Paper Title

Paper Subtitle

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Abstract

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Keywords:

**Introduction**

Technology transfer is the acquisition of technology or intellectual property by one person or entity from another person or entity. Various investigators have attempted to define technology transfer to varying degrees. Kim, Diam & Anderson (2009) defined technology transfer as "moving technological and technology-related know-how and knowledge to partners in order to enhance their competence and strength." However this definition raises other questions such what is "technology", whose own definition is relative and fluid.

Identifying the key drivers of successful university technology transfer (UTT) and understanding whether or not government policy aligns with what is currently known about successful UTT is an important topic for study. It has significant implications for public and social policy that affects a vast swaft of society in the United States of America (U.S.). Public policy regarding UTT is inextricably linked to U.S. research policy. The U.S. federal government spends billions of tax payer dollars on research. A significant portion of that funding goes to American universities to conduct research of interest to the federal government and achieve other national objectives. Key questions that remain unanswered or require further exploration are (1) how should success in UTT be defined, (2) how should society measure UTT performance, and (3) what are the drivers of successful UTT.

In fiscal year 2018, the U.S. federal budget for total research and development (R&D) was US$142.9 billion (American Association for the Advancement of Science [AAAS], 2018a). In 2016, American universities received roughly US$32.7 billion from the federal government for research and development support (AAAS, 2018b). This amounts to nearly a quarter of the federal R&D budget. With total federal outlays of over US$3.9 trillion, the amount directed to U.S. universities for research is less than 1 percent of total government spending (Congressional Budget Office [CBO], 2018) but is still a significant amount in absolute terms given that it is greater than the gross domestic product (GDP) of over 112 countries (United Nations [UN], 2017) and there are other important problems of national interest to which the government could direct those dollars.

The U.S. federal government funds research for various reasons including protecting the country from hostile actors, securing the nations global competitiveness, and promoting the general welfare of its citizens. The federal government operates under the premise that the general welfare, security, economic health, national stability, and effective functioning of the government requires the vigorous support and use of science and technology (National Science, Engineering, and Technology Policy and Priorities Act, 1976). This has been true from the very beginning of the nation. Since the adoption of the Constitution of the United States in 1787, the nation has sought to promote the "progress of science and useful arts" (U.S. Const. art. I, Â§ 8).

**Literature Review**

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**Research Questions**

[Enter text]

**Data and Methods**

**Data Sources**

This study uses patent data with constructed variables obtained from the National Bureau of Economic Research (NBER) website. The data file included all utility patents granted from January 1, 1963 to December 30, 1999 listed in the Technology Assessment and Forecast (TAF) database of the United States Patent and Trademark Office (USPTO). The data file contained data on 2,923,922 patents across 23 variables. Table 1 and Table 2 provide information about the variables.

Table 1

Original USPTO Patent Data Variables

| Variable | Variable Type | Extended Name | Description |
| --- | --- | --- | --- |
| PATENT | Numeric | Patent Number | The number assigned to the allowed patent by the USPTO. |
| GYEAR | Numeric | Grant Year | The year the USPTO allowed the patent. |
| GDATE | Numeric | Grant Date | The date the USPTO allowed the patent expressed in terms of the number of weeks elapsed since January 1, 1960. |
| APPYEAR | Numeric | Application Year | The year the patent application was submitted to the USPTO. |
| COUNTRY | Character | Country of First Inventor | The country of citizenship for the first inventor listed on the patent application. |
| POSTATE | Character | State of First Inventor (US) | The state of residency for the first inventor listed on the patent application if the country of citizenship is the United States of America. |
| ASSIGNEE | Numeric | Assignee Identifier | Unique identifier for the assignee of the patent. |
| ASSCODE | Numeric | Assignee Code | A one character code categorizing the type of assignee. |
| CLAIMS | Numeric | Number of Claims | Number of independent and dependent claims on the patent. |
| NCLASS | Numeric | Main Patent Class | A code that categorizes the patent into one of several broad classifications. |

Table 2

Constructed Patent Data Variables

| Variable | Variable Type | Extended Name | Description |
| --- | --- | --- | --- |
| CAT | Numeric | Technological Category | A higher-level classification of the Main Patent Class. |
| SUBCAT | Numeric | Technological Sub-category | The sub-category of the primary technological category to which the patent is assigned. |
| CMADE | Numeric | Number of Citations Made | The number of citations made by the patent. |
| CRECEIVE | Numeric | No. of Citations Received | The number of citations in other patents that reference the patent. |
| RATIOCIT | Numeric | Percent of Citations Made to Patents Granted Since 1963 | The ratio of the number of citations made by all patents granted since 1963 to the total number of citations made by the particular patent. |
| GENERAL | Numeric | Measure of Generality | A measure of how broad the influence of a patent spans across fields as determined by the number of different fields of all patents that cite the patent of interest.  Calculated as the following:  Generalityi = 1 - , where *sij* denotes the percentage of citations received by patent *i* that belong to patent class *j*, out of *ni* patent classes. |
| ORIGINAL | Numeric | Measure of Originality | A measure of the originality of a patent as determined by the number of different fields for all patents cited by the patent of interest.  Calculated as the following:  Originalityi = 1 - , where *sij* denotes the percentage of citations made by patent *i* that belong to patent class *j*, out of *ni* patent classes. |
| FWDAPLAG | Numeric | Mean Forward Citation Lag | The mean time difference between the application or grant date of the patent and that of the other patents citing this patent. |
| BCKGTLAG | Numeric | Mean Backward Citation Lag | The mean time difference between the application or grant date of the patent and that of the patents it cites. |
| SELFCTUB | Numeric | Share of Self-Citations Made – Upper Bound | The number of citations made by the patent to other patents with the same assignee divided by the total number of citations made by all patents with assignee codes. |
| SELFCTLB | Numeric | Share of Self-Citations Made – Lower Bound | The number of citations made by the patent to other patents with the same assignee divided by the total number of citations made by all patents. |
| SECUPBD | Numeric | Share of Self-Citations Received – Upper Bound | The number of citations received by the patent from other patents with the same assignee divided by the total number of citations received by all patents with assignee codes. |
| SECDLWBD | Numeric | Share of Self-Citations Received – Lower Bound | The number of citations received by the patent from other patents with the same assignee divided by the total number of citations received by all patents. |

**Data Selection and Modifications**

I used RStudio to create a subset of the data. After importing the data, I filtered the data for grant years between and including 1995 through 1999. I then filtered that data for patents that had at least 1 claim. I subsequently filtered that data for patents with at least 1 claim received. This generated a subset of 253,328 observations.

I inspected the final data sample using the miss\_var\_summary function to check for missing data by variables to ensure that there was no missing data in the CRECEIVE and CLAIMS variables. I then used the miss\_case\_summary function to check how many observations had missing data in the other variables. I used the get\_dupes function the verify that there were no duplicates in the PATENT variable thus ensuring that it could be used as a unique identifier. I then checked for duplicates across all variables to ensure that each observation was unique.

I used the sample function to select a random sample of 2,000 observations from the subset of 253,328 observations using the seed of 1972 for the function. I then saved this sample data as a CSV file.

**Analysis**

I analyzed the sample data using IBM SPSS Statistics 25. The SPSS 25 analysis output is shown in Exhibit A. I began by verifying that the correct data type and variable type was applied to each variable in the variable view tab. For this study, I assigned CRECEIVE as the dependent variable (DV). I prepared descriptive statistics for the dependent variable using the Analyze > Descriptive Statistics > Frequencies function. The specific statistics calculated for the DV included mean, standard error of mean, median, mode, minimum, maximum, and range, standard deviation, variance, skewness, and kurtosis. I created a histogram with the normal distribution curve superimposed to visually examine the data.

I then used the Graphs > Chart Builder function to create a scatter plot of the DV against the CLAIMS variable, which is one independent variable (IV) of interest. I later used the scatter plot to visually examine whether there was a potential relationship between the two variables.

Finally, I used the Analyze > Regression > Linear function to conduct a multiple regression analysis. The CRECEIVE variable remained the DV. The IVs included CAT, SUBCAT, NCLASS, CLAIMS, GENERAL, ORIGINAL, CMADE, RATIOCIT, BCKGTLAG, FWDAPLAG, SELFCTUB, SELFCTLB, SECDLWBD, and SECDUPBD. The options I selected for the linear regression statistics included model fit, R squared change, and part and partial correlations; estimates, confidence level 95 percent, and covariance matrix for the regression coefficients; and Durbin-Watson and casewise diagnotics for outliers beyond 3 standard deviations for the residuals.

**Discussion**

**Findings and Results**

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**Policy Implications**

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**Limitations of the Analysis**

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**Possible Extensions**

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**Conclusion**

[Enter text]

References

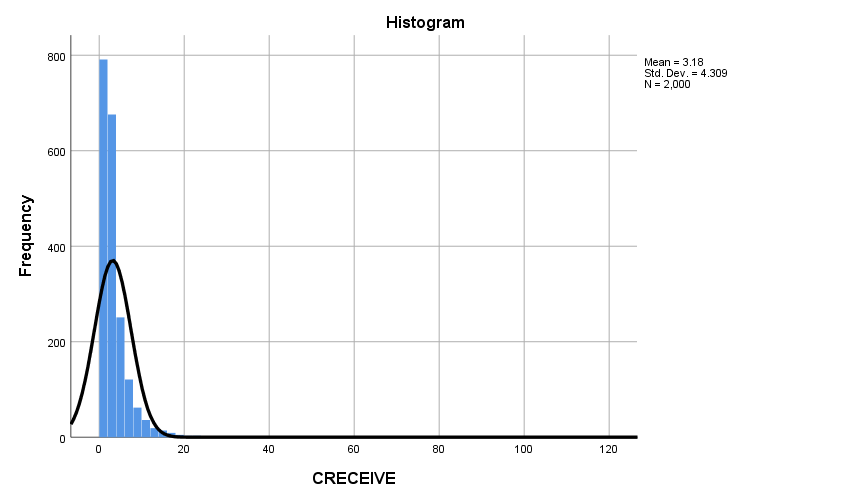
National Bureau of Economic Research. (2018). Patent data, including constructed variables [data file]. Retrieved from http://www.nber.org/patents/

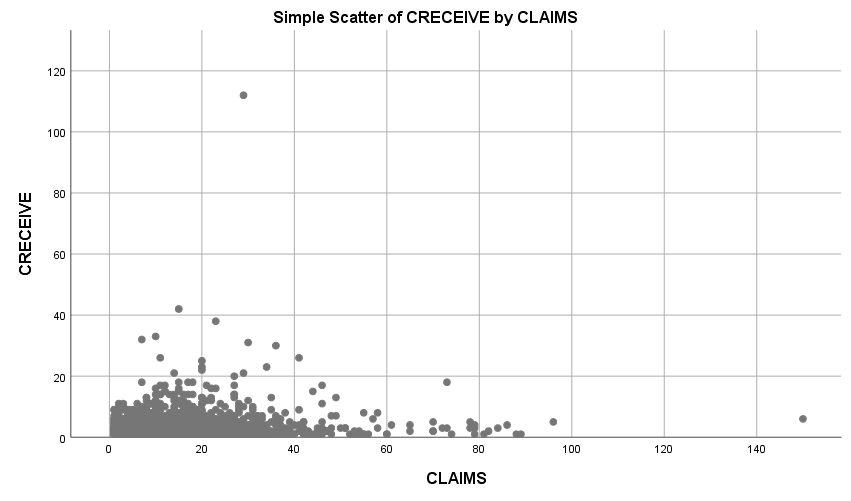
Hall, B. H., Jaffe, A. B. and Trajtenberg, M. (2001). "The NBER Patent Citation Data File: Lessons, Insights and Methodological Tools." *NBER Working Paper 8498*. Retrieved from http://www.nber.org/patents/

Appendix A. SPSS 25 Analysis Output

|  |  |  |
| --- | --- | --- |
| **Statistics** | | |
| CRECEIVE | | |
| N | Valid | 2000 |
| Missing | 0 |
| Mean | | 3.18 |
| Std. Error of Mean | | .096 |
| Median | | 2.00 |
| Mode | | 1 |
| Std. Deviation | | 4.309 |
| Variance | | 18.567 |
| Skewness | | 10.292 |
| Std. Error of Skewness | | .055 |
| Kurtosis | | 214.022 |
| Std. Error of Kurtosis | | .109 |
| Range | | 111 |
| Minimum | | 1 |
| Maximum | | 112 |

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| --- | --- | --- | --- | --- | --- |
| **CRECEIVE** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | 1 | 791 | 39.6 | 39.6 | 39.6 |
| 2 | 433 | 21.7 | 21.7 | 61.2 |
| 3 | 243 | 12.2 | 12.2 | 73.4 |
| 4 | 146 | 7.3 | 7.3 | 80.7 |
| 5 | 105 | 5.3 | 5.3 | 85.9 |
| 6 | 75 | 3.8 | 3.8 | 89.6 |
| 7 | 46 | 2.3 | 2.3 | 92.0 |
| 8 | 36 | 1.8 | 1.8 | 93.8 |
| 9 | 26 | 1.3 | 1.3 | 95.1 |
| 10 | 22 | 1.1 | 1.1 | 96.2 |
| 11 | 14 | .7 | .7 | 96.9 |
| 12 | 10 | .5 | .5 | 97.4 |
| 13 | 9 | .4 | .4 | 97.8 |
| 14 | 10 | .5 | .5 | 98.3 |
| 15 | 4 | .2 | .2 | 98.5 |
| 16 | 4 | .2 | .2 | 98.7 |
| 17 | 5 | .3 | .3 | 99.0 |
| 18 | 5 | .3 | .3 | 99.2 |
| 20 | 1 | .1 | .1 | 99.3 |
| 21 | 2 | .1 | .1 | 99.4 |
| 22 | 1 | .1 | .1 | 99.4 |
| 23 | 2 | .1 | .1 | 99.5 |
| 25 | 1 | .1 | .1 | 99.6 |
| 26 | 2 | .1 | .1 | 99.7 |
| 30 | 1 | .1 | .1 | 99.7 |
| 31 | 1 | .1 | .1 | 99.8 |
| 32 | 1 | .1 | .1 | 99.8 |
| 33 | 1 | .1 | .1 | 99.9 |
| 38 | 1 | .1 | .1 | 99.9 |
| 42 | 1 | .1 | .1 | 100.0 |
| 112 | 1 | .1 | .1 | 100.0 |
| Total | 2000 | 100.0 | 100.0 |  |





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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Model Summaryb** | | | | | | | | | | |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |  |
| R Square Change | F Change | df1 | df2 | Sig. F Change | Durbin-Watson |
| 1 | .425a | .181 | .174 | 4.140 | .181 | 26.029 | 14 | 1652 | .000 | 1.969 |
| a. Predictors: (Constant), SUBCAT, CMADE, SECDUPBD, FWDAPLAG, CLAIMS, GENERAL, SELFCTUB, RATIOCIT, ORIGINAL, NCLASS, BCKGTLAG, SELFCTLB, CAT, SECDLWBD | | | | | | | | | | |
| b. Dependent Variable: CRECEIVE | | | | | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANOVAa** | | | | | | |
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 6245.660 | 14 | 446.119 | 26.029 | .000b |
| Residual | 28314.370 | 1652 | 17.139 |  |  |
| Total | 34560.030 | 1666 |  |  |  |
| a. Dependent Variable: CRECEIVE | | | | | | |
| b. Predictors: (Constant), SUBCAT, CMADE, SECDUPBD, FWDAPLAG, CLAIMS, GENERAL, SELFCTUB, RATIOCIT, ORIGINAL, NCLASS, BCKGTLAG, SELFCTLB, CAT, SECDLWBD | | | | | | |

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| --- | --- | --- | --- | --- | --- | --- |
| **Coefficientsa** | | | | | | |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | 4.829 | 1.773 |  | 2.724 | .007 |
| BCKGTLAG | -.094 | .024 | -.166 | -3.931 | .000 |
| CAT | .031 | .366 | .011 | .084 | .933 |
| CLAIMS | .024 | .008 | .065 | 2.846 | .004 |
| CMADE | .003 | .008 | .009 | .360 | .719 |
| FWDAPLAG | .392 | .093 | .096 | 4.195 | .000 |
| GENERAL | 6.315 | .404 | .364 | 15.625 | .000 |
| NCLASS | .001 | .001 | .034 | 1.330 | .184 |
| ORIGINAL | -1.094 | .395 | -.067 | -2.767 | .006 |
| RATIOCIT | -3.001 | 1.557 | -.078 | -1.927 | .054 |
| SECDLWBD | -4.098 | 2.353 | -.301 | -1.741 | .082 |
| SECDUPBD | 3.950 | 2.298 | .296 | 1.719 | .086 |
| SELFCTLB | -1.145 | 2.178 | -.054 | -.526 | .599 |
| SELFCTUB | .763 | 2.006 | .039 | .380 | .704 |
| SUBCAT | -.004 | .036 | -.016 | -.117 | .907 |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Coefficientsa** | | | | | | | |
| Model | | 95.0% Confidence Interval for B | | Correlations | | | Collinearity Statistics |
| Lower Bound | Upper Bound | Zero-order | Partial | Part | Tolerance |
| 1 | (Constant) | 1.352 | 8.307 |  |  |  |  |
| BCKGTLAG | -.140 | -.047 | -.124 | -.096 | -.088 | .279 |
| CAT | -.687 | .749 | -.065 | .002 | .002 | .028 |
| CLAIMS | .007 | .040 | .090 | .070 | .063 | .961 |
| CMADE | -.013 | .018 | .010 | .009 | .008 | .867 |
| FWDAPLAG | .209 | .576 | .143 | .103 | .093 | .949 |
| GENERAL | 5.522 | 7.108 | .385 | .359 | .348 | .914 |
| NCLASS | .000 | .002 | .086 | .033 | .030 | .745 |
| ORIGINAL | -1.869 | -.318 | .007 | -.068 | -.062 | .858 |
| RATIOCIT | -6.056 | .054 | .058 | -.047 | -.043 | .305 |
| SECDLWBD | -8.714 | .518 | -.039 | -.043 | -.039 | .017 |
| SECDUPBD | -.556 | 8.457 | -.033 | .042 | .038 | .017 |
| SELFCTLB | -5.417 | 3.127 | -.007 | -.013 | -.012 | .047 |
| SELFCTUB | -3.172 | 4.698 | -.010 | .009 | .008 | .048 |
| SUBCAT | -.075 | .066 | -.065 | -.003 | -.003 | .027 |

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| --- | --- | --- |
| **Coefficientsa** | | |
| Model | | Collinearity Statistics |
| VIF |
| 1 | (Constant) |  |
| BCKGTLAG | 3.586 |
| CAT | 36.299 |
| CLAIMS | 1.040 |
| CMADE | 1.153 |
| FWDAPLAG | 1.053 |
| GENERAL | 1.094 |
| NCLASS | 1.343 |
| ORIGINAL | 1.165 |
| RATIOCIT | 3.284 |
| SECDLWBD | 60.130 |
| SECDUPBD | 59.879 |
| SELFCTLB | 21.367 |
| SELFCTUB | 20.929 |
| SUBCAT | 37.540 |
| a. Dependent Variable: CRECEIVE | | |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Coefficient Correlationsa** | | | | | | | |
| Model | | | SUBCAT | CMADE | SECDUPBD | FWDAPLAG | CLAIMS |
| 1 | Correlations | SUBCAT | 1.000 | -.006 | -.049 | -.034 | .025 |
| CMADE | -.006 | 1.000 | -.005 | .016 | -.144 |
| SECDUPBD | -.049 | -.005 | 1.000 | -.069 | -.028 |
| FWDAPLAG | -.034 | .016 | -.069 | 1.000 | -.049 |
| CLAIMS | .025 | -.144 | -.028 | -.049 | 1.000 |
| GENERAL | -.059 | -.025 | -.035 | -.139 | -.031 |
| SELFCTUB | .058 | -.013 | -.037 | .008 | .011 |
| RATIOCIT | -.032 | -.032 | -.001 | .004 | -.004 |
| ORIGINAL | -.001 | -.248 | .030 | -.002 | -.051 |
| NCLASS | .227 | -.071 | .007 | .004 | -.017 |
| BCKGTLAG | -.071 | -.121 | -.051 | -.054 | .008 |
| SELFCTLB | -.068 | .019 | .040 | -.008 | -.012 |
| CAT | -.983 | .004 | .043 | .033 | -.023 |
| SECDLWBD | .044 | .001 | -.991 | .080 | .027 |
| Covariances | SUBCAT | .001 | -1.778E-6 | -.004 | .000 | 7.404E-6 |
| CMADE | -1.778E-6 | 6.250E-5 | -8.650E-5 | 1.218E-5 | -9.425E-6 |
| SECDUPBD | -.004 | -8.650E-5 | 5.279 | -.015 | -.001 |
| FWDAPLAG | .000 | 1.218E-5 | -.015 | .009 | -3.820E-5 |
| CLAIMS | 7.404E-6 | -9.425E-6 | -.001 | -3.820E-5 | 6.873E-5 |
| GENERAL | -.001 | -8.057E-5 | -.033 | -.005 | .000 |
| SELFCTUB | .004 | .000 | -.170 | .001 | .000 |
| RATIOCIT | -.002 | .000 | -.004 | .001 | -4.893E-5 |
| ORIGINAL | -1.483E-5 | -.001 | .028 | -8.528E-5 | .000 |
| NCLASS | 5.572E-6 | -3.804E-7 | 1.108E-5 | 2.252E-7 | -9.876E-8 |
| BCKGTLAG | -6.066E-5 | -2.273E-5 | -.003 | .000 | 1.672E-6 |
| SELFCTLB | -.005 | .000 | .199 | -.002 | .000 |
| CAT | -.013 | 1.265E-5 | .036 | .001 | -6.838E-5 |
| SECDLWBD | .004 | 1.873E-5 | -5.359 | .018 | .001 |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Coefficient Correlationsa** | | | | | | | |
| Model | | | GENERAL | SELFCTUB | RATIOCIT | ORIGINAL | NCLASS |
| 1 | Correlations | SUBCAT | -.059 | .058 | -.032 | -.001 | .227 |
| CMADE | -.025 | -.013 | -.032 | -.248 | -.071 |
| SECDUPBD | -.035 | -.037 | -.001 | .030 | .007 |
| FWDAPLAG | -.139 | .008 | .004 | -.002 | .004 |
| CLAIMS | -.031 | .011 | -.004 | -.051 | -.017 |
| GENERAL | 1.000 | -.014 | .090 | -.181 | -.023 |
| SELFCTUB | -.014 | 1.000 | .100 | -.010 | .058 |
| RATIOCIT | .090 | .100 | 1.000 | -.143 | .071 |
| ORIGINAL | -.181 | -.010 | -.143 | 1.000 | -.039 |
| NCLASS | -.023 | .058 | .071 | -.039 | 1.000 |
| BCKGTLAG | .132 | -.054 | .799 | -.145 | .157 |
| SELFCTLB | .018 | -.974 | -.087 | .015 | -.058 |
| CAT | .066 | -.064 | .038 | .011 | -.159 |
| SECDLWBD | .041 | .036 | -.004 | -.028 | -.004 |
| Covariances | SUBCAT | -.001 | .004 | -.002 | -1.483E-5 | 5.572E-6 |
| CMADE | -8.057E-5 | .000 | .000 | -.001 | -3.804E-7 |
| SECDUPBD | -.033 | -.170 | -.004 | .028 | 1.108E-5 |
| FWDAPLAG | -.005 | .001 | .001 | -8.528E-5 | 2.252E-7 |
| CLAIMS | .000 | .000 | -4.893E-5 | .000 | -9.876E-8 |
| GENERAL | .163 | -.011 | .057 | -.029 | -6.298E-6 |
| SELFCTUB | -.011 | 4.025 | .311 | -.008 | 7.910E-5 |
| RATIOCIT | .057 | .311 | 2.425 | -.088 | 7.549E-5 |
| ORIGINAL | -.029 | -.008 | -.088 | .156 | -1.046E-5 |
| NCLASS | -6.298E-6 | 7.910E-5 | 7.549E-5 | -1.046E-5 | 4.645E-7 |
| BCKGTLAG | .001 | -.003 | .030 | -.001 | 2.539E-6 |
| SELFCTLB | .016 | -4.257 | -.294 | .013 | -8.605E-5 |
| CAT | .010 | -.047 | .022 | .002 | -3.975E-5 |
| SECDLWBD | .039 | .171 | -.013 | -.026 | -6.814E-6 |

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| --- | --- | --- | --- | --- | --- | --- |
| **Coefficient Correlationsa** | | | | | | |
| Model | | | BCKGTLAG | SELFCTLB | CAT | SECDLWBD |
| 1 | Correlations | SUBCAT | -.071 | -.068 | -.983 | .044 |
| CMADE | -.121 | .019 | .004 | .001 |
| SECDUPBD | -.051 | .040 | .043 | -.991 |
| FWDAPLAG | -.054 | -.008 | .033 | .080 |
| CLAIMS | .008 | -.012 | -.023 | .027 |
| GENERAL | .132 | .018 | .066 | .041 |
| SELFCTUB | -.054 | -.974 | -.064 | .036 |
| RATIOCIT | .799 | -.087 | .038 | -.004 |
| ORIGINAL | -.145 | .015 | .011 | -.028 |
| NCLASS | .157 | -.058 | -.159 | -.004 |
| BCKGTLAG | 1.000 | .081 | .059 | .047 |
| SELFCTLB | .081 | 1.000 | .074 | -.045 |
| CAT | .059 | .074 | 1.000 | -.037 |
| SECDLWBD | .047 | -.045 | -.037 | 1.000 |
| Covariances | SUBCAT | -6.066E-5 | -.005 | -.013 | .004 |
| CMADE | -2.273E-5 | .000 | 1.265E-5 | 1.873E-5 |
| SECDUPBD | -.003 | .199 | .036 | -5.359 |
| FWDAPLAG | .000 | -.002 | .001 | .018 |
| CLAIMS | 1.672E-6 | .000 | -6.838E-5 | .001 |
| GENERAL | .001 | .016 | .010 | .039 |
| SELFCTUB | -.003 | -4.257 | -.047 | .171 |
| RATIOCIT | .030 | -.294 | .022 | -.013 |
| ORIGINAL | -.001 | .013 | .002 | -.026 |
| NCLASS | 2.539E-6 | -8.605E-5 | -3.975E-5 | -6.814E-6 |
| BCKGTLAG | .001 | .004 | .001 | .003 |
| SELFCTLB | .004 | 4.744 | .059 | -.231 |
| CAT | .001 | .059 | .134 | -.032 |
| SECDLWBD | .003 | -.231 | -.032 | 5.538 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Collinearity Diagnosticsa** | | | | | | | |
| Model | Dimension | Eigenvalue | Condition Index | Variance Proportions | | | |
| (Constant) | BCKGTLAG | CAT | CLAIMS |
| 1 | 1 | 9.314 | 1.000 | .00 | .00 | .00 | .00 |
| 2 | 1.681 | 2.354 | .00 | .00 | .00 | .00 |
| 3 | 1.194 | 2.793 | .00 | .00 | .00 | .00 |
| 4 | .668 | 3.733 | .00 | .02 | .00 | .00 |
| 5 | .592 | 3.965 | .00 | .00 | .00 | .01 |
| 6 | .430 | 4.654 | .00 | .04 | .00 | .25 |
| 7 | .327 | 5.340 | .00 | .01 | .00 | .68 |
| 8 | .276 | 5.811 | .00 | .17 | .00 | .01 |
| 9 | .247 | 6.144 | .00 | .02 | .00 | .02 |
| 10 | .182 | 7.152 | .00 | .05 | .00 | .00 |
| 11 | .060 | 12.417 | .01 | .00 | .01 | .02 |
| 12 | .018 | 22.678 | .00 | .02 | .00 | .00 |
| 13 | .006 | 38.484 | .00 | .00 | .00 | .00 |
| 14 | .002 | 61.293 | .00 | .02 | .98 | .00 |
| 15 | .002 | 69.600 | .98 | .65 | .01 | .00 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Collinearity Diagnosticsa** | | | | | | | |
| Model | Dimension | Variance Proportions | | | | | |
| CMADE | FWDAPLAG | GENERAL | NCLASS | ORIGINAL | RATIOCIT |
| 1 | 1 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .01 | .00 | .01 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .03 | .00 | .48 | .00 | .01 | .00 |
| 5 | .66 | .01 | .12 | .00 | .01 | .00 |
| 6 | .05 | .00 | .26 | .05 | .00 | .00 |
| 7 | .00 | .01 | .07 | .06 | .11 | .00 |
| 8 | .17 | .01 | .01 | .00 | .15 | .00 |
| 9 | .07 | .15 | .00 | .06 | .61 | .00 |
| 10 | .00 | .72 | .03 | .17 | .05 | .00 |
| 11 | .00 | .09 | .00 | .57 | .04 | .03 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .01 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .04 | .00 | .01 |
| 15 | .00 | .00 | .01 | .04 | .01 | .96 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Collinearity Diagnosticsa** | | | | | | |
| Model | Dimension | Variance Proportions | | | | |
| SECDLWBD | SECDUPBD | SELFCTLB | SELFCTUB | SUBCAT |
| 1 | 1 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .01 | .01 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .97 | .97 | .00 |
| 13 | .99 | .99 | .00 | .00 | .00 |
| 14 | .00 | .01 | .01 | .00 | .98 |
| 15 | .00 | .00 | .01 | .01 | .01 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Casewise Diagnosticsa** | | | | |
| Case Number | Std. Residual | CRECEIVE | Predicted Value | Residual |
| 30 | 3.969 | 23 | 6.57 | 16.431 |
| 153 | 6.012 | 32 | 7.11 | 24.890 |
| 202 | 8.752 | 42 | 5.77 | 36.234 |
| 230 | 24.993 | 112 | 8.53 | 103.472 |
| 243 | 4.464 | 23 | 4.52 | 18.482 |
| 405 | 3.015 | 18 | 5.52 | 12.483 |
| 446 | 5.000 | 25 | 4.30 | 20.700 |
| 457 | 6.050 | 31 | 5.95 | 25.047 |
| 585 | 3.176 | 20 | 6.85 | 13.147 |
| 759 | 3.171 | 21 | 7.87 | 13.129 |
| 879 | 4.847 | 26 | 5.94 | 20.065 |
| 1063 | 7.988 | 38 | 4.93 | 33.072 |
| 1116 | 4.865 | 22 | 1.86 | 20.141 |
| 1173 | 3.055 | 18 | 5.35 | 12.647 |
| 1220 | 6.425 | 33 | 6.40 | 26.598 |
| 1347 | 3.151 | 17 | 3.96 | 13.044 |
| 1474 | 3.049 | 17 | 4.38 | 12.621 |
| 1680 | 5.220 | 26 | 4.39 | 21.610 |
| 1744 | 3.035 | 16 | 3.44 | 12.564 |
| 1786 | 3.514 | 21 | 6.45 | 14.550 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Residuals Statisticsa** | | | | | |
|  | Minimum | Maximum | Mean | Std. Deviation | N |
| Predicted Value | -1.29 | 8.81 | 3.30 | 1.936 | 1667 |
| Residual | -4.706 | 103.472 | .000 | 4.123 | 1667 |
| Std. Predicted Value | -2.372 | 2.844 | .000 | 1.000 | 1667 |
| Std. Residual | -1.137 | 24.993 | .000 | .996 | 1667 |
| a. Dependent Variable: CRECEIVE | | | | | |