



nswers

NSWERS INFORMATION & RESEARCH AGENDA

Version 1.3.0

Adopted by the NSWERS Executive Council on July 29, 2024



nswers

ANSWERS FOR NEBRASKA.

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General Information

The NSWERS Information and Research Agenda provides a general overview of the information and research questions to be addressed by the NSWERS data system. Where the NSWERS File Specifications documents (i.e. K12, 2-Year Postsecondary, 4-Year Postsecondary, and Workforce File Specifications) outline the specific data elements collected from NSWERS partner/affiliate agencies and institutions, the Information and Research Agenda identifies how these data elements will be used for analysis.

Variables and Constructs

Not all objects of research interest are directly measured or collected by NSWERS partner institutions. In education research, proxy variables have long been used to approximate something that is difficult to collect or measure, such as the use of GPA as a proxy for cognitive abilities or free/reduced lunch program participation as a proxy for economic status. Using data elements identified in the NSWERS File Specifications, NSWERS maps sets of variables into proxy/derived variables or **constructs** that can be used as units of analysis for various statistical procedures. For example, in the K12 realm, a primary outcome of interest is **On-Time High School Graduation**. This construct is inferred from a set of enrollment codes and timestamps from a logging system, rather than directly measured. While relatively straightforward to calculate, it is not directly provided. As perhaps a more ambiguous example, we are interested in how **Coursetaking Behavior** affects certain education and workforce outcomes, such as employment gap, graduation rates, or industry placement. Coursetaking behavior does not have a single definition, but rather is a cluster of concepts that may be inferred from a transcript log, such as calculating the number of STEM courses, the number of failed courses, or an interaction between course subject areas and academic performance.

At the end of this document (see Appendix B – Research Construct Crosswalk), we provide a crosswalk of the NSWERS data elements or field names contained in each of the four File Specification documents to the research constructs under investigation.

Notes

Throughout this document, we enumerate a sample of the research questions to be examined at each stage of analysis. Every effort has been made to ensure these questions are representative of the analytic activity for each stage. Due to space constraints, however, we do provide an exhaustive list of every possible combination of research questions. Please see the crosswalk in Appendix B for a detailed reference of NSWERS research constructs and their related data elements. Research constructs are identified in **bold** typeface throughout this document.

NSWERS Outcomes

NSWERS is currently focused on eight key longitudinal outcomes – four education and four workforce-related. The data elements identified in the NSWERS File Specifications are used to operationalize these eight outcomes in addition to the research constructs used to longitudinally analyze these outcomes across Nebraska’s education-workforce continuum.

EIGHT OUTCOMES

EDUCATION OUTCOMES



High School Graduation

The percentage of high school students who graduate within four years.



College Going

The percentage of high school graduates who attend a two-year or four-year postsecondary institution.



Postsecondary Persistence

The percentage of postsecondary students who remain in a postsecondary institution.



Postsecondary Graduation

The percentage of students who graduate from a postsecondary institution.

WORKFORCE OUTCOMES



Employment Gap

The difference between the number of open jobs and the number of graduates prepared to fill those jobs.



Time to Employment

The amount of time it takes for graduates to obtain employment.



Industry Placement

The industries in which employees obtain employment.



Employment Location

The location where employees obtain employment.

NSWERS supports decision making for eight longitudinal outcomes within Nebraska’s education and workforce training systems.

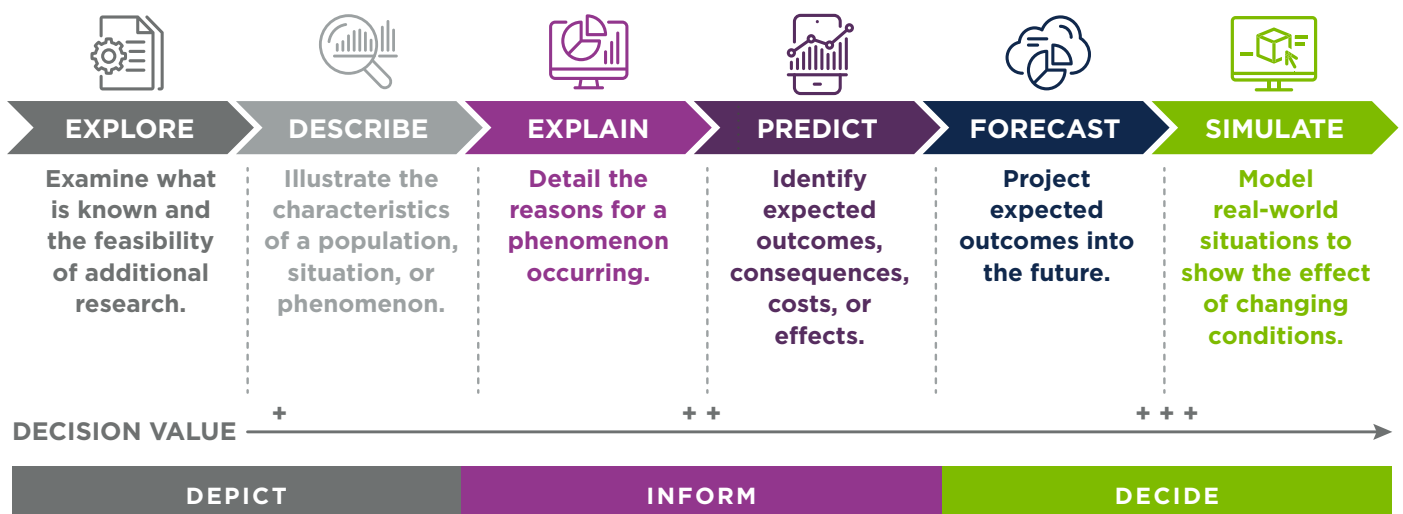
NSWERS Stages of Analysis

NSWERS created a six-stage research framework used to analyze the eight NSWERS outcomes. This framework - known as the NSWERS Stages of Analysis - is strategically designed to embody a modern, flexible, scalable approach to analytic activity. What's more, it seeks to focus our work towards those research questions, methods and approaches that best support decision making. With each subsequent stage (e.g. moving from Explore to Describe or from Explain to Predict), research activity is characterized by:

- Increased complexity in the types of questions being asked
- Increased sophistication in analytic approach and research methodologies
- Increased value provided to decision makers

At the baseline level, explore-type questions describe the current state of research, both at an internal level and in academic literature more broadly. On the other side of the continuum, simulate-type questions provide a mechanism for understanding how education and workforce outcomes might change when inputs and processes in systems are modified. Each of the **stages** are presented more fully below, organized alongside a brief overview of the stage, including an illustrative (but not comprehensive) list of research questions, and methodological approaches appropriate for the analyses of each stage.

NSWERS SIX STAGES OF ANALYSIS





EXPLORE

Questions in the explore stage provide an overview and background of the current state of knowledge surrounding the factors that contribute to the education and workforce environment in Nebraska. These might include literature reviews, data dictionaries, feasibility reports, and auxiliary data that are relevant within and across educational settings. For example, one may be concerned with the so-called “skills gap” or “employment gap” in the state. The explore stage helps end-users of the NSWERS system, loosely defined to be those with decision making authority in the education space, to get on the same page with how outcomes, such as “employment gap” are defined, how they are measured, and what does the relevant literature say about how the outcome has been modified or improved in other locations, such as in pilot programs or through larger system-wide changes.

Research Question Types

- **What is already known about the NSWERS outcome?**
- **How is it best measured?**
- **Is the data already collected and accessible?**
- **If applicable, what proxy variables might be utilized or estimated?**

Included Research Constructs/Variables

Initially, any of the eight NSWERS outcomes will be a focus for the research products from this stage.



Example Questions

- How is **Postsecondary Persistence** typically defined when used as an outcome in academic research or in a state or federal program evaluation context?
- How is **Employment Gap** measured? What are each of the data sources that contribute to its measurement and are they readily available to NSWERS for analysis?
- What pilot programs for manipulating **Industry Placement** of students (e.g. increasing the number of those in technology industries) have been attempted in other states?
 - Are there any common themes that differentiate successful programs from unsuccessful ones?
 - Did these programs have any successful manipulations, such as incentive programs or implementing unique training experiences?



Methodological Approaches

Analyses in the explore stage will qualitatively review and summarize academic literature, white papers and documentation from external student longitudinal data systems, best practices documents, and may conduct and review stakeholder interviews to ensure a thorough understand of the outcomes and relevant variables.



DESCRIBE

Analyses in the describe stage are concerned with single variable descriptive statistics and visualizations. These will be produced for the eight NSWERS outcomes but also for highly relevant and informative research constructs that provide an understanding of the historical and current state of the Nebraska's education system. For instance, an analysis in the describe stage may provide the percentage of students graduating high school on-time or a frequency distribution of high school students identifying in each of the commonly reported racial categories. Describe stage analyses will not typically provide information on conditional distributions (i.e., graduation rates conditional on gender or other variables), but do require grouping data on a set of pre-determined commonly defined cohorts like the Nebraska Department of Education's expected cohort graduation year and first-time, full-time undergraduate students.

Research Question Types

- What are the summary characteristics of the NSWERS outcome?
- How does the outcome change with respect to time or geographic regions within the state?



Included Research Constructs/Variables

The primary variables used in this stage are the eight education and workforce outcomes, but any generally informative input, process, or output variable may be visualized or analyzed.



Example Research Questions

- What is the **College Going** rate for students from a specific Nebraska high school cohort?
- What percentage of college students are still enrolled in college one year after beginning (**Postsecondary Persistence**) among the entering cohort of first-time, full-time students of a given year?



Methodological Approaches

Analyses in the describe stage will conduct traditional univariate statistics for **describing** the distribution of an outcome. Many analyses will result in data visualizations that allow for understanding the magnitude of quantities that represent data categories. Statistics are also descriptive in nature, intending to calculate estimates of lower order distributional moments. The specific techniques that will be used are listed below. Note that approaches in the describe stage do not generally require statistical hypothesis testing.

Statistical Techniques

- Measures of central tendencies (mean, median, and mode)
- Measures of spread (variance, standard deviation, interquartile range, various quantiles)
- Measures of distribution (density estimation, KL divergence, Kolmogorov-Smirnov test)
- Spatially Varying Coefficient Models

Sample Data Visualizations

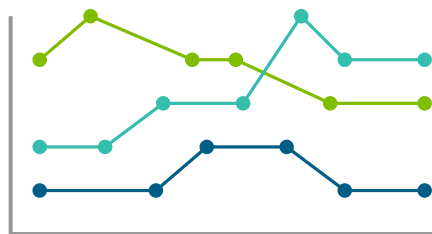
- Bar chart
- Donut chart
- Line chart
- Map
- Alluvial diagram



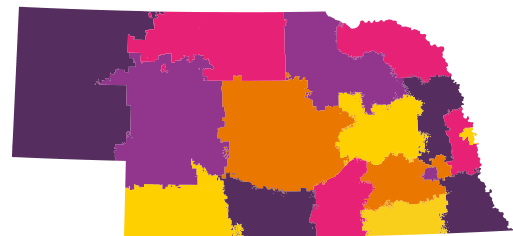
Bar chart



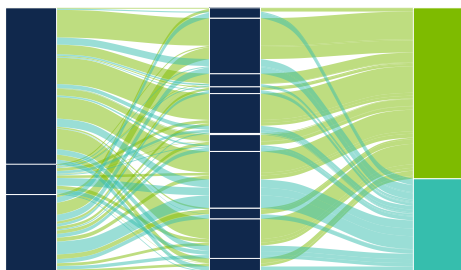
Donut chart



Line chart



Map



Alluvial diagram



EXPLAIN

The explain stage provides analyses that answer bivariate research questions, such as those that provide estimates for value, rate, percentage, or frequency conditional on the value of a second variable. Analytic methods in this section will primarily be linear in nature, such as estimating cell/group means, regression coefficients, or correlations. Where appropriate, control variables may be included in a statistical model to demonstrate specific effects.

Analyses conducted in this stage will include traditionally applied research methodologies within education such as linear regression, mixed effects models, ANOVA, or other techniques. In some cases, modern machine learning approaches, such as random forest models, may be applied to estimate variable importance metrics. Visualizations may show trendlines grouped by relevant cross-sections of the data overlaid on a bivariate scatterplot, etc. Analyses in this stage provide benefit by aiding in the determination of research constructs and variables that are known to have either correlational or causal effects for the outcomes.

Research Question Types

- How is the NSWERS outcome influenced by or related to other factors?
- How does that influence differ when accounting for additional variables?
- What are the predictor variables that have the largest overall impact on the outcome?



Included Research Constructs/Variables

The previously listed **outcome variables** serve as the predicted variable (e.g. the “y” variable in a multiple regression model). Any other appropriate research constructs will serve as **predictor** variables in the models, with variable selection being theory driven and informed by results of analyses from the explore stage.



Example Questions

- What is the effect of **Academic Success** measures on **On-Time High School Graduation**?
- What is the effect of **Degree Subject Area** on **Time to Employment** when controlling for **Gender, Race, and Ethnicity**?
- How does **Dual Credit** impact **College Going** when controlling for **Academic Readiness**?
- Do differences in **Academic Load** and **Area of Study** predict differences in **Academic Performance**? Does this have downstream effects on **Postsecondary Graduation**?
- What is the effect of **K12 Academic Engagement** on **Postsecondary Persistence**?



Methodological Approaches

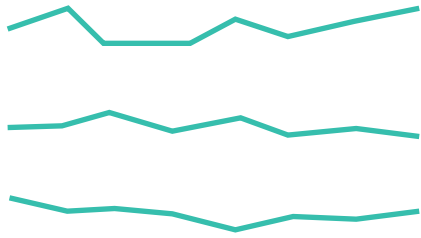
In the explain stage, we fit a series of statistical models to aid in understanding the effects of various inputs, processes, and outputs on the eight NSWERS Outcomes. These models are not necessarily focused on prediction, but instead simply getting a sense of “what works” and “what doesn’t.” Of note in this stage is the calculation of standardized effect size measures, which do not apply to the univariate analyses of the previous stages and is more difficult for the (non-linear) prediction focused statistical models that are to be fit in the analyses occurring at later stages of analysis.

Statistical Techniques

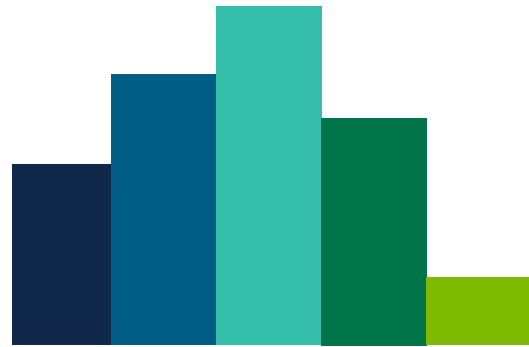
- Linear regression
- Mixed effects models
- ANOVA
- Structural equation modeling (mediation and moderation)
- Random Forests

Sample Data Visualizations

- Sparkline
- Bar chart
- Line chart



Sparkline



Bar chart



Line chart



PREDICT

The eponymous predict stage aims to identify expected outcomes, consequences, costs, or effects through fitting modern exploratory prediction models. Analyses in this stage look for key drivers that impact the NSWERS outcomes, taking special consideration for understanding the influence constructs/variables has on the outcome and control that decision makers have over those factors. Results from these analyses can be used to provide decision makers with information on thresholds at which input variables make the largest difference in the NSWERS outcomes.

Research Question Types

- **What is the probability of the NSWERS outcome occurring?**
- **What is the most/least likely outcome?**
- **How does this probability differ when accounting for additional variables?**
- **What are variables that both have large effects on the outcome and have may be able to be improved by intervention programs?**
- **What are key thresholds for the predictor past which students are more likely to attain the outcome?**



Included Research Constructs/Variables

In the predict stage, we still focus on the eight NSWERS outcomes, but using the research constructs (e.g. those listed in Appendix B) as predictor and clustering variables.



Example Questions

- What are the patterns of high school and college **Coursetaking Behavior** that align most closely with 150 percent-time **Postsecondary Graduation**?
- What are relevant thresholds in **High School Progression** and **K12 Academic Success** that predict **College Going**?
- What clusters of interactions between **K12 Staff Demographics** and **K12 Student Demographics** are meaningful in predicting **On-Time High School Graduation**?
- What are the clusters of K12 variables (e.g. **At-risk Status, School Transfer Patterns, School Enrollment Size, Academic Readiness, First Generation Student**, or **Demographic Variables**) that suggest a student may require additional support to meet **Postsecondary Persistence** expectations?
- How does **Postsecondary Persistence, Academic Load**, and **Degree Subject Area** influence **Time to Employment**?
- How do **wages** earned during postsecondary education affect **Employment Location**?”



Methodological Approaches

Analyses in the predict stage move beyond traditional/simple linear statistical models and into families of models that favor minimized out of sample prediction error over model interpretability. The models will typically require fine-tuning for use in the specific context but provide meta-parameters that aid in this fine-tuning. Use of these models will necessarily include basis expansion (i.e. non-linear transforms of the predictor variables) and regularization (i.e. model constraints to prevent over-fitting and improve generalization).

Statistical Techniques

- Tree-Based machine learning algorithms (e.g. CART, Random Forest)
- Clustering (e.g. SVM, KNN, K-means)
- Change point analysis
- Generalized Additive Models (GAMs)



FORECAST

The purpose of the forecast stage is to provide projections for necessary constructs into the future. These analyses may focus on the NSWERS outcomes or specific subsets of outcomes (e.g. how many students will graduate with at least two courses of postsecondary training in programming/software development over the next 3-5 years). Alternatively, analyses from this stage may provide forecasts for potential inputs or outputs of any of the education and workforce development systems.

Research Question Types

- **What is the probability of the NSWERS outcome projected over the next 3-5 years?**



Included Research Constructs/Variables

The primary research questions will focus on the eight key outcomes, but feasibly any questions regarding the change in inputs and outputs of the education system over time may be answered by this section.



Example Questions

- How many postsecondary graduates will enter the workforce in Nebraska (**Employment Location**) over the next 5 years?
 - What is the expected breakdown of **Degree Subject Area** for these graduates?
- Does the probability of working in Nebraska depend on **Postsecondary Academic Success**?
- How many public K12 students will meet the minimum admission requirements (based on **K12 Coursetaking Behavior** and **Academic Readiness**) for a given postsecondary institution over the next 5 years?
- What percentage of a specific cohort will obtain a **Postsecondary Degree/Award** or **Industry Credential** 6 years after graduating from high school?
- How does **K12 Coursetaking Behavior** predict **Industry Placement** over the 3 – 5 years after educational exit?
- How does the projected changes in **K12 population size** impact the projected **counts of college going students**?



Methodological Approaches

The methodological approaches used in the forecast stage depend heavily on the nature of the data. A subset of the analytic techniques listed below are only appropriate for forecasts with a large number of data points, and certain models may have high prediction error in the presence of a random shock (e.g. such as a global pandemic).

Statistical Techniques

- Time series graphics
- Linear models
- Longitudinal mixed effects models (with time varying covariates)
- ARIMA models
- Exponential smoothing
- Model Averaged Forecasts



SIMULATE

The purpose of analyses in the simulate state is to model and predict how perturbations to the education and/or workforce development systems might impact the NSWERS outcomes variables down the line. For example, one may consider how increasing participation in a particular K12 program affects college going rates among that population. Knowing this, one may simulate increasing participation in that program and determine thresholds of diminishing returns for the purpose of setting targets. Naturally, decision makers will have to consider the costs and benefits of achieving those targets.

Research Question Types

- How do simulated changes affect the probability of the NSWERS outcome?
- What set of conditions optimize the probability of the NSWERS outcome?



Included Research Constructs/Variables

The NSWERS outcomes will be the object of each simulation model. That is, analyses in this stage will aid in understanding how changing education and workforce inputs and processes affect the NSWERS outcomes.



Example Questions

- What is the effect of modifying **K12 FTE Staff** on student **On-Time High School Graduation**?
- How does increasing the proportion of students that have taken at least one course in computer programming/computer technology (**K12 Course Taking Behavior**) affect the number of Nebraska K12 students that go on to major in that **Degree Subject Area** at a postsecondary institution?
- How does increasing the proportion of out of state students (**State of High School Graduation**) affect the proportion of graduates who are working in Nebraska (**Employment Location**) 5 years after **Postsecondary Graduation**?
- How does changing **Course Offerings** over time affect **Coursetaking Behavior** in those **Course Subject Areas** over time?
- How does **K12 Gifted and Talented** status impact in-state **College Going**?
 - How does in-state **College Going** affect **Employment Location** specifically for this K12 subgroup?
- How does **K12 Career Education Program Participation** affect **Employment Location**?
 - Does student participation in these programs increase the probability of working in Nebraska (**Employment Location**) after educational exit?
 - What percentage of participation optimizes **Industry Placement** and **Employment Location**?
- What would the effect increasing participation in dual enrollment by 10 percent be on the **College Going Rate**?



Methodological Approaches

Analyses in the simulation stage require providing estimates given changes to education or workforce development inputs. Certain families of prediction/regression models may not be appropriate for these types of analysis, especially where dependence of the predictor variables is large. For example, one may estimate the effect of increasing a variable, but the difficulty of the act of manipulating that variable depends on patterns of other covariates in the model. NSWERS expects that sophistication of analyses in the simulation stage to evolve over time, but a list of useful statistical models is provided below. Generally, an initial approach will be to fit candidate models and generate samples from (conditional) posterior distributions and calculate summary statistics to serve as the estimate of the effect of input factor perturbation.

Statistical Techniques

- Bayesian network models
- Bayesian Copula model
- Graphical models
- MCMC simulations
- Approximate Posterior Sampling



SPECIAL TOPICS

In addition to providing research and data products related to NSWERS core outcomes, a series of standalone research questions that are of broad interest will be produced when they are relevant to multiple NSWERS outcomes, have cross-system impact, or are generally in line with NSWERS mission, vision, and legislative direction:

Mission

Integrate and organize Nebraska's education and workforce data to inform decision making.

Vision

Create a data-informed decision culture that supports successful pathways of learning and earning for the people of Nebraska.

From Legislative Bill 1160 (section 2, subsection 3):

The Nebraska Statewide Workforce and Education[a] Reporting System is envisioned as a comprehensive, sustainable, and robust lifelong learning and workforce longitudinal data system to allow for the targeting of resources, and focus data analysis on assessing workforce development and employment success in order to enable the training of tomorrow's workforce.

Example of research topics that are in line with these aims are provided below:

Cross Outcome:

- K12 Student Attendance
- Academic Growth Trajectories
- Pre/Post Pandemic Comparisons

Cross-System:

- Cradle to Career Pipeline
- Student Flow (Student transfer)
- Dual Enrollment
- College Preparatory Coursework Completion
- First-Year Credit Accumulation/Early Momentum

Workforce Development/Employment Success:

- Career Progression
- Tenure
- Under Employment
- Earned Wages
- Career Transition After High School
- Credential of Value/Minimum Economic Return
- Economic Mobility/Wage Trajectories



Example Questions

- What percentage of high school students transferred schools or districts (**Student Transfer**) at any time after entering the 9th grade?
- What is the total number of students majoring in computer science/engineering/technology (**Academic Area**) among a specific cohort of college students?
- What percent of college students in a given cohort take three or more courses in mathematics (**Coursetaking Behavior**) in pursuit of their degree?
- What percent of high school students in a cohort participated in a career and technical education program related to Health Sciences (**Program Content Domain**)?



Appendix A – Change Summary

Version 1.3.0

July 8, 2024

- Additions to the Special Topics Section

Version 1.2.0

July 1, 2024

- Update to include additional data elements included in NSWERS File Specifications v1.3.0

Version 1.1.0

May 30, 2023

- Update to include special topics section
- Update certain research questions, methods, and predictor variables

Version 1.0.0

May 26, 2022

- Initial version publication

Version 0.0.1

May 24, 2022

- Initial draft publication

Appendix B – Research Construct Crosswalk

K12 File Specifications

File Name	NSWERS Field Name(s)	Research Construct
K12 Student	NDE Student ID, County District Number, School Number, School Year, SSN, Last Name, First Name, Middle Name, Generation Code, Last Name Alias, First Name Alias, Middle Name Alias, Generation Code Alias, Birthdate, Grade Level, Student Address: Street Number Name, Student Address: Apartment Room Suite Number, Student Address: City, Student Address: State Abbreviation, Student Address: Postal Code	Linking Variables
K12 Student	Gender	Gender
K12 Student	Hispanic Indicator	Hispanic Ethnicity
K12 Student	Race 1 Code, Race 2 Code, Race 3 Code, Race 4 Code, Race 5 Code	Race
K12 Student	EL Eligibility, EL Participation, EL Duration, Redesignated as English Fluent, Home Language Code	English Language Proficiency
K12 Student	County District Number, School Number, Student Address: Street Number Name, Student Address: Apartment Room Suite Number, Student Address: City, Student Address: State Abbreviation, Student Address: Postal Code	Spatiotemporal Location
K12 Student	Single Parent, Unaccompanied Homeless Youth Indicator, Highly Mobile Indicator	At-Risk Status
K12 Student	High Ability Learner Eligibility, High Ability Learner Participant	Gifted and Talented Status
K12 Student	Attended Preschool	Preschool Attendance
K12 Student	SPED Participation	Special Education Participation

File Name	NSWERS Field Name(s)	Research Construct
K12 Student	Expected Graduation Year	On-Time High School Graduation
K12 Student	Foreign Exchange Student	Foreign Exchange Status
K12 Student	District of Residence, School of Residence	Residence Status
K12 Student	Full-Time Equivalency	School Assignment Allocation
K12 Student	Military Family Code	Military Family Status
K12 Staff Demographics	NDE Staff ID, School Year Ending	Linking Variables
K12 Staff Demographics	Gender	Staff Gender
K12 Staff Demographics	Hispanic Indicator	Staff Hispanic Ethnicity
K12 Staff Demographics	Race 1 Code, Race 2 Code, Race 3 Code, Race 4 Code, Race 5 Code	Staff Race
K12 Staff Demographics	Educational Attainment Code	Staff Education Level
K12 Staff Demographics	Total Experience	Staff Total Experience
K12 Staff Demographics	Primary Subject Area	Staff Primary Subject Area
K12 Staff Assignments	County District Number, School Number, NDE Staff ID, School Year Ending	Linking Variables
K12 Staff Assignments	Full-Time Equivalency	Staff Assignment Allocation
K12 Staff Assignments	County District Number, School Number, Assignment Date, Completion Date	Staff Spatiotemporal Location
K12 Staff Assignments	Experience At This District	Staff District Experience
K12 Enrollment	County District Number, School Number, School Year Ending, NDE Student ID	Linking Variables
K12 Enrollment	Enrollment Date, Enrollment Code	Enrollment Status
K12 Enrollment	Enrollment Date, Enrollment Code	On-Time High School Graduation
K12 Enrollment	Enrollment Date, Enrollment Code	School Transfer Patterns

File Name	NSWERS Field Name(s)	Research Construct
K12 Enrollment	Enrollment Date, Enrollment Code	School Enrollment Size
K12 Enrollment	Enrollment Date, Enrollment Code, Residence Status	Spatiotemporal Location
K12 Enrollment	Enrollment Date, Enrollment Code, Grade Level	High School Progression
K12 Student Course Records	County District Number, School Number, School Year Ending, NDE Staff ID, NDE Student ID	Linking Variables
K12 Student Course Records	County District Number, School Number, NDE Staff ID	Multi-Level/Cluster/ Grouping Variables
K12 Student Course Records	Semester, Local Course Code, Local Section Code, State Course Code, Course Delivery Model	K12 Coursetaking Behavior
K12 Student Course Records	Dual Credit	Earned/Attempted Dual Credit
K12 Student Course Records	Failed Course Flag, Course Grade	K12 Academic Success/ On-Track Indicator
K12 Statewide Assessment	County District Number, School Number, School Year Ending, NDE Student ID	Linking Variables
K12 Statewide Assessment	Assessment Date	Natural Experiment Indicator
K12 Statewide Assessment	Assessment Score, Proficiency Level	Academic Readiness/ On-Track Indicator
K12 Statewide Assessment	Assessment Name, Subject Name, Assessment Date, Assessment Target Grade Level, Reason Not Tested	Multi-Level/Cluster/ Grouping Variables
K12 Career Education Programs	County District Number, School Number, School Year Ending, NDE Student ID	Linking Variables
K12 Career Education Programs	Career Education Programs Code	Career Education Program Content
K12 Career Education Programs	Career Education Participation Info Code	Depth of Career Education Program Participation

File Name	NSWERS Field Name(s)	Research Construct
K12 Attendance	County District Number, School Number, School Year Ending, NDE Student ID	Linking Variables
K12 Attendance	Days Present, Days Absent	Academic Engagement/On-Track Indicator
K12 ACT	NDE Student ID, Test Date	Linking Variables
K12 ACT	English, Math, Reading, Science, Composite, Confidence	Academic Readiness
K12 College Board	NDE Student ID, Last Name, First Name, Middle Initial, Student Identifier, Student Address, Gender, Date of Birth, Graduation Date	Linking Variables
K12 College Board	Ethnic Response, Ethnic Derived,	Ethnicity
K12 College Board	Best Language	English Language Proficiency
K12 College Board	Attending Institution Code, Institution Name	Spatiotemporal Location

File Name	NSWERS Field Name(s)	Research Construct
K12 College Board	PSAT 8/9 Test DT, PSAT 8/9 Total, PSAT 8/9 ERW, PSAT 8/9 Math, PSAT 8/9 Test Score Reading, PSAT 8/9 Test Score Writing, PSAT 8/9 Test Score Math, PSAT 8/9 Subscore Evidence, PSAT 8/9Subscore Context, PSAT 8/9 Subscore Expressideas, PSAT 8/9Subscore Conventions, PSAT 8/9 Subscore Algebra, PSAT 8/9Subscore Problemsolving, PSAT 8/9 Cross Test Score History Social Studies, PSAT 8/9 Cross Test Score Science, PSAT NMSQT Test DT, PSAT NMSQT Total, PSAT NMSQT ERW, PSAT NMSQT Math, PSAT NMSQT Test Score Reading, PSAT NMSQTTest Score Writing, PSAT NMSQT Test Score Math, PSAT NMSQT Subscore Evidence, PSAT NMSQT Subscore Context, PSAT NMSQT Subscore Expressideas, PSAT NMSQTSubscore Conventions, PSAT NMSQT Subscore Algebra, PSAT NMSQT Subscore Problemsolving, PSAT NMSQT Subscore Advanced Math, PSAT NMSQT Cross Test Score History Social Studies, PSAT 10 Test DT, PSAT 10 Total, PSAT 10 ERW, PSAT 10 Math, PSAT 10 TEST Score Reading, PSAT 10 Test Score Writing, PSAT 10 Test Score Math, PSAT 10 Subscore Evidence, PSAT 10 Subscore Context, PSAT 10Subscore Expressideas, PSAT 10 Subscore Conventions, PSAT 10 Subscore Algebra, PSAT 10 Subscore Problemsolving, PSAT 10 Subscore Advanced Math, PSAT 10Cross Test Score History Social Studies, PSAT 10Cross Test Score Science, SAT Asmt DT MR, SAT Total Score MR, SAT ERW Score MR, SAT Math Score MR, SATEssay Reading MR, SAT Essay Analysis MR, SAT Essay Writing MR, SAT Test Score Reading MR, SAT Test Score Writing MR, SATTest Score Math MR, SAT Subscore Evidence MR, SAT Subscore Context MR, SAT Subscore Expressideas MR, SAT Subscore Conventions MR, SAT Subscore Algebra MR, SATSubscore Problemsolving MR, SAT Subscore Advanced Math MR, SAT Cross Test Score History Social Studies MR, SAT Cross Test Score Science MR, SAT Asmt DT HC, SAT Total Score HC, SAT ERW Score HC, SAT Math Score HC, SATEssay Reading HC, SAT Essay Analysis HC, SATEssay Writing HC, SATTest Score Reading HC, SAT Test Score Writing HC, SAT Test Score Math HC, SAT Subscore Evidence HC, SAT Subscore Context HC, SAT Subscore Expressideas HC, SAT Subscore Conventions HC, SAT Subscore Algebra HC, SAT Subscore Problemsolving HC, SAT Subscore Advanced Math HC, SAT Cross Test Score History Social Studies HC, SAT Cross Test Score Science HC, ARTHISGR, ARTHISYR, ARTSTDGR, ARTSTDYR, ARTST2GR, ARTST2YR, ART3DGR, ART3DYR, BIOLGR, BIOLYR, CALCABGR, CALCABYR, CALCBCGR, CALCBCYR, CHEMGR, CHEMYR, CHINESGR, CHINESYR, COMSCAGR, CONSCAYR, ECONMAGR, ECONMAYR, ECONMIGR, ECONMIYR, ENGLANGR, ENGLANYR, ENGLITGR, ENGLITYR, ENVSCIGR, ENVSCIYR, EURHISGR, EURHISYR, FRNLANGR, FRNLANYR, GERLAGR, GERLAYR, GOVCOMGR, GOVCOMYR, GOVUSGR, GOVUSYR, HUMGEOGR, HUMGEOYR, ITALGR, ITALYR, JAPANGR, JAPANYR, LATINVGR, LATINVYR, MUSICTGR, MUSICTYR, PHYSMGR, PHYSMYR, PHYSEMGR, PHYSEMYR, PHYCHGR, PHYCHYR, SPANLAGR, SPANLAYR, SPANITGR, SPANITYR, STATGR, STATYR, USHISTGR, USHISTYR, WDHISTGR, WDHISTYR, PHYS1GR, PHYS1YR, PHYS2GR, PHYS2YR, CPSTNSGR, CPSTNSYR, CPSTNRGR, CPSTNRYR, COMSCPGR, COMSCPYR, Date of Report	Academic Readiness

File Name	NSWERS Field Name(s)	Research Construct
K12 Detailed Attendance	NDE Student ID, Schol Year Ending	Linking Variables
K12 Detailed Attendance	Attendance Event Date, Attendance Event Category, Attendance Event Duration	Academic Engagement

Two-Year Postsecondary File Specifications

File Name	NSWERS Field Name(s)	Research Construct
Postsecondary Enrollment	Institution ID, NDE Student ID, SSN, Postsecondary Student ID, Term, Last Name, First Name, Middle Name, Last Name Alias, First Name Alias, Middle Name Alias, Birthdate	Linking Variables
Postsecondary Enrollment	Gender	Gender
Postsecondary Enrollment	Hispanic Indicator	Hispanic Ethnicity
Postsecondary Enrollment	Race 1 Code, Race 2 Code, Race 3 Code, Race 4 Code, Race 5 Code	Race
Postsecondary Enrollment	Marital Status	Marital Status
Postsecondary Enrollment	First Generation Student	First Generation Student
Postsecondary Enrollment	High School Class Rank, High School Class Size, GED Status	Academic Readiness
Postsecondary Enrollment	Census Flag, State of High School Graduation	Multi-Level/Cluster/Grouping Variables
Postsecondary Enrollment	First-Time Student Flag, Full-Time Student Flag, Degree Seeking Flag	Postsecondary Experience
Postsecondary Enrollment	Primary Program One (major), Primary Program Two (major)	Area of Study
Postsecondary Enrollment	Term Credit Hours Attempted	Academic Load
Postsecondary Enrollment	Term Credit Hours Attempted, Term Credit Hours Earned, Term GPA	Academic Performance/ Academic Distress
Postsecondary Academic Awards	Institution ID, Postsecondary Student ID	Linking Variables
Postsecondary Academic Awards	Institution ID	Degree Granting Institution
Postsecondary Academic Awards	Award Date, Award Code	Degree Completion
Postsecondary Academic Awards	Award Code	Degree Type
Postsecondary Academic Awards	Award CIP Code	Degree Subject Area

File Name	NSWERS Field Name(s)	Research Construct
Postsecondary Courses	Institution ID, Postsecondary Term Code, Academic Year Ending	Linking Variables
Postsecondary Courses	Instructor ID	Multi-Level/Cluster/ Grouping Variables
Postsecondary Courses	Course Code Subject, Course Code Number, Course Section, Course Name, Secondary Course Name, Course Description, Dual Credit Flag, Associated High School	Course Offerings/ Availability
Postsecondary Courses	Course Location	Course Accessibility
Postsecondary Courses	Course Weight/REU Factor	Course Type
Postsecondary Courses	Course Name, Secondary Course Name, Course Description	Transcript Details
Postsecondary Terms	Institution ID, Postsecondary Term Code, Academic Year Ending	Linking Variables
Postsecondary Terms	Start Date, End Date	Spatiotemporal Location
Postsecondary Transcript	Institution ID, Postsecondary Student ID, Academic Year Ending, Postsecondary Term Code, Course Code Subject, Course Code Number, Course Section	Linking Variables
Postsecondary Transcript	Postsecondary Term Code, Course Code Subject, Course Code Number, Course Type	Coursetaking Behavior
Postsecondary Transcript	Course Credit Hours, Course Grade Points, Remedial Course Math Flag, Remedial Course English Flag	Academic Success
Postsecondary Addresses	Institution ID, Postsecondary Student ID. Address: City, State, Postal Code, Date, Type	Linking Variables

Four-Year Postsecondary File Specifications

File Name	NSWERS Field Name(s)	Research Construct
Postsecondary Enrollment	Institution ID, NDE Student ID, SSN, Postsecondary Student ID, Term, Last Name, First Name, Middle Name, Last Name Alias, First Name Alias, Middle Name Alias, Birthdate	Linking Variables
Postsecondary Enrollment	Gender	Gender
Postsecondary Enrollment	Hispanic Indicator	Hispanic Ethnicity
Postsecondary Enrollment	Race 1 Code, Race 2 Code, Race 3 Code, Race 4 Code, Race 5 Code	Race
Postsecondary Enrollment	Marital Status	Marital Status
Postsecondary Enrollment	First Generation Student	First Generation Student
Postsecondary Enrollment	High School Class Rank, High School Class Size, GED Status	Academic Readiness
Postsecondary Enrollment	Census Flag, State of High School Graduation	Multi-Level/Cluster/Grouping Variables
Postsecondary Enrollment	First-Time Student Flag, Full-Time Student Flag, Degree Seeking Flag	Postsecondary Experience
Postsecondary Enrollment	Primary Program One (major), Primary Program Two (major)	Area of Study
Postsecondary Enrollment	Term Credit Hours Attempted	Academic Load
Postsecondary Enrollment	Term Credit Hours Attempted, Term Credit Hours Earned, Term GPA	Academic Performance/ Academic Distress
Postsecondary Academic Awards	Institution ID, Postsecondary Student ID	Linking Variables
Postsecondary Academic Awards	Institution ID	Degree Granting Institution
Postsecondary Academic Awards	Award Date, Award Code	Degree Completion
Postsecondary Academic Awards	Award Code	Degree Type

File Name	NSWERS Field Name(s)	Research Construct
Postsecondary Academic Awards	Award CIP Code	Degree Subject Area
Postsecondary Courses	Institution ID, Postsecondary Term Code, Academic Year Ending	Linking Variables
Postsecondary Courses	Instructor ID	Multi-Level/Cluster/ Grouping Variables
Postsecondary Courses	Course Code Subject, Course Code Number, Course Section, Course Name, Secondary Course Name, Course Description, Dual Credit Flag, Associated High School	Course Offerings/ Availability
Postsecondary Courses	Course Location	Course Accessibility
Postsecondary Courses	Course Name, Secondary Course Name, Course Description	Transcript Details
Postsecondary Terms	Institution ID, Postsecondary Term Code, Academic Year Ending	Linking Variables
Postsecondary Terms	Start Date, End Date	Spatiotemporal Location
Postsecondary Transcript	Institution ID, Postsecondary Student ID, Academic Year Ending, Postsecondary Term Code, Course Code Subject, Course Code Number, Course Section	Linking Variables
Postsecondary Transcript	Postsecondary Term Code, Course Code Subject, Course Code Number, Course Type	Coursetaking Behavior
Postsecondary Transcript	Course Credit Hours, Course Grade Points	Academic Success
Postsecondary Addresses	Institution ID, Postsecondary Student ID. Address: City, State, Postal Code, Date, Type	Linking Variables

Workforce File Specifications

File Name	NSWERS Field Name(s)	Research Construct
Student Match	SSN, First Year and Quarter, Last Year and Quarter	Linking Variables
Unemployment Insurance Quarterly Wage Records	SSN, Full Name, First Name, Last Name	Linking Variables
Unemployment Insurance Quarterly Wage Records	Total Quarterly Hours Paid, Wages, Year and Quarter	Time to Employment
Unemployment Insurance Quarterly Wage Records	NAICS Code, Ownership Code	Industry Placement
Unemployment Insurance Quarterly Wage Records	Wages, Year and Quarter	Wages/Working While Enrolled
Unemployment Insurance Quarterly Wage Records	Job Title	Employment Gap
Unemployment Insurance Quarterly Wage Records	Employer ID	Multi-Level/Cluster/ Grouping Variables



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