

# **Modelling Church Growth: A Systems Approach**

## **Part 3**

### **The Limited Enthusiasm Church Growth Model with Births, Deaths and Reversion**

#### **Technical Report UG-M-00-3**

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## Abstract

*The growth of a church is investigated using the notation of systems dynamics. It is hoped that this approach will be more accessible than a strict mathematical one.*

*Part 1: The systems dynamics method is explained from scratch (chapter 2). This is then applied to a simple model of church growth where the population is split between unbelievers and believers who are all enthusiasts involved in the conversion process. Conversion is driven by contact between enthusiasts and unbelievers (chapter 3). These enthusiasts are assumed to retain their conversion potential throughout their lifetime. As such the whole population gets converted to the church.*

*Part 2: The model is made more realistic by including births and deaths (chapter 4), and reversion (chapter 5). If the church fails to recruit all its own children, or if it loses people after conversion, then the whole population does not get converted. As such the church numbers settle at a value less than the total population depending on the strength of these effects. If the effects are extreme the church becomes extinct.*

*Part 3: The model is modified so that enthusiasts lose their enthusiasm, i.e. their conversion potential, after a length of time (chapter 6). The church is now split into enthusiasts and inactive believers. Again the whole of the population fails to be converted. Including birth death and reversion effects into this model compound these problems (chapter 7). The model is applied to the current state of the Christian Church and some past revivals.*

## Contents

### Part 1

1 Introduction .....	6
2 Introduction to System Dynamics .....	8
2.1 Dynamic Model Building Blocks .....	8
2.1.1 Stocks .....	8
2.1.2 Flows .....	9
2.1.3 Connectors .....	9
2.1.4 Converters .....	10
2.1.5 Controllable Converters or Parameters .....	11
2.1.6 Dynamics System .....	12
2.1.7 Stability .....	12
2.2 Dynamic Processes .....	13
2.2.1 Compounding Process .....	13
2.2.2 Draining Process .....	14
2.2.3 Stock Adjustment Process .....	15
2.2.4 Other Processes .....	16
2.3 Causal Loops .....	16
2.3.1 Simple Causal Loop .....	16
2.3.2 Reinforcing Loop .....	17
2.3.3 Balancing Loop .....	19
2.3.4 Loops in Complex Systems .....	21
3 Unlimited Enthusiasm .....	23
3.1 Believers and Unbelievers .....	23
3.2 Conversion Through Contact .....	23
3.3 Further Assumptions .....	27
3.4 Implications of the Unlimited Enthusiasm Model .....	28
3.5 Analysis .....	29
3.5.1 General Considerations .....	29
3.5.2 Historical Considerations .....	32
3.6 Conclusion .....	33

### Part 2

4 Births and Deaths .....	40
4.1 Deaths .....	40
4.2 Births .....	40
4.3 Analysis .....	43
4.3.1 Equal Births and Death Rates .....	43
4.3.2 Birth Rate Larger than Death Rate .....	45
4.4 Conclusion .....	46

5 Reversion.....	47
5.1 Believers Leaving the Church.....	47
5.2 Permanently Hardened to Re-Conversion.....	47
5.2.1 Construction .....	47
5.2.2 Short Term Behaviour .....	48
5.2.3 Historical Considerations .....	49
5.2.4 Long Term Behaviour.....	50
5.3 Temporarily Hardened to Re-Conversion.....	50
5.4 Analysis.....	52
5.4.1 General Considerations.....	52
5.4.2 Implications of Reversion.....	54
5.5 Church's Prospects With No Conversion .....	54
5.6 Threshold of Extinction .....	55
5.7 Conclusion .....	56

### Part 3

6 Limited Enthusiasm Church Growth Model .....	65
6.1 Limitations of the Unlimited Enthusiasm Model.....	65
6.2 Construction.....	66
6.3 Analysis.....	67
6.4 Not All Converts Become Enthusiasts.....	70
6.5 Conclusion .....	72
7 Limited Enthusiasm With Births, Deaths and Reversion.....	72
7.1 Construction of Model .....	72
7.2 General Comments.....	73
7.3 Applications .....	74
7.3.1 Decline in Western Europe.....	74
7.3.2 Growth in South America.....	75
7.4 Conclusion .....	76
8 Conclusion.....	77
8.1 Main Conclusions .....	77
8.2 Further Work.....	78
References .....	79
Assumptions .....	81

## 6 Limited Enthusiasm Church Growth Model

### 6.1 Limitations of the Unlimited Enthusiasm Model

From the results of chapters 3-5 it is clear that growth in the unlimited enthusiasm church growth model is only limited by the failure of the church to hold all its own young people and reversion from the church. Even in these cases the church numbers levelled out to a fixed value. Although this can be regarded as a good model of the growth of the church, particular in periods of revival, it doesn't model the decline of the church. Currently the Christian church in western Europe is marked by decline and not growth which may well lead to its extinction from large parts of that area within a generation or so.

This unrealistic result has depended on an unrealistic assumption namely:

*Assumption 5.0*                      *Believers continue to recruit in the same way indefinitely*

Instead it is found that believers stop recruiting for a number of reasons:

1. The believers have been recruiting through their network of friends and relatives which is now exhausted. There are three scenarios:
  - the people in this network have become believers themselves;
  - they have become immune to any further pressure to join the church;
  - they have ceased to have meaningful contact with the believer. Many new converts find after a year or so that they have a new set of friends in the church and their old unbelieving set have drifted away. Often the new convert does this subconsciously because being part of the church means taking on a new set of values leaving them uncomfortable with the values of their old friends.
2. Churches do not just recruit or evangelise. After a while new converts find other work to do within the church and spend less time on recruitment activities.
3. In periods of intense growth the pastoral demands of dealing with new converts prevent ministers from spending as much time on evangelism as they might like and thus their recruitment potential drops.
4. Often believers run out of enthusiasm for recruitment and settle into a more subdued version of belief where the zeal to see new converts has gone to the point of inactivity. Again there are a number of scenarios behind this:
  - the believer has become familiar with the beliefs adopted and forgotten the vast original motive for moving from unbelief to belief. In Christianity believers are called "saved people". After a while the believer has forgotten in an experiential sense what it is they were saved from so no longer grieve after the plight of those who are still unbelievers
  - often the believers gain status within the church and lose the real reasons why they joined in the first place. Any enthusiasm they now have is centred on their own advancement
  - the believers may find the church so enjoyable that their enthusiasm is for their own experience of it rather than to see others converted. Some of the most outwardly enthusiastic believers recruit the least because they are so wrapped up in themselves.

- it may be that the church has not lived up to expectation and the believer has lost enthusiasm for anything to do with the beliefs. Instead they have settled into a nominal church life with they enthusiasm, sometimes in secret, being for the things of the worlds they had originally left behind.

Many of these reasons are summed up in Wesley's Law of the decline of pure religion. "Taking up the religion has produced benefits which makes missionary zeal to costly to engage in"

Thus the assumption that a believers enthusiasm to see others converted is unlimited must be replaced by something more realistic, where their recruitment potential is limited. Thus

*Assumption 5.1*                      *Believers recruit for a limited period after which they become an inactive believer*

This immediately leads to two categories of believers. Thus assumption 1 is changed to:

*Assumption 1.2*                      *There are three categories of people, unbelievers, active believers and inactive believers.*

The active believers are active in recruitment and could be called enthusiasts where it is understood that their enthusiasm includes zeal to see others converted and behaviour that actively does something about it. This leads to the limited enthusiasm model of church growth. The dynamics of the growth of the church is driven by these enthusiasts, who may be dedicated evangelists or lay-people with a zeal for spreading the faith.

It should be stressed that it is purely the recruitment potential of the enthusiast that is limited. As there are so many ways in which this may happen the inactive believers may still include people who display enthusiasm for other aspects of the faith. Indeed this is characteristic of times of revival where believers have a heightened experience of what it means to be a believer and thus a much larger desire to see others so converted. This desire does not last long before they move back to the level of enthusiasm for conversion that they had before, but it is sufficient to cause a period of rapid growth in the church.

Thus inactive believers are only comparatively inactive compared to the believers. They may indeed have some recruitment potential, but much less than the enthusiasts. For the purposes of this model it will be assumed that inactive believers play no part in recruitment.

*Assumption 10.0*                      *Inactive believers have no recruitment potential*

## 6.2 Construction

It will be further assumed that all new converts will be active believers until one of the above processes makes them inactive.

*Assumption 11.0*                      *All new converts start as active believers*

Also it will be assumed that there is no mechanism for making inactive believers enthusiasts again, so once inactive they will never become active in recruitment again.

*Assumption 10.0a*                      *Inactive believers remain inactive*

This leads to a three compartment model where unbelievers get converted by active believers and become and remain active in recruitment themselves. After a time active believers become inactive (see figure 6.2a). This is the model described mathematically in Hayward 1999.

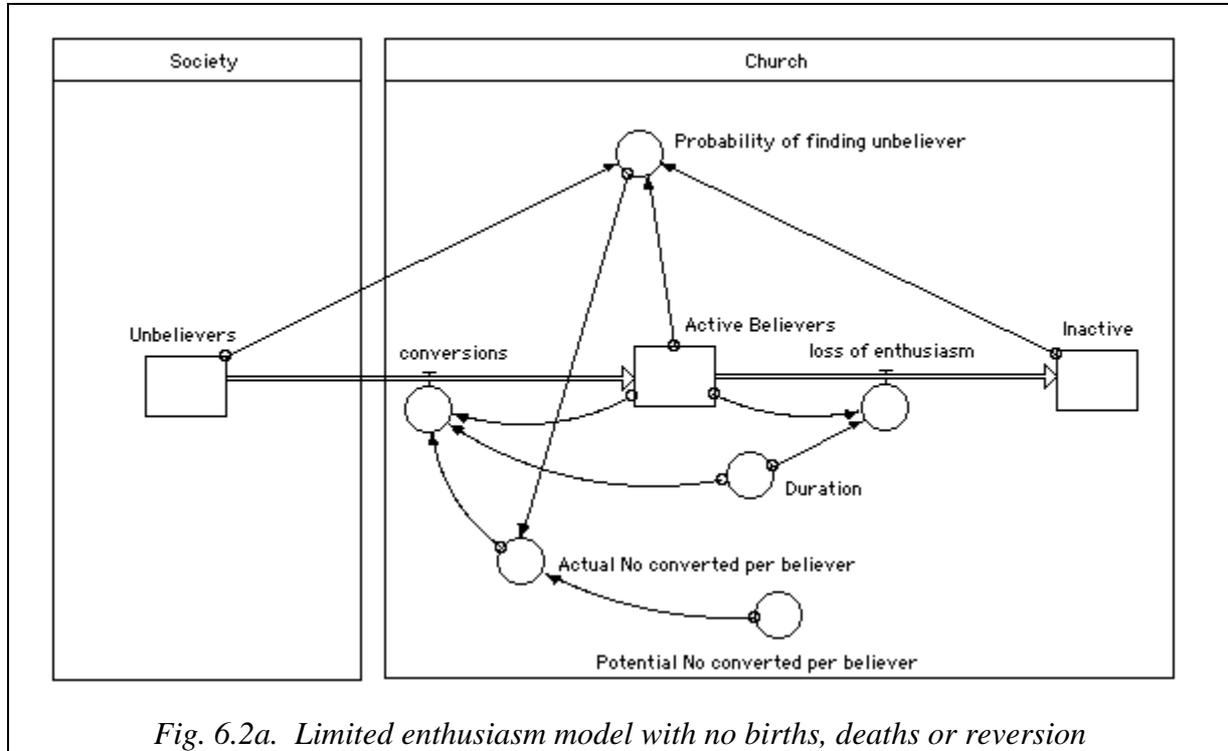


Fig. 6.2a. Limited enthusiasm model with no births, deaths or reversion

As in the unlimited enthusiasm model the number of conversions depends on both the number of unbelievers and active believers. Because enthusiasm is limited it is now more convenient to let the conversion parameter be the number converted per believer during their enthusiastic phase *given* the whole of the population are unbelievers. Clearly the actual number will be less when the proportions in church compared to society are greater, as in the unlimited enthusiasm model.

However now the number of conversions will also depend on the length of time spent in the active category. Thus if every enthusiast converts two others during their enthusiastic phase the number of conversions in one year will depend on how long they are enthusiastic. If it takes 2 years rather than one the dynamics will be slowed down. In Hayward 1999 it was shown that this approach could model the case where the number of potential converts went up if there were more people (crowd model) and where the number of potential converts were fixed regardless of population size (fixed contacts model). This was providing the total population remained constant.

Thus the number of conversions per unit time are:

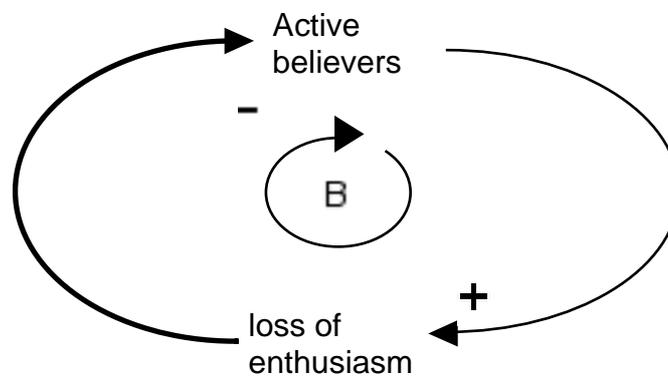
$$\text{Conversions} = \text{actual number converted per believer} \times \text{Active Believers} / \text{Duration}$$

A new parameter called duration is now introduced which affects the conversion rate. Duration also determines the rate of transfer from active believers to the inactive believers, which is assumed to be a draining process.

This model is the classic general epidemic model. The mathematical foundations of this model and further details of its relationship to church growth are given in Hayward 1999.

### 6.3 Analysis

The active believers are now subject to another balancing loop (figure 6.3a), the draining process to the inactive believers, compared with the situation in 3.5a. However this balancing loop includes a negative flow, so that not only is its level limited but will now actually be reduced to a target level. As this is a straight draining process the target is 0 and the inactive believers eventually decline disappear after an initial growth.

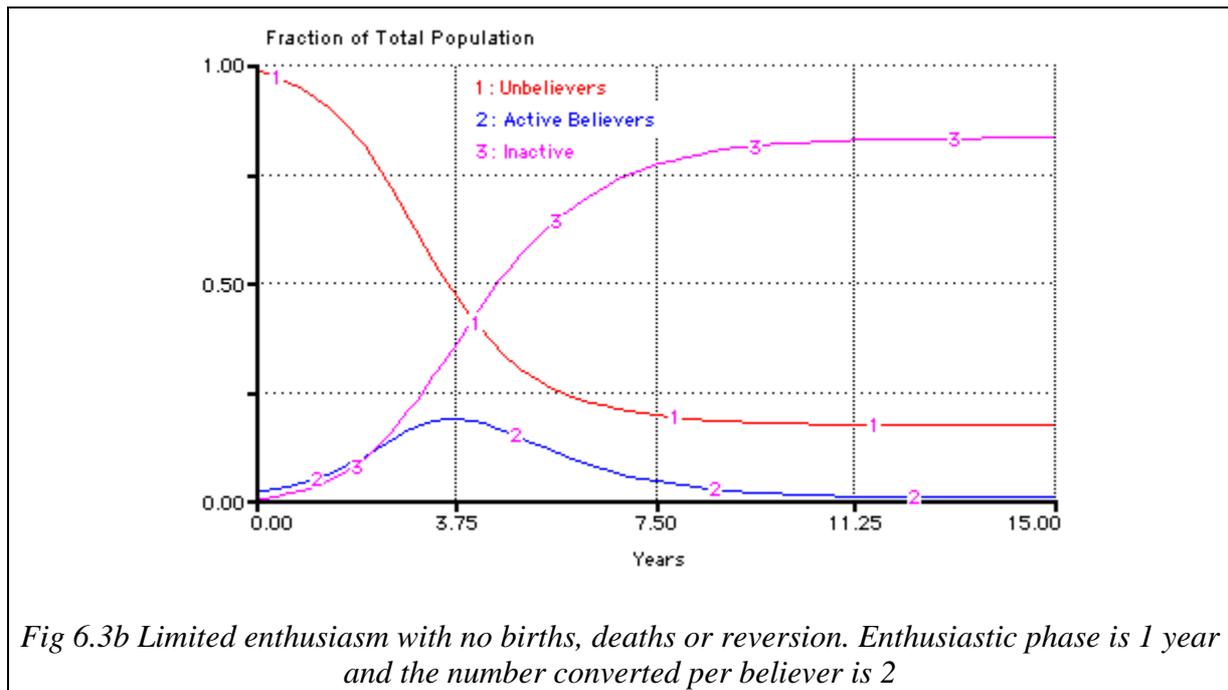


*Fig 6.3a Causal loop diagram describing the reduction in the number of active believers*

This is the standard behaviour of the epidemic model where the inactive believers are like those infected with the disease.<sup>1</sup> The inactive believers are like those who have been “cured” from the disease, or have died, and are those no longer open to infection. Figure 6.3b shows a typical pattern of growth:

Clearly the numbers in the total church, eventually reflected by just the number of inactives, is limited and the church has failed to convert the whole population. This was the result discovered by Kermack and Mcendrick where they showed that even in an epidemic the infection didn't spread through the whole population. It burned itself out due to a lack of infected people who had less and less contact with those susceptible to the disease and more with those already immune. In the church growth case the growth has run out due to a lack of enthusiasts.

<sup>1</sup> They were called infected believers in Hayward 1999



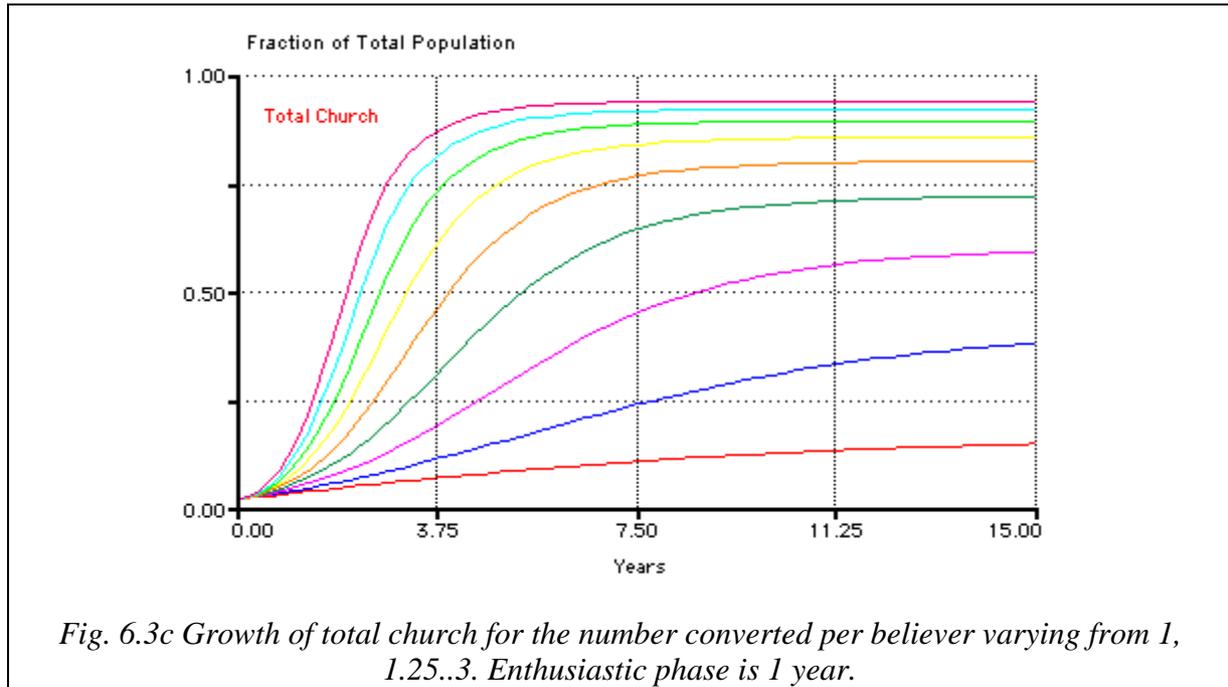
*Fig 6.3b Limited enthusiasm with no births, deaths or reversion. Enthusiastic phase is 1 year and the number converted per believer is 2*

It is this type of sudden growth behaviour which characterises times of religious revival both at the local level, and at a national or international level. Examples of such local growth are well documented Northampton Massachusetts in the 1730's (Edwards), Nagaland North East India 1976 (Orr 2000) and more recently Pensacola Florida, 1995 onwards. Examples of such national growth include The First Great Awakening 18th century USA and UK (Edwards?), Second Great Awakening Early 19th century USA, with much faster revivals occurring in the USA (158) and then Wales, Scotland and Northern Ireland 1859 and also Wales in 1904-5. A much longer revival in the twentieth century has been the growth of Pentecostalism especial in South and Latin America.

Apart from those revivals still continuing all show the characteristic rapid rise in total church numbers with the rapid growth eventually burning itself out. Of course data doesn't record the number of active believers. However the model was applied in Hayward 1999 to church membership data for the Welsh revival of 1904-5, where it was shown that the number converted per active believer was about 2.02 with the duration of the enthusiastic phase about 1 week. Clearly these are average values, not true of every enthusiast in the revival.

In fact extending the enthusiastic period does not make any difference to the final numbers in the church in this model, it simply takes longer for the growth to occur. The key parameter is the number converted per (active) believer. Decreasing this will result in substantially less conversions. Indeed if this had been lower than 2 no revival would have taken place. It is remarkable how such a small change in the effectiveness of those who recruit makes such a large difference to the growth of the church.

Figure 6.3c shows the growth of the church (active plus inactive) for different values of the number converted per believer, where the church starts off a very small percentage of the community. The effect of moving from one to two converts is far greater than moving from 2 to 3. Clearly the growth is very sensitive to values of this parameter. Thus changing the value of this parameter makes a significant difference to the impact of the church in the short term.



#### 6.4 Not All Converts Become Enthusiasts

One criticism of the idealistic limited enthusiasm model is that not all converts become such enthusiasts themselves. Even in times of religious revival the change in a person's life may not extend to zeal for recruitment. Indeed some new converts may come from families where most are already believers and thus have few unbelievers they can make contact with. This leads to a modification of assumption 11.0:

*Assumption 11.1*      *Only some new converts start as active believers the others are always inactive.*

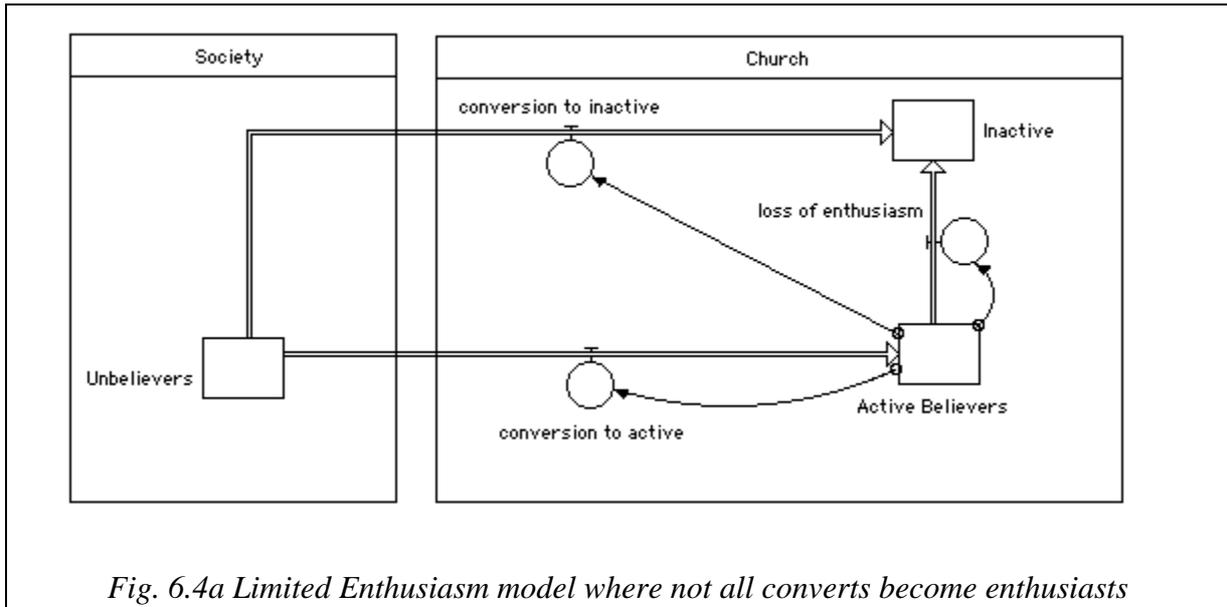
This leads to an extra parameter to determine the proportion of converts who become active believers. The dynamical model is now modified as in figure 6.4a.

The conversion to active believers (and inactive) also depends on the fraction who become active. Thus:

Conversions to Active =  

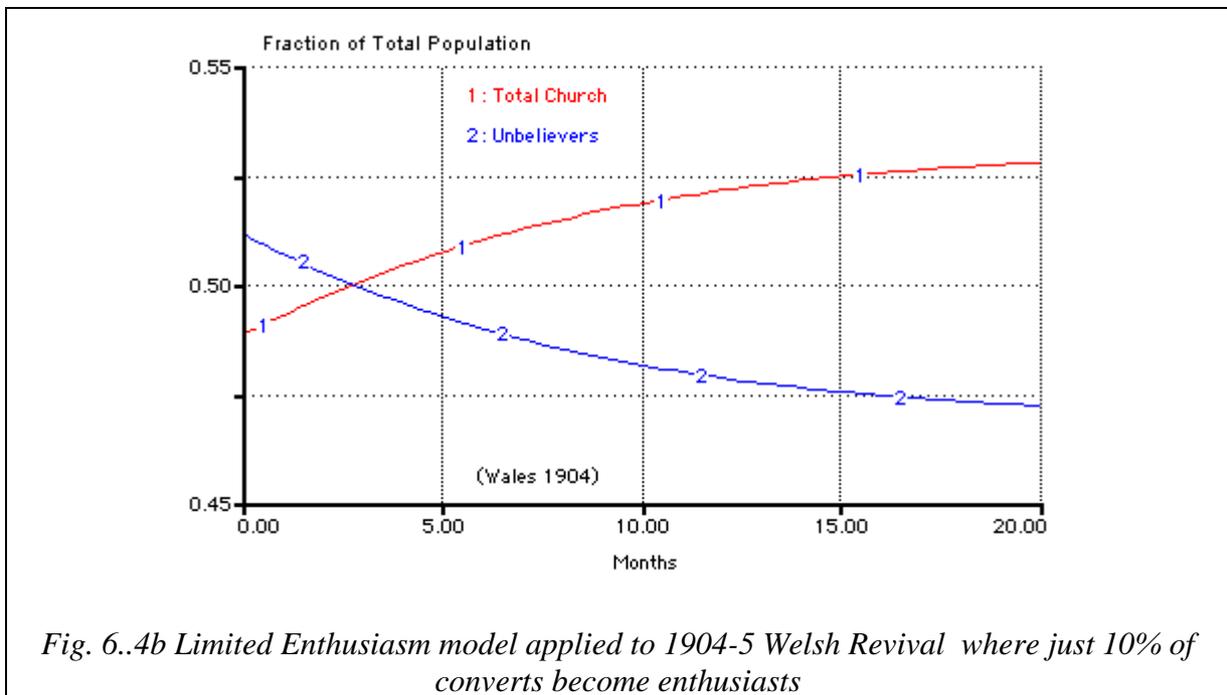
$$\frac{\text{Fraction converted to active} \times \text{actual number converted per believer} \times \text{Active Believers}}{\text{Duration}}$$

with a similar formula for the number of converted into the inactive category.



It is now possible to fit the data from the 1904-5 Welsh revival to this new model where not all the converts become active. in 1904 the combined total membership for Welsh churches stood at 48.94% of the total population (Hayward 1999,2000), and rose to 53.43% by the end of 1905. The bulk of the converts came in a period of about 12 months.

Now assume only 10% of converts became active believers, the results of the simulation are given in figure 6.4b



This yields a duration of enthusiastic phase in a believer of about 1 month and the number converted per active believer at 18.3. Compared with the model with where all converts became enthusiasts the enthusiastic phase is four times longer and each enthusiast has 9 times

as many converts. Thus to explain for the revival to have been spread by a smaller number of people requires a much larger effectiveness on the part of the enthusiasts. If only 1% of converts become enthusiasts then each enthusiast needs to make around 100 converts in 4 months!

It is more likely that many converts became enthusiast and spread news of the revival to a smaller number of people. That then brought the people to a place where they became converted. However it was the action of the enthusiasts who brought them to that place, rather than the evangelist who spoke in that place which was the key to the dynamics of the growth of the church.

## 6.5 Conclusion

For the conversion model with limited enthusiasm:

- There are four parameters:
  - the number converted per active believer (enthusiast);
  - the length of time an active believer remains active;
  - the fraction of new converts who become active rather than inactive believers;
  - the initial proportion of the population who are believers;
  - the initial proportion of believers who are active.
- Conversion growth in the church is driven by a small number of active believers (enthusiasts) whose enthusiasm, or potential to recruit, only last for a length of time.
- Conversion leads to growth in the church that follows an S-shaped logistic curve.
- Not all population gets converted. Growth ends due to lack of active believers who have spent less of their time on the shrinking pool of unbelievers.
- The early period of growth is small and may go unnoticed.
- At some point very rapid growth occurs which later subsides typical of many revivals.
- The short term growth of the church is very sensitive to the number converted per believer.
- If only a fraction of the converts become enthusiasts themselves then such active believers need make proportionally more converts, but the revival growth still occurs and proceeds in a similar fashion.

## 7 Limited Enthusiasm With Births, Deaths and Reversion

### 7.1 Construction

It is now possible to include the effects of births, detach and reversion in the limited enthusiasm model. There are now 3 processes that will limit the growth of the church:

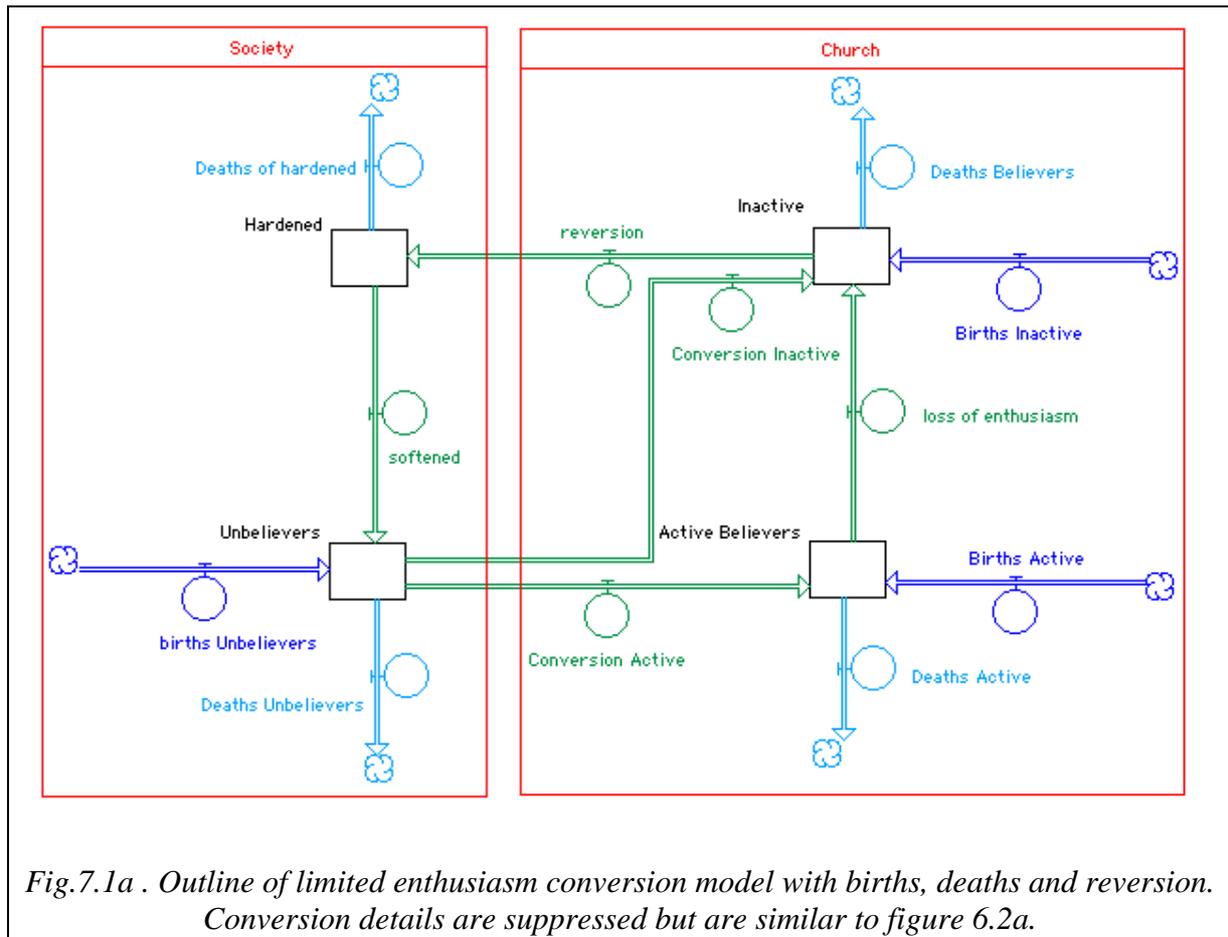
- the limited enthusiastic period of believers;
- reversion to the world;
- inability to keep all the children in the faith.

Now there are two categories of believers assumptions need to be made with regard to reversion and births. It is assumed that those active believers who revert and become hardened don't do so directly. Instead they become inactive believers first.

*Assumption 5.1a*      *Active believers do not give up the faith until they have first become inactive*

Again with births a decision has to be made whether the children of active believers become active themselves, or are inactive. A parameter is introduced to control what proportion of active believers are born believers and the proportion of these who are born active. it may well be that active believers may hold more of their children in the faith than inactive ones because generally they have more enthusiasm for the beliefs themselves.

The basic stocks and flows are given in figure 7.1a. The conversion process follows figure 6.2a for recruitment to both active and inactive believers. Births, deaths, reversion and softening processes follow figures 4.2b, 4.2c and 5.3a.



Assumption 1 needs to be changed:

*Assumption 1.3*                      *There are four categories of people, unbelievers, active believers, inactive believers and hardened unbelievers.*

## 7.2 General Comments

Simulations show that a steady state situation, where the church settles to a fixed percentage of society, is possible, with a typically small percentage of the church being enthusiasts or believers active in recruitment. Unlike the church growth model of Hayward (1999) these enthusiasts do not die out but sustain themselves, and the rest of the church, at fixed levels. A small increase in their recruitment potential can see a substantial rise in the number in the

church. Typically the numbers oscillate for 100-200 years before settling to a new level. Thus even with no change in parameters, stability in numbers can take a long time to achieve

The steady state values correspond, more or less, to the threshold of the epidemic outlined earlier. However in this case if the potential number of conversion is above the threshold, then the church survives with numbers at stable values largely determined by that conversion potential. However if it is below the threshold the church will eventually decline to extinction. The potential number of converts per active believer is crucial for the church's survival

Applications will be limited to two cases from the last 100 hundred years: the Christian church in Western Europe and also in South America.

## 7.3 Applications

### 7.3.1 Decline in Western Europe

At the beginning of the 1900's the church in many European countries accounted for about half the population. However enthusiasm was noticeably running out, especially with a tide of disbelief and liberalism within the church's own ranks. A simulation of the subsequent decline appears in figure 7.3a, where the parameters:

potential number converted per active believer = 2.4  
duration of enthusiastic phase = 4 years

were estimated by matching the graph of the total number in the church to data for the last one hundred years (UK data was used Brierley 1999a).

Other parameters estimated by recent data or local anecdotal evidence:

reversion rate = 0.016, softening rate = 0.5, fraction made active = 0.5,  
fraction inactive born unbeliever = 0.75, fraction active born unbeliever = 0,  
fraction active born believer and active = 0.5

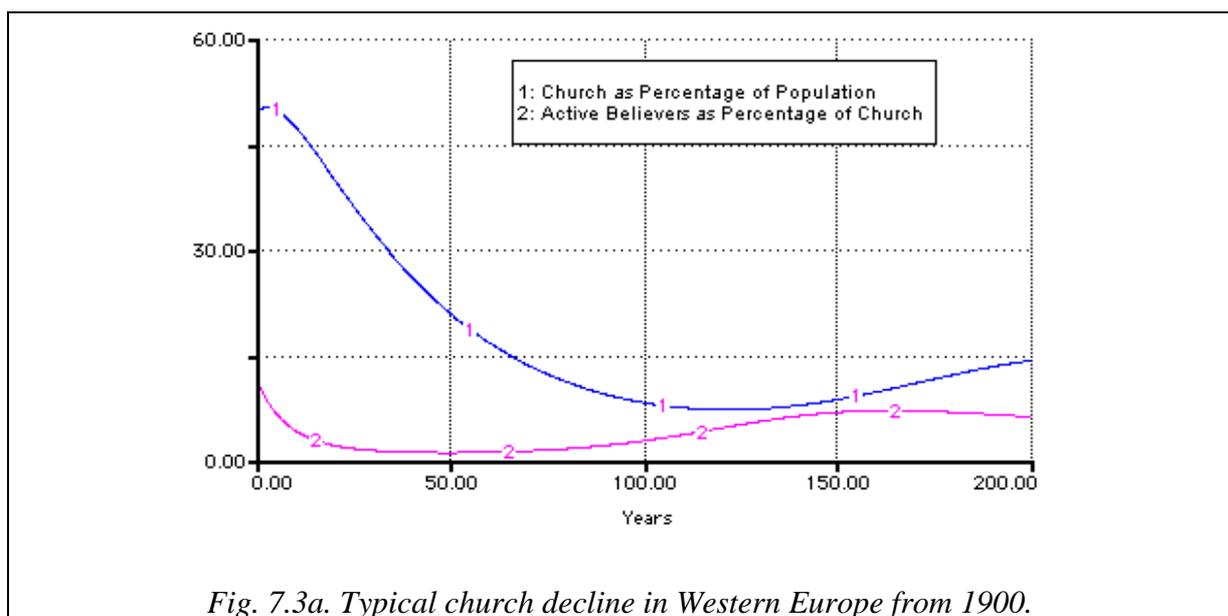
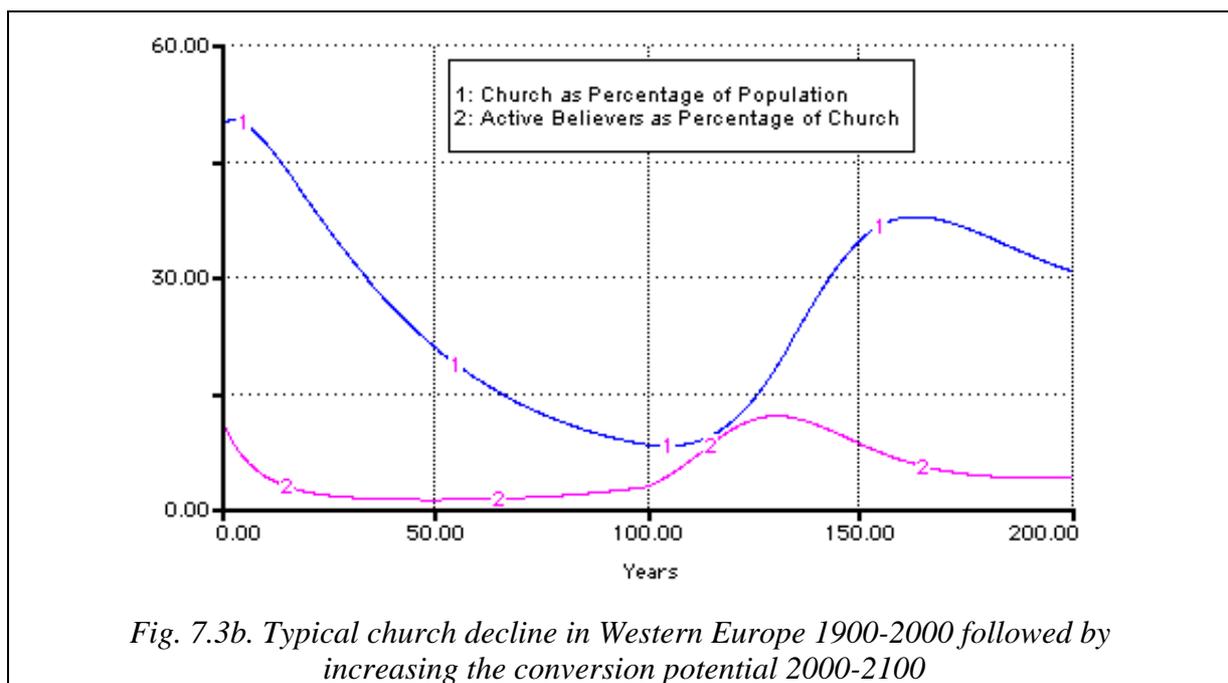


Fig. 7.3a. Typical church decline in Western Europe from 1900.

Note that the number of enthusiasts in this model has been rising for the last 50 years of the 20th century. In reality there has been a rise in the most enthusiastic part of the church, the evangelical and charismatic parts. These are the section of the church that recruit the most. If this model is close to the truth then the church will begin to start growing again in about 30 years due to the increasing number of enthusiasts. This growth is without any change in the value of the parameters and is a generational effect due to child losses and reversion achieving their true level rather than a true revival. There is a long-term damped oscillation to a fixed value. Eventually it could recover from its current low of 8% to about 14% of the total population at the end of the 21st century.

What can be done within the church to improve the growth by changes made now? Changing the softening rate has little effect. However if reversion is switched off the final value of 14% becomes 16%. It becomes 18% if all the children are retained and 20% if both effects are combined. Clearly tackling loses makes some significant improvements.

The dramatic effects come from improving the recruitment to the church. If the potential number converted per active believer goes from 2.4 to 3 the percentage in the year 2000 is now 30%, see figure 7.3b. Indeed the same improvement can be made by making 60% of the new converts enthusiasts rather than just 50%. Now the oscillations are taking longer to settle down.



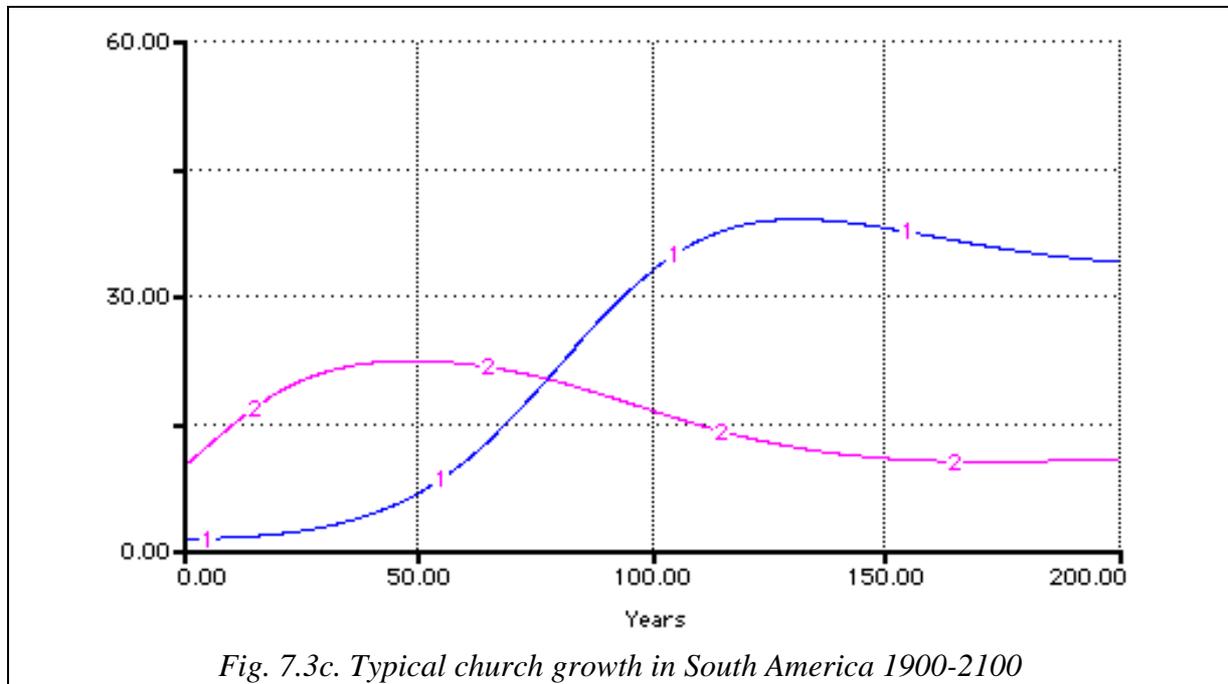
Also of significance is the lag between the total number in the church and the number of enthusiasts. The number of enthusiasts starts to wane long before the church does. If the number of enthusiasts could be measured then early warnings of problems within the church could be given.

### 7.3.2 Growth in South America

The Protestant Christian church in South America has seen explosive growth especially during the 1970's and 1980's (Brierley 1999b). This has been largely the result of the activity of Pentecostal churches which display a high degree of enthusiasm. A typical simulation is given in figure 7.3c, where:

potential number converted per active believer = 3.3  
 duration of enthusiastic phase = 10 years

have been adjusted to fit typical South American church membership data. Other parameters are kept the same as in the European case.



Clearly the percentage of enthusiasts is now past its peak leading to a levelling off and slight decline for the total church in the next 50 years. If this situation is true the South American churches should be seeing a rise in the level of nominalism in the church. If so tackling this nominalism could prevent the church's future decline. If the church wants to see growth beyond these projected levels it must improve its conversion rate. It cannot expect to see the whole of the population converted on its current levels of conversion.

## 7.4 Conclusion

For the conversion model with limited enthusiasm, and equal birth and death rates and reversion:

- There are nine parameters (discounting birth and death rates):
  - the number converted per active believer (enthusiast);
  - the length of time an active believer remains active;
  - the initial proportion of the population who are believers;
  - the initial proportion of believers who are active
  - the fraction of children of active believers who are kept in the church;
  - the fraction of children of active believers who are kept in the church that start active;
  - the fraction of children of active believers who are kept in the church;
  - the fraction of new converts who become active rather than inactive believers;
  - the reversion rate;
  - the softening rate.

- The number of believers rises (or declines) to a fixed, stable, value.
- That value is less than the total population. Thus reversion from the church will prevent all the population from being converted and limit the growth of the church.
- The church may rise to a high percentage before the effects of reversion cause it to stabilise at a lower value. Thus success in the church may initially mask the long term damage that reversion will cause.
- The long term levels of the church is more sensitive to the reversion rate than it is to number converted per believer, or to the percentage born believers. Thus reducing the levels of reversion is a significant area for improving the long term numbers in the church.
- Even if reversion rates cannot be stemmed making the effort to win those people back, (improving the softening rate) will still make a big impact on long term numbers.

## 8 Conclusion

### 8.1 Main Conclusions

The three technical reports aimed to show that systems dynamics is a valuable tool for investigating church growth. In particular it is able to produce the same model as the mathematical model of Hayward (1999).

In the models that were developed it was clear that if all in the church recruited indefinitely through contact, the whole population became converted. However if that enthusiasm was limited in time and to certain people, or if there were losses of children or adults from the church, then the conversion of the whole population was not possible. Thus one advantage of the method is that the validity of the assumptions can be measured by the resulting effects on the growth of the church.

A second advantage of this method is that alterations to the assumptions can be made easily. Consider the assumption of homogeneous mixing. If it were believed that believers didn't mix evenly through the population but spend more time with other believers, or alternatively deliberately sought out unbelievers, then a modification to the probability of contact is all that would be required. The model can then be analysed and results produced for each changed assumption in order to explore the consequences of the actions.

A third advantage is that additional categories of people can be built into the model. If for instance active believers dropped to a lower level of activity - semi-active believers - before becoming inactive, this extra category can be easily incorporated into the model. The procedure was seen as the model progressed from the unlimited enthusiasm model, through the limited enthusiasm model into the general model.

A fourth advantage, not explored in these reports, is the ability to model stocks (variables) that are not easily quantifiable. For example it would be possible to have a stock representing the tension between a church and the surrounding society and model its evolution as the church grew and perhaps became more accommodating to that society. This in turn could be fed back into modifications of the conversion potential.

The systems dynamics method is easy to pick up with a minimum of mathematical knowledge. The System Dynamics website contains links to numerous introductions to the subject.

As for the model itself it is seen that the assumption that church growth is driven by enthusiasts who eventually lose their conversion potential can give growth similar to that of an epidemic. Such behaviour is seen in the various revivals that have taken place throughout the history of the church. The fact that the enthusiastic phase is limited prevents the whole population from being converted, as does the presence of any losses from the church.

The key parameters are the conversion potential, and the proportion of converts who become enthusiasts. They control the threshold of revival-type growth and have the strongest influence on the threshold of extinction. As such any improvement in the contact rates, assuming such contacts lead to conversion, can tip a church from extinction to growth and from moderate growth to revival-type growth.

## 8.2 Further Work

The following is not exhaustive but represents some possible extensions to the model:

1. A process by which inactive believers can become enthusiasts again without having to fall away from the church. This process is often referred to as renewal. Historically revivals have started because people within the church have had their faith and zeal renewed and then become active in evangelism and witness;
2. The media may have a role in making converts or enthusiasts directly. In countries where the Christian church is illegal the church relies on converts through radio broadcasts;
3. As a church increases it may become a threat to society, resulting in persecution;
4. There may come a point where a church is such a large part of society that it becomes socially acceptable to join. Persecution ceases and a greater proportion of inactive believers are recruited leading to a dilution in the evangelism of the church;
5. All societies are composed of different churches and religious groups. As well as competing for converts from society there is also transfer growth as people switch their church allegiance. Such transfers form a significant part of the growth of conservative churches (Perrin et al 1997);
6. Modelling the effects of strictness in an attempt to explain Kelly's hypothesis that strict churches grow whereas non-strict ones decline (Kelly 1986).

The accuracy of the models presented here and any future models, need to be tested by data which measures the number of enthusiasts within churches and their level of enthusiasm in terms of their recruitment potential.

## References

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## **Assumptions**

The following assumptions are used in the technical reports. Assumptions hold in all models unless stated otherwise

### **Categories of People**

Assumption 1.0: The population is split up into two categories, believers and unbelievers (chapters 3 and 4)

Assumption 1.1 There are three categories of people, unbelievers, believers and hardened believers (chapter 5)

Assumption 1.2 There are three categories of people, unbelievers, active believers and inactive believers (chapter 6)

Assumption 1.3 There are four categories of people, unbelievers, active believers, inactive believers and hardened unbelievers (chapter 7)

### **Recruitment to the Church - Category Contact**

Assumption 2.0: Recruitment to the Church is via contact between believers and unbelievers.

### **Mixing of Different Categories of People**

Assumption 3.0: The different populations are homogeneously mixed

### **Duration of Believers Faith**

Assumption 4.0 Believers always remain believers (chapters 3, 4 and 6)

Assumption 4.1 Believers only remain believers for a fixed length of time (chapters 5 and 7)

### **Active Believers**

Assumption 5.0 Believers continue to recruit in the same way indefinitely (chapters 3, 4 and 5)

Assumption 5.1 Believers recruit for a limited period after which they become an inactive believer (chapters 6 and 7)

Assumption 5.1a Active believers do not give up the faith until they have first become inactive (chapter 7)

## **Unbelievers**

Assumption 6.0 Unbelievers continue to get recruited in the same way indefinitely

## **Births and Deaths**

Assumption 7.0: There are no births and deaths within the system (chapters 3, 5.2 and 6)

Assumption 7.1a Believers and Unbelievers die at the same rate (chapters 4, 5.3-5.7 and 7)

Assumption 7.1b Believers and Unbelievers are born at the same rate (chapters 4, 5.3-5.7 and 7)

Assumption 7.2 a Children of believers may be born as believers or unbelievers (chapters 4 and 7)

Assumption 7.2b Children of unbelievers are always born unbelievers (chapters 4 and 7)

## **Limits on Contacts**

Assumption 8.0: There is no limit to the number of influential contacts a person can have in a given time period.

## **Reversion**

Assumption 9.0 When believers leave the church they become permanently hardened to re-conversion back to the church (chapter 5.2)

Assumption 9.1 When believers leave the church they become temporarily hardened to re-conversion, becoming open to conversion again after an average length of time (chapter 5.3 - 5.6 and 7)

Assumption 9.1a People who have left the church are just as likely to be converted as those who have never been converted before chapter 5.3 - 5.6 and 7)

Assumption 9.1b Children of hardened people are born as unbelievers (chapter 5.3 - 5.6 and 7)

## **Inactive Believers**

Assumption 10.0 Inactive believers have no recruitment potential

Assumption 10.0a Inactive believers remain inactive

## **New Converts**

Assumption 11.0 All new converts start as active believers

Assumption 11.1 Only some new converts start as active believers the others are always inactive.