters: An Approach towards Mission Insight and Strategic Partnership. Mission Frontiers 29(2):8-15.

Long, J.S. and J. Freese. 2006. Regression models for categorical dependent variables using Stata. Stata Press, College Station, TX. 527 pp.

Pollock, P.H. III (2006) A Stata companion to political analysis. CQ Press, Washington DC. 217 pp.

Rabe-Hesketh, S. and Everitt, B.S. 2007. A Handbook of Statistical Analyses using Stata, 4th Edition. Chapman & Hall/CRC, Boca Raton, FL. 342pp.

Smith, C. 2003. Religious participation and parental moral expectations and supervision of American you. Review of Religious Research 44(4):414-424.

Sogaard, V. 1996. Research in Church and Mission. William Carey Library, Pasadena, CA. 260 pp.

Zar, J.H. 1984. Biostatistical Analysis, 2nd Edition. Prentice-Hall, Inc. Englewood Cliffs, N.J. 718 pp