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## An analysis of factors affecting life insurance agent sales performance.

### Abstract:

Several factors affecting life insurance agent production were tested in an effort to produce a predictive model of agent and agency production.

Surprisingly, formal education, professional education, and training showed no affect on production. The number of policyholders and smaller management span of control both proved predictive. The most important predictors, however, proved to be prior performance.

The purpose of this study is to analyze factors commonly believed to affect life insurance agent production. The resultant model will not only provide a method for forecasting production by estimating parameters for the factors identified as significant, but will hopefully also provide insights about the system of production that may stimulate improvements in productivity and the related dilemma of retention. This study will also test many of the factors commonly used within the insurance industry to select new agents. A final objective is to stimulate further research and experiment into the system of delivering financial services and products.

Annual production forecasts are generally based on some flat percentage of increase over the results of the concluding year, and expectations about new recruit production are based on a combination of psychological and demographic factors. While these efforts have been aimed at improving productivity and reducing turnover, the industry has seen little improvement on either front.

A full model for agent production would at the very least include three groups of factors for measurement: a group of psychological factors, a group of demographic factors, and a group of factors reflecting the economy of the sales territory. It is my intention to focus only on those demographic factors currently believed by many in the industry to contribute positively to production levels.

### Author:

Turner, James H.

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PRIOR INDUSTRY RESEARCH

Published industry research, performed by the Life Insurance Marketing and Research Association, Inc., (LIMRA) has served to define the extent of the problem. Agent retention is measured by the percentage of agents hired in a given calendar year surviving into succeeding years. Four-year retention, for example, is approximately 11% for home service companies and 17% for ordinary companies. For the year 1991, median production for ordinary agents, measured by sales

commissions per survivor, was \$18,215. Other research, related to the identification and measurement of factors such as this study, is not published by LIMRA. (LIMRA has developed a model for measuring the potential of new recruits from which it has developed an aptitude battery which it markets as The Career Profile.)

### OTHER RESEARCH

Much general research has been done attempting to isolate the determinants of a salesperson's performance. Churchill, Ford, Hartley, and Walker, (1985) explored role variables, skill, motivation, personal factors, aptitude, and organizational/ environmental factors. This meta-analysis based on 116 studies found that, on average, single predictors of sales performance accounted for less than 4% of the variation in salesperson performance. Aptitude accounted for less than 2%, skill levels slightly more than 7%, motivation accounted for 6.6%, role perceptions was by far the best predictor, accounting for as much as 14% of the variation in performance, personal variables (age, height, sex, etc.) accounted for 2.6%, while organizational and environmental factors accounted for about 1%. They concluded that personal characteristics, while important, are not as important as the influencable factors such as training, company policies, skill levels, motivation, etc.

Ryans and Weinberg (1979) studied company marketing activities, salesforce policies and procedures, field sales manager and salesperson characteristics, territory characteristics, and competition as the six factors affecting sales response. This study focused on objective, non-psychological variables and concluded that individual characteristics, span of control, and territory potential are indeed good predictors of sales. The other factors proved difficult to operationalize and the results were, at best, non-conclusive. Other studies, e.g. Bush, Bush, Ortinau, and Hair (1990); have included behavior-based measurements, focusing on behaviors of retail sales people that contribute to their success (as measured by managed appraisal).

Cravens, Ingram, LaForge, and Young, (1993), explored the relationships between compensation/control systems and performance. Their results indicate that the type of control system, i.e., management control versus commission control, is correlated to several measures of success. Sales performance was more affected by commission control than by management control (the coefficients were .19 vs. .12, respectively), however, in customer satisfaction, the relationships were reversed (the coefficients were .05 vs. .13). Lamont and Lundstrom (1977) studied a combination of personality attributes (dominance, endurance, social recognition, empathy, ego strength) and personal

characteristics (age, height, weight, formal education, outside activities, civic and professional organizations) as predictors for sales success.

Their results indicated that personality variables were more successful in predicting success as evaluated by management ratings, while personal characteristics were better predictors of sales results. Using sales results as the dependent variable (instead of management ratings) the height of the salesrep and membership in civic and professional organizations were the most commonly significant predictors.

In a meta-analytic study of personality predictors of job performance, Tett, Jackson, and Rothstein (1991) generally supported the use of personality measures in selection. Even though significant, the amount of variation explained by these factors was small (overall relation between personality and job performance -- corrected = .24) and the measure of performance was largely a subjective performance rating.

In a study predicting sales performance of life insurance agents, Bluen, Barling, and Burns (1990) found the number of policies sold correlated with age ( $r = .06$  ns), tenure ( $r = .39$   $p < .01$ ), education ( $r = -.03$  ns) the impatience-irritability component of type A behavior ( $r = .09$  ns), the achievement strivings component of type A behavior ( $r = .18$   $p < .05$ ). Tenure correlated with age ( $r = .43$   $p < .01$ ). In a non research based exploration of the nature of leadership, Kirkpatrick and Locke (1991) focused on the traits of drive, leadership-motivation, honesty and integrity, self-confidence, cognitive ability, knowledge of the business, and an 'other' category that included creativity, charisma and flexibility. While the focus here was not on sales per se, the traits discussed and the concept of leadership are certainly sales enhancers.

Self-monitoring, the personality trait which, it is theorized, would allow sales reps to adapt to varying sales situations by responding to social cues as to what is expected or appropriate, is yet another construct yielding quite different predictive results. While Caldwell and O'Reilly (1982) found self monitoring positively related to job performance, Dubinsky and Hartley (1986) found self-monitoring unrelated to performance.

For the sake of parsimony, in order to avoid the difficulties of operationalizing conceptually complex constructs, and in order to avoid data-gathering difficulties, this study focuses only on objective characteristics.

The Chartered Life Underwriter (CLU) and Chartered Financial Consultant (ChFC) professional designations are largely educationally based and are earned through a college-level curriculum. The Life Underwriter Training Council (LUTC) provides education and training courses which are more experientially based. The National Association of Securities Dealers (NASD) is the Self Regulatory Organization responsible for licensing securities dealers.

#### ANALYTICAL TOOLS/METHODS

Data was collected by contacting agencies in the local area and completing a questionnaire collecting the required data for each agent contracted and having at least twelve months under contract. Seven local agencies participated by completing the questionnaire for their Shreveport-area agents. Commonwealth Life Insurance Company and The Prudential (District) agencies provided the home service data. Business Men's Assurance, The Equitable Life Assurance Society, Mutual of New York, Metropolitan Life, and Lincoln National Life Insurance provided data for the ordinary sample.

While the data requested is straightforward, some of it was not readily available in the form requested. The number of policyholders with policies written by and assigned to the agent, an important part of this study, was difficult to measure. For example, ordinary agents are generally not assigned policies to service. Instead "orphans" are given to agents as sales leads on an irregular basis. The number of policyholders with policies written by the agent may be available but may not account for those who have moved far from the writing agent (and who would therefore be of little value in projecting sales). Home service agents, on the other hand, do not necessarily service policyholders according to the writing agent, but rather according to geographic location. An agent may sell to a policyholder living in a particular neighborhood. If that policyholder should subsequently move to another part of town the agent will have the policyholder reassigned to the agent responsible for that neighborhood and may not service or sell to that policyholder in the future. In the home service system the assigned policyholders are tracked according to their residence, not by the writing agent. In either case the number is likely to reflect the number of policies which is not necessarily the same thing as policyholders. In any case the resulting number should prove representative of the real number and useful for the purpose of forecasting the resultant production.

#### ANALYSIS

It was expected that each item in the list above would be positively correlated to the productivity measure chosen (number of sales or total sales commissions). Education factors: professional education, skill education, education level, and NASD registration, however, will not predict production as strongly as maturity factors. The maturity factors: age, number of years in the community, and number of years with the company, experience, and the number of policyholders sold by the agent will produce the strongest single-factor predictor relationships. An interactive term, experience and professional education, will also produce a comparatively large predictor value. Family factors: marital status, the number of dependents, and a working spouse will produce the second weakest group of predictor variables. The number of specialists and the managers-to-agents ratio will produce the weakest group of predictors.

#### RESULTS

Data analysis provided many surprises. Using the stepwise procedure with an entry-level significance of 0.1 and the same level for a variable to remain in the model, several factors revealed parameter estimates either opposite to the expected direction or of such magnitude as to test credulity. Industry professional education, i.e., the number of CLU, ChFC parts completed, and property casualty licensing showed negative coefficients while NASD licensing showed an ultra high coefficient. The number of policyholders written showed a positive correlation with production, but not the number of policyholders assigned.

In an attempt to make sense of the data several transformations were made. Industry education and training, certainly independent measures, were summed and a new independent variable, edtr, was used in their place. Likewise the number of policyholders assigned and written were summed and a single variable, the number of policyholders, ph, was used instead. At the same time the number of agents in an agency was divided by the sum of managers and specialists and a new span of control variable, management ratio, mgratio, was used to replace the three

independent variables it reflects. Education, ed, a variable summing the years of formal education with the education and training numbers for industry education, was also introduced.

Education and training, edtr, became positive, as expected, but lost all significance ( $Pr > |T| = 0.89$ ). Education, ed, had a negative coefficient but was likewise not significant. The total number of policyholders did show high significance ( $Pr > |T| = 0.0003$ ) as expected. The other problems showed no improvement.

After a review of the data and the results thus far, it was decided that one difficulty might lie in the use of a common description, or model parameters, for two separate systems. Home service agents and ordinary agents serve different markets, are managed differently, licensed differently, are compensated and trained differently. Why then should the same factors be significant for each and why should the common factors have similar coefficients? To get a better measure of the differences between the two systems, the income distributions for the combined data and for each company type were displayed as a histogram. While none of the distributions were normal, the combined chart reflected a broadened central tendency as one might expect in the case where two distributions were overlaid and additive, while the separate distributions were much more nearly normal in appearance. The mean commissions for the combined data was \$28,302 whereas the mean for home service alone was \$13,592 and the mean for ordinary alone was \$35,911. In order to further compare the two systems, a single factor ANOVA was done comparing the means. With an F of 8.606 and a P-value of 0.004 the two are surely different.

Continuing the analysis separately for home service and ordinary agents produced results more within the range expected. Starting again for home service agents with stepwise regression as before, retaining the new variables in order to reduce the number being tested against the reduced data set, produced significance for total policyholders ( $Pr > F = 0.0009$ ) and for being property-casualty licensed ( $Pr > F = 0.0084$ ). Because the combined education and training variable failed to achieve significance, the model was rerun using the original separate variables for education, ed, and for training, tr. This produced significance for policyholders ( $Pr > F = 0.0009$ ), for being property-casualty licensed ( $Pr > F = 0.0084$ ) and for LUTC training ( $Pr > F = 0.0302$ ).

The resulting model then is: commissions =  $-\$7,578 + \$14.502$  (total policyholders) +  $\$13,788$  (if P&C licensed) +  $\$1,651$  (# LUTC parts completed).

This model was significant ( $Pr > F = 0.0001$ ) and produced an  $R^2 = 0.5703$ . To put this in perspective this model was compared with a naive model based solely on the prior year's production. This naive model became:

commissions =  $\$5,353.21 + 0.4887$  (last year's commissions). This model was significant ( $Pr > F = 0.0001$ ) and produced an  $R^2 = 0.4517$ .

When running the regression against the dependent variable "number of sales," instead of commissions, the home service sample produced only one significant factor: the total number of policyholders. This factor was very significant ( $pr > F = 0.0001$ ) and the resulting model was: number of sales =  $17.44 + 0.0755$ (the total # of policyholders)

For ordinary agencies the stepwise regression for commission produced significance for total policyholders ( $Pr > F = 0.0001$ ), and for education level ( $Pr > F = 0.0029$ ). Thus the final model became:

commissions =  $-\$12,614 + \$34.71$ (total policyholders) +  $\$8,069.55$ (years of college). This model was significant ( $Pr > F = 0.0002$ ) and produced an  $R^2 = 0.2726$ . [The negative intercept term has been minimized by correcting the education level to reflect education beyond high school].

For comparison purposes a naive model based solely on last year's production was also run. This model:

commissions =  $\$12,675 - 154$ (# last year's sales) + last year's commissions was significant ( $Pr > F = 0.0001$ ) and produced an  $R^2 = 0.7951$ . Not bad at all for prediction but not very revealing.

The ordinary agents' regression on number of sales, however, produced six significant factors. Experience ( $Pr > F = .0753$ ), manager ratio ( $Pr > F = .0011$ ), length of residence in the community ( $Pr > F = .0595$ ), holding a property-casualty license ( $Pr > F = .0498$ ), and number of parts of CLU/ChFC completed ( $Pr > F = .0216$ ), were all significant but the coefficients were negative, and total number of policyholders ( $Pr > F = .0001$ ) was also significant. The full model, then is:

number of sales =  $120 - 2$ (years of experience)  $- 6.4$ (agents per manager)  $- 0.7$ (years of residence in the community)  $- 3$ (# of CLU/ChFC parts completed)  $- 36$ (if P&C licensed) +  $0.08$ (total number of policyholders)

The negative coefficients suggest counterintuitive correlations among the variables. The negative coefficient for management ratio is as expected, i.e., as the span of control increases, the number of sales decreases. The negative coefficients for experience, length of residence in the community, and number of parts of CLU/ChFC all suggest that these individuals make fewer sales probably because they make larger sales and do not need, or do not have the time, to make larger numbers of sales. The negative coefficient for being property/casualty licensed is probably an artifact of this data set, i.e., most of these companies do not sell property/casualty insurance, therefore the total number of sales would not include property/casualty sales for other companies while certainly the time trade-off would decrease primary company sales.

This model is significant ( $Pr > F = 0.0001$ ) with an  $R^2$  of 0.4451. This compares with a naive model of:

number of sales =  $.27 + .76$ (last year's sales)  $- .00016$ (last year's commissions) This naive model is significant ( $Pr > F = 0.0001$ ) with an  $R^2$  of 0.5563.

## DISCUSSION

The ability to develop an  $R^2$  for the various models ranging from .27 to .57 is seen as a very positive sign for this research. Keeping in mind

that no psychology measurements or economic measurements were included, one might anticipate a full model  $R^2$  comparable to, or even exceeding the  $R^2$  of the naive model.

The real importance here is the significance of policyholders in production of both sales and commissions. In both the home-service sample and the ordinary agents sample the single most significant factor for both the number of sales and the total sales commission produced, was the total number of policyholders. This could mean that "orphans" could be permanently assigned to an agent, receive a better continuity of service, and the agent's performance would improve at the same time.

Education level, the number of years of formal education, was positively correlated with the number of parts of CLU/ChFC ( $r = .12$ ) and negatively correlated with the number of parts of LUTC completed. Apparently college graduates are more comfortable with the CLU format, or agents are being guided into CLU or LUTC by management based on their educational attainment. It is notable that LUTC appeared in the regression model for home service agents and CLU/ChFC appeared in the model for ordinary agents.

Also interesting was the negative correlation between the number of agents in an agency and policyholders assigned, CLU/ChFC parts completed and LUTC parts completed. This could be a result of more recruiting activity producing a less experienced agency force with fewer "orphans" for each new agent, or it could perhaps be a result of the diffusion of management's focus on these items as a result of the larger number of agents taking more of their time and attention.

#### INTENDED USE

The strength of the coefficient for education and training and the lack of, or negative, correlation of experience with production is problematic. Perhaps a broader data set would allow a definition of these coefficients. The number of policyholders assigned and written revealed a strongly positive correlation between number of years with the company and the length of time in the community. The usefulness of the education correlation should be obvious. Encouraging education and selecting people who are predisposed to more thoroughly learning about the design and use of their product could become even a stronger focus and an important long-term strategy. At the same time if mature individuals can be assigned policies and achieve productivity even close to agents who have years of experience and a client-base well established, companies could develop strategies to not only improve production but also to better serve the block of policyholders they already have. This would likely entail developing different recruiting, training and compensation strategies.

#### FUTURE RESEARCH

Many questions are raised by the data set utilized. For example, is the separation of home service and ordinary data, used here to allow analysis, necessary for the industry overall, or was it simply a unique character of this data set. Once a reasonably stable model is established, the relationships should be tested anew for their relevance to a model predicting new agent longevity.

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James H. Turner, Xavier University

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