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ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample is also included.

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TECHNICAL REPORT

ON

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

CLAIM ADJUSTER (insurance ) 1-57.40

B-456 or S-186

U. S. Employment Service in  
Cooperation with  
Illinois and Texas State Employment Services

U. S. DEPARTMENT OF LABOR  
Bureau of Employment Security  
Washington 25, D. C.

September 1962

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June 1960

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

CLAIM ADJUSTER (insurance) 1-57.40

B-456 or S-186

Summary

The General Aptitude Test Battery, B-1002A, was administered to two samples of Claim Adjusters 1-57.40 at the Country Mutual Insurance Company of Illinois and the Texas Farm Bureau, Waco, Texas. The Table below shows the date on which data collection was completed, the number included in the final sample and the type of criterion used for validation purposes.

Sample	Date	N	Criterion
I Illinois	June 1960	85	Supervisory Ratings
II Texas	June 1960	21	Supervisory Ratings

Data for the two samples were considered comparable and were combined. On the basis of mean scores, standard deviations, correlations with the criterion, job analysis data and their combined selective efficiency, Aptitudes G-Intelligence, V-Verbal Aptitude, N-Numerical Aptitude and Q-Clerical Perception were selected for inclusion in the test norms.

GATB Norms for Claim Adjuster 1-57.40, B-456 or S-186

Table I shows, for B-1001 and B-1002, the minimum acceptable score for each aptitude included in the test norms for Claim Adjuster 1-57.40, B-456.

TABLE I

Minimum Acceptable Scores on B-1001 and B-1002 for B-456 or S-186

B-1001			B-1002		
Aptitude	Tests	Minimum Acceptable Aptitude Score	Aptitude	Tests	Minimum Acceptable Aptitude Score
G	GB-1-H GB-1-I GB-1-J	100	G	Part 3 Part 4 Part 6	95
V	GB-1-J	100	V	Part 4	100
N	GB-1-D GB-1-I	100	N	Part 2 Part 6	95
Q	GB-1-B	105	Q	Part 1	105

### Effectiveness of Norms

The data in Table V indicate that 19 of the 34 poor workers, or 56 percent of them, did not achieve the minimum scores established as cutting scores on the recommended test norms. This shows that 56 percent of the poor workers would not have been hired if the recommended test norms had been used in the selection process. Moreover, 53 of the 68 workers who made qualifying test scores, or 78 percent, were good workers.

#### I. Purpose

This study was conducted to determine the best combination of aptitudes and minimum scores to be used as norms on the General Aptitude Test Battery for the occupation of Claim Adjuster, 1-57.40.

#### II. Sample

This study is based on two samples of Claim Adjusters, 1-57.40 employed by two companies in Illinois and Texas. The test norms were developed on the basis of the results of both samples.

##### Sample I - Illinois

During the period April 29 to May 26, 1960, the GATB, B-1002A, was administered to a sample of 85 male workers employed as Claim Adjuster 1-57.40 by the Country Mutual Insurance Company of Illinois. The company employs 110 male workers as Claim Adjuster, 95 of whom met experience requirements for inclusion in the sample. The workers were employed in nine claim districts located throughout the state, and, for testing purposes, the GATB was administered at seven testing locations in Illinois, with a single test session at each location. None of the 85 workers tested was eliminated from the final sample. The city or town where the testing took place, the number of workers tested at each location, and the number of workers available for testing at each location are shown below:

<u>Location</u>	<u>Number Tested</u>	<u>Number Available</u>
Bloomington	8	9
Champaign	12	12
Chicago	14	14
Effingham (Includes Harrisburg)	14	19
Peoria	10	11
Rock Falls	12	12
Springfield (Includes Edwardsville)	15	18
	<u>85</u>	<u>95</u>

The company prefers to hire trainees rather than experienced Claim Adjusters. Entrance requirements are a high school education or equivalent and four years of any kind of employment experience, or a college degree of any kind and no employment experience. The company uses two tests as part of the selection process: The SRA Adaptability Test (Form A), and the Guilford-Martin Personnel Inventory. The scores on these tests are not used to identify or to eliminate the potentially poor worker, but are used as part of a patterned interview to develop areas of discussion. During the oral interview, careful consideration is given to the applicant's interest in socially related activities, such as church and community organizations.

The company conducts a formal three week training program at its home office in Chicago. In addition, the trainee receives on-the-job training under an experienced worker for an average of two years before he is permitted to work completely alone. However, the company considers the worker to be minimally experienced after a period of six months combined formal and on-the-job training. All workers included in the sample had a minimum of six months experience and were considered minimally experienced workers.

#### Sample II - Texas

Twenty one men employed as Claim Adjusters, 1-57.40 by the Texas Farm Bureau in Waco, Texas, were tested May 18 through July 26, 1960 with the General Aptitude Test Battery, B-1002A.

The workers in the sample were hired on the basis of a personal interview. The company will accept inexperienced persons if age, education and other qualifications are acceptable. A college degree is preferred but two years of college training in law, agriculture, sociology or psychology is acceptable. The trainee receives from three to six months training under close supervision before being allowed to accept full responsibility.

Table II shows the means, standard deviations, ranges and Pearson product-moment correlations with the criterion for each sample.

TABLE II

Number of workers in Sample (N), Means (M), Standard Deviations ( $\sigma$ ), Ranges and Pearson Product-Moment Correlations with the Criterion (r) for Age, Education, and Experience

Claim Adjustor 1-57.40

	N	M	$\sigma$	Range	r
<u>Age (years)</u>					
Sample I - Illinois	85	33.0	6.2	23-54	-.065
Sample II - Texas	21	30.0	2.7	26-34	.120
Combined Sample	106	32.4	5.8	23-54	-.044
<u>Education (years)</u>					
Sample I - Illinois	85	13.4	1.7	11-17	.010
Sample II - Texas	21	15.0	1.5	12-17	-.209
Combined Sample	106	13.8	1.8	11-17	-.026
<u>Experience</u>					
Sample I - Illinois (months)	85	45.3	31.6	7-179	-.024
Sample II - Texas (years)	21	2.8	1.5	1-6	.140
Combined Sample (months)	106	36.9	33.0	12-179	-.017

There are no significant correlations between age, education and experience for either of the two samples. The data in Table II indicate that the samples are suitable for test development purposes with respect to age, education and experience.

### I. Job Description

Job Title B-456 Claim Adjuster (insurance) 1-57.40

Job Summary: Investigates and adjusts claims for insurance payment in assigned territory of one or more counties. Determines responsibility and liability of insured; estimates damages and authorizes repairs; settles claims for automobile and non-commercial property losses or damages; settles minor and processes major liability claims.

Work Performed: Takes loss or liability reports in County bureau office; Drives automobile about territory as scheduled. Reads receptionists's preliminary report and examines policy file for currency, specific type, and amount of coverage. Interviews insured, insured's driver or third party and prepares report of loss or liability, primarily for automobile accidents, but frequently for non-commercial property, such as church, house, or barn damaged or destroyed by fire. Occasionally prepares report of loss or liability for Farmer's comprehensive coverage, such as death of livestock due to lightning, corn destruction by cattle, crop loss from hail. Obtains signatures of all parties.

Determines responsibility or liability for accident and damaged property claims; Visits scene of accident to observe position of vehicles, condition of pavement, operation of traffic lights and other physical circumstances. Takes photographs, draws diagrams or charts; makes notes as necessary. Interviews witnesses, driver, passengers, and injured persons for accident details, such as speed, condition of brakes; obtains signed statements.

Ascertain extent of damages, and at discretion of supervisor, arranges for settlement;

- (a) For automobile - Estimates from experience, refers to guide books or obtains opinion of garageman. Authorizes garage to make repairs. Verifies sizable repairs, and verifies use of new parts as ordered. Road tests vehicle for performance and authorizes delivery to claimant. Submits signed release and garage bill with closed file to Home Office for payment.
- (b) For buildings; Gets estimates from contractors and acceptance from claimant. Authorizes and verifies repairs; submits claimant's release and contractor's bill, and closed file to Home Office for payment.
- (c) For Liabilities: Determines damage to third party and responsibility of claimant; obtains doctor and hospital reports for personal injury. Settles minor claims against liable insured by determining monetary value of liability, secures release, and issues a draft. Submits major claims to the Home Office, along with file and any additional progress reports, for evaluation; then makes settlement. Personally and promptly informs claimant, with complete substantiation, when insured is determined not liable or not covered.

#### IV. Experimental Battery

" All tests of the GATB, B-1002A, were administered to the sample group.

#### V. Criterion

Sample I -Illinois

The criterion consisted of supervisory ratings based on the Descriptive Rating Scale developed by the Bureau of Employment Security, Form SP-21, but revised to cover salient factors in the Claim Adjuster occupation. District claim supervisors prepared ratings and reratings for each worker with a time interval of two weeks between the first and second ratings during May and June 1960.



The rating scale consisted of 6 items covering different aspects of job performance with five alternatives for each item. Weights of one through five, indicating the degree of job performance attained, were assigned to each alternative. A correlation coefficient of .945 was obtained between the two sets of ratings. The final criterion consisted of an average of the first and second rating scale scores for each worker. The possible range of average scores was 13 through 30 with a mean score of 20.959 and a standard deviation of 3.872.

#### Sample II -Texas

The criterion consisted of supervisory ratings based on the Descriptive Rating Scale, Form Sp-21. Regional supervisors prepared ratings on June 13, 1960 and reratings on June 27, 1960. The rating scale consisted of 9 items covering different aspects of job performance with five alternatives for each item. Weights of one through five, indicating the degree of job performance attained, were assigned to each alternative. A correlation coefficient of .923 was obtained between the two sets of ratings. The final criterion consisted of an average of the first and second rating scale scores for each worker. The possible range of average scores was 9 through 45. The actual range was 27 through 43 with a mean score of 34.929 and a standard deviation of 4.362.

#### Combined Sample (Illinois and Texas)

The criterion data collected by Illinois and Texas consisted of two sets of descriptive rating scale scores for each group, based on Form SP-21. The correlation between the two sets of ratings was .945 for the Illinois sample, and .923 for the Texas sample. Therefore, the average of the two sets of descriptive rating scale scores was used as the final criterion for each sample. Using this final criterion, the range, mean, and sigma for the Illinois and Texas criterion data were as follows:

	Illinois	Texas
Range	13-30	27-43
Mean	20.959	34.929
Sigma	3.872	4.362

Since the claim Adjusters in both Texas and Illinois had to meet the same job performance requirements, the test results indicated that the two groups are at approximately the same performance level with respect to aptitudes measured by the GATB, and there was no evidence to indicate that the Texas group was superior to the Illinois group with respect to job performance. The differences between the ranges, means, and sigma of the criterion of each group were due to differences in rating standards rather than to actual differences in job proficiency. On this basis the Texas criterion data was converted to a distribution with the same mean (20.959) and sigma (3.872) as the distribution of Illinois criterion scores. This rendered the Texas criterion data comparable to the Illinois data and allowed for the combination of all the criterion scores into a single distribution for a sample of 106.



VI. Statistical and Qualitative Analyses

The data for the two samples were considered comparable and combined on the basis of both statistical and qualitative considerations. Means, standard deviations, and correlations with the criterion were calculated for the aptitude scores for each sample separately and in combination.

A. Statistical Analysis

Table III shows the means, standard deviations and correlation coefficients for the aptitudes of the GATB for each sample separately and for the combined sample. The means and standard deviations are comparable to general working population norms with a mean of 100 and a standard deviation of 20 for each aptitude.

Table III

Aptitude	Sample I - Illinois N = 85			Sample II - Texas N = 21			Combined Sample N = 106		
	M	$\sigma$	r	M	$\sigma$	r	M	$\sigma$	r
G-Intelligence	116.7	11.9	.213*	112.9	8.8	.168	115.9	11.5	.203*
V-Verbal Aptitude	108.9	12.9	.183	107.9	8.3	.318	108.7	12.2	.199*
N-Numerical Aptitude	117.0	11.6	.336**	111.3	9.5	.257	115.9	11.5	.315**
S-Spatial Aptitude	113.7	15.9	-.076	113.5	12.2	.109	113.6	15.2	-.047
P-Form Perception	109.0	16.2	.012	104.0	12.4	.318	108.0	15.7	.060
Q-Clerical Perception	111.1	11.6	.270*	112.8	11.1	.241	111.4	11.5	.264**
K-Motor Coordination	106.8	17.2	.322**	109.5	11.4	.252	107.3	16.2	.308**
F-Finger Dexterity	96.3	16.0	.122	97.8	19.5	.199	96.6	16.7	.139
M-Manual Dexterity	106.5	18.5	.125	107.0	19.3	.326	106.6	18.7	.166

\*\* Significant at the .01 level  
 Significant at the .05 level

B. Qualitative Analysis: The job analysis indicated that the following aptitudes measured by the GATB appear to be important for this occupation.

Intelligence (G) - required to learn the different types of company insurance; to analyze and evaluate the evidence in terms of a specific insurance contract, and to determine cause and to place responsibility.

Verbal Aptitude (V) - required to read and understand building contracts and medical reports; to write and compile progress and final reports according to company standards; to properly record statements of witnesses and participants to an accident.

Numerical Aptitude (N) - required to estimate and compute costs of automobile and building repairs; required to check mechanic's, contractor's or medical charges.

Clerical Perception and Accuracy (Q) - required to avoid errors when a claimant's policy is checked for currency, specific type, and amount of coverage; required to transcribe names, dates, costs, and similar items to progress or final reports.

On the basis of job analysis data, the following aptitudes are considered obviously unimportant for performing the duties of this job and are considered "irrelevant" aptitudes: K-Motor Coordination, F-Finger Dexterity, and M-Manual Dexterity.

C. Selection of Test Norms:

Table IV

Summary of Qualitative and Quantitative Data

Type of Evidence	Aptitudes								
	G	V	N	S	P	Q	K	F	M
Job Analysis Data									
Important	X	X	X			X			
Irrelevant							X	X	X
Relatively High Mean (N=106)	X		X	X					
Relatively Low Sigma (N=106)	X	X	X			X			
Significant Correlation with Criterion	X	X	X			X	X		
Aptitudes to be Considered for Trial Norms	G	V	N			Q			

Trial norms consisting of various combinations of three and four of Aptitudes G, V, N, and Q with appropriate cutting scores were evaluated against the criterion by means of tetrachoric correlation technique.

A comparison of the results showed that the following combination of aptitudes and cutting scores had better selective efficiency than any other combination of aptitudes and cutting scores: G-95, V-100 N-95 and Q-105.

VII. Concurrent Validity of Norms

The validity of the norms was determined by computing a tetrachoric correlation coefficient between the test norms and the criterion and applying the Chi Square test. The criterion was dichotomized by placing as possible to one-third of the sample in the low criterion group. A criterion critical score of 19 was used and resulted in 34 of the workers or 32 percent of the sample being placed in the low criterion group.

Table V shows the relationship between test norms consisting of Aptitudes G, V, N and Q with critical scores of 95, 100, 95 and 105, respectively, and the dichotomized criterion for claim adjuster 1-57.40. Workers in the high criterion group have been designated as "good workers" and those in the low criterion group as "poor workers."

TABLE V  
Validity of Test Norms for Claim Adjuster 1-57.40  
(G-95, V-100, N-95, Q-105)  
N = 106

	Non-Qualifying Test Scores	Qualifying Test Scores	Total
Good Workers	19	53	72
Poor Workers	19	15	34
Total	38	68	106

$$r_{tet} = .46 \quad \chi^2 = 7.500$$

$$O r_{tet} = .16 \quad P/2 = < .005$$

The data in the above table indicate a significant relationship between the test norms and the criterion for the sample.

VIII. Conclusions

On the basis of the results of this study, Aptitudes G, V, N and Q with minimum scores of 95, 100, 95 and 105, respectively, have been established as B-1002 norms for the occupation of Claims Adjuster 1-57.40. The equivalent B-1001 norms consist of G-100, V-100, N-100, Q-105.

IX. Determination of Occupational Aptitude Pattern

A significant relationship between OAP-6 and the criterion for the experimental sample was obtained. The proportion of the sample screened out by OAP-6 was .42, which is within the required range of .10 to .60. Therefore, the occupation Claim Adjuster 1-57.40 will be allocated to OAP-6. (35 OAP's; Revised 10/61).