DRAFT MARA DISCUSSION DOCUMENT

The goal of today is to establish the direction this committee would like to go over the interim.

This document follows the agenda and is split into four sections;

1. The previous MARA direction and potential future work in those areas
2. Futurist Mindset
3. Data sets, some of which we will need to do this work, as well as potential expansions
4. Additional areas of possible research suggested by committee members and staff

Many topics offer data driven options that have the potential to enhance the legislature's understanding of Montana economic and fiscal future.

SECTION 1: BACKGROUND OF MARA – LAST INTERIM

A - Financials: Historical, Forecast, Stress Testing

During the previous interim one of the primary goals was to establish a financial model of state data that would include ten years of history and forecast ten years forward. The forecast was to include both revenue and expenditures using historical trends as well as known budgets.

Background
- The initial version of this work was completed prior to staff resources being redirected to COVID related projects
- Built off state accounting and budget data
- The model works by comparing expected revenues vs expected expenditures.
- Revenue estimates include all HJ2 work as well as trending accounts not included in HJ2
- Expenditures utilize known budgets adjusted for historical spending patterns for trending
- There are known fixes and improvements that have not been implemented

Future Analysis Options
- At a minimum, staff will be restructuring this data set to enhance analytical tools for analysts and legislators to analyze past state government revenues and expenditures
- Improve the forecasting portion of the model
- Consider implementing an ability to bring in external shocks, such as other aspects of MARA study work

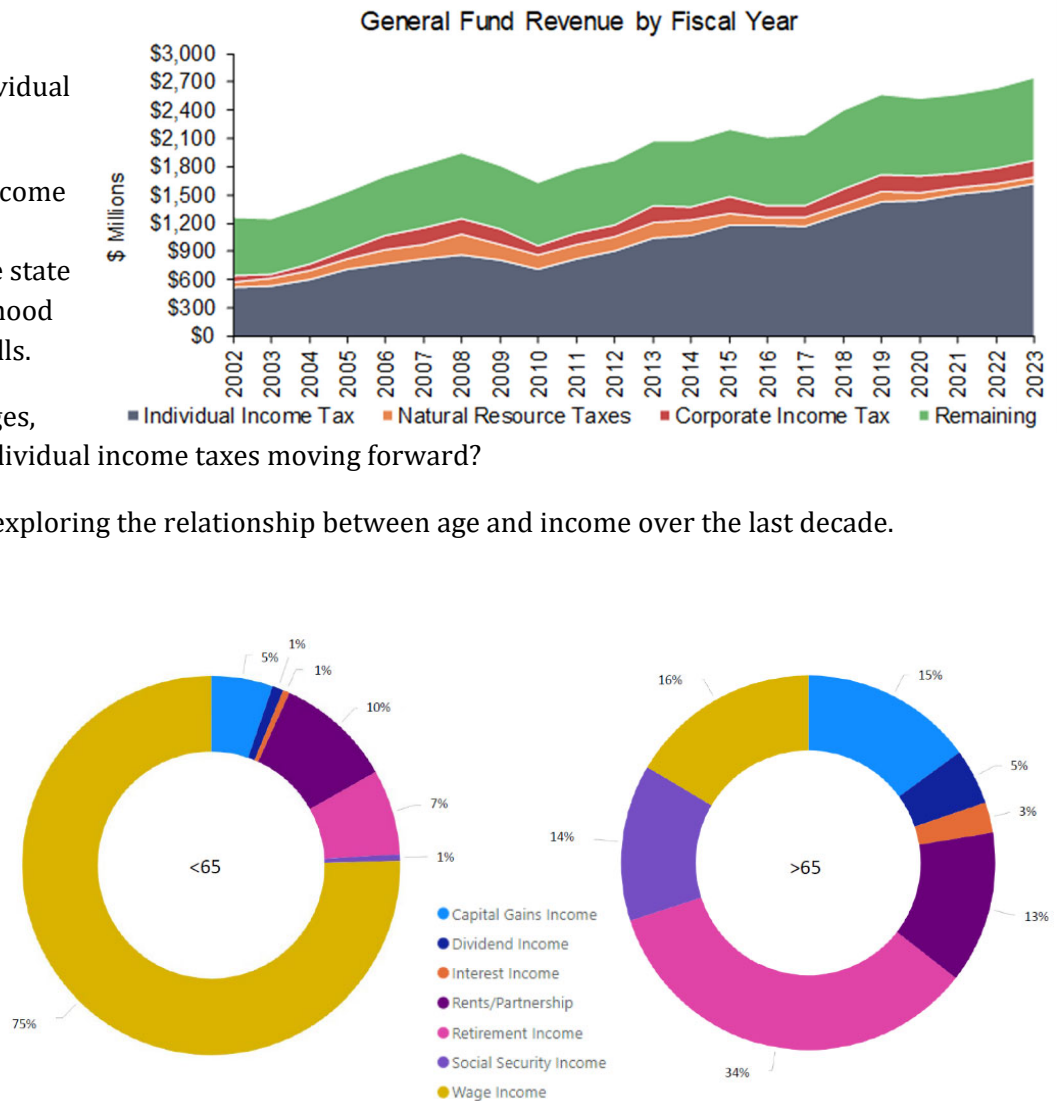# B - Individual Income Tax (Reliance, Changing Demographics, & Migration)

Background

The makeup of the state's general fund has become increasingly reliant on individual income tax

The inherent volatility of income tax coupled with its ever-growing contribution to the state budget, increases the likelihood of future budgetary shortfalls.

General Fund Revenue by Fiscal Year

Individual Income Tax ■ Natural Resource Taxes ■ Corporate Income Tax ■ Remaining

As Montana's population ages, what does this mean for individual income taxes moving forward?

A study last interim began exploring the relationship between age and income over the last decade.

While older Montanans showed more income than their younger counterparts, it was in the form of a more diverse income portfolio, which can be subject to more volatility and is more difficult to forecast than wages.

<65 chart values: 1%, 5%, 1%, 10%, 7%, 1%, 75%

>65 chart values: 15%, 5%, 3%, 13%, 34%, 14%, 16%

Legend:
- Capital Gains Income
- Dividend Income
- Interest Income
- Rents/Partnership
- Retirement Income
- Social Security Income
- Wage Income

Future Analysis Options

In the past year, anecdotal evidence suggests that Montana saw an increase in residents above and beyond what would normally be expected. Tax return data on new residents may give insights into the following:

- Income levels and types of income (wages, capital gains, retirement income)
- Which counties new residents moved to and moved within Montana
- New resident number of dependents
- In-migration patterns compared to previous years

C - Property Tax

Background

During the 2019-2020 Interim, the MARA committee conducted a study on property taxes (HB 715 from the 2019 Legislative Session). Listed below are several LFD resources and reports:

- Property Tax Overview https://montana.maps.arcgis.com/apps/MapSeries/index.html?appid=0b1dbc05e74f40afb7e842e4f51972fb
- January 2020 Property Tax Report https://leg.mt.gov/content/Publications/fiscal/2021-Interim/Jan-2020/Prop-Tax-Report.pdf
- April 2020 Property Taxes and Schools Report https://leg.mt.gov/content/Publications/fiscal/2021-Interim/March-2020/School-Property-Tax-Report.pdf
- June 2020 Property Taxes and Local Government Report https://leg.mt.gov/content/Publications/fiscal/2021-Interim/June-2020/Local-Government-Property-Tax-June-2020.pdf

During the 2019-2020 Interim, the Revenue Interim Committee (RIC) also conducted a study of property taxes (HJ 35 from the 2019 Legislative Session)

- State Property Tax Authority and Limits https://leg.mt.gov/content/Committees/Interim/2019-2020/Revenue/Meetings/May-2020/HJ-35/Property-Tax-Statutory-Authority.pdf
- Property Tax History https://leg.mt.gov/content/Committees/Interim/2019-2020/Revenue/Meetings/January-2020/property-tax-history.pdf

Available Data

A. Department of Revenue (DOR) property tax base files
B. Office of Public Instruction (OPI) expenditure, revenue, and budget files
C. Department of Administration (DofA) local government ledger (incomplete)
D. Cadastral land ownership data from the State Library (new to the LFD)

Future Analysis Options

- Organize and combine property tax data from the A – C sources listed above
- Fill in data gaps. For example:
    - A better understanding and list of property tax rates and exemptions
    - Work with DOR to understand how they deal with missing data in the local government ledger
    - Better local government detail
    - Tax Increment Financing districts (TIFs) data
- Create a master property tax model in order to answer questions in greater detail and to model proposed scenarios. This model would include:
    - State property taxes – for K-12 education, universities, and vo-tech colleges
    - School property taxes – both at the county-wide and school district level
    - Local government property taxes – for counties, cities, and special districts
    - Tax Increment Financing districts (TIFs)
- Learn how the cadastral data might improve property tax analysis

D - Local Government Analysis

Background:

For the January 16, 2020 Legislative Week, the legislative fiscal division (LFD) prepared a local government revenue and expenditure analysis using historic data provided through the United States Census Bureau (census data). The link to the report is found here:

https://leg.mt.gov/content/Publications/fiscal/2021-Interim/Jan-020/Trends_in_Local_Government_Finance-FINAL.pdf

With the use of census data, the LFD was able to produce a high-level trend analysis of the growth in local government finances. Yet, the local governments did not agree with the use of this data set. Then, the LFD started discussions with the local governments to determine alternatives to the use of census data. The local governments proposed the use of the local governments' accounting data. One example of such data was provided and assessed by the LFD, but there were difficulties with obtaining a full set of local government accounting data. The work on data alternatives was halted when COVID-19 occurred.

Current Status

At this point in the study, the LFD has determined that the most accessible alternative is the local governments' annual financial reports (AFR). This data set began in 2014, but there is not a single year when all incorporated local governments have reported in SABHRS. The AFR's, for incorporated cities and counties, would need to be input into a state accounting and budgeting system (SABHRS) database for any prior years.,

Future Analysis Options

The following list shows a potential progression of steps LFD analysts might take towards obtaining a full data set that can be modeled for trends in local government finances:

1. Work with the Local Government Services Division (LGSD) and local governments to obtain and input a full set of local government AFR data in SABHRS. A fully inclusive data set would allow the LFD to model growth in local government finances
2. Work with LGSD to begin the process of inputting data from special districts
   a. Financial data from special districts is not currently input into SABHRS and without the data a full analysis of local government finances is not possible
   b. A determination would be required ensuring that double counting does not occur between the special district data and the city/county data
   c. Inputting special district data may require accounting rule changes to provide consistent data across special districts
3. Work with LGSD to provide a more detail in the SABHRS data sets
   a. The current data set has high-level data and answering specific questions may not be possible
   b. A more detailed data set would allow the LFD to answer more legislative questions
   c. Inputting more detail into the AFR may require accounting rule changes and the work product would fall to local government entities

SECTION 2: PRESENT

HB 330 Review

(4)   Subject to direction provided by the committee, the study may include but is not limited to:

(a)   identifying structural revenue challenges with economic, demographic, and geographical variability considerations;

(b)   exploring revenue sufficiency and probable long-term expenditures by state and local government for services, including but not limited to:

> (i)   health care;
> (ii)   human services;
> (iii) elementary and secondary education;
> (iv)   higher education;
> (v)   pensions;
> (vi)   public safety and corrections;
> (vii) infrastructure and public works; and
> (viii) programs historically funded by revenue generated from natural resource taxes.

(c)   creating data sets and models for future analysis by the legislature; and

(d)   proposing potential solutions and possible legislation for consideration by the 2023 legislature.

Futurist Mindset

This is a brief article that discusses how to use data to think about the future.

https://er.educause.edu/articles/2019/3/five-principles-for-thinking-like-a-futurist

SECTION 3: DATA MODELING

What is Data Modeling?

Understanding data sets and setting up models is both a goal into itself in HB 330, and a central piece for much of the work and analysis this committee will be considering. The Fiscal Division's ability to data model expanded in the previous biennium. The options presented here are focused on continuing and improving upon this work as well as expanding into other areas of interest.

Steps and Advantages

1. Organize and clean data. (Speed)

2. Create relational models (Depth of Analysis)
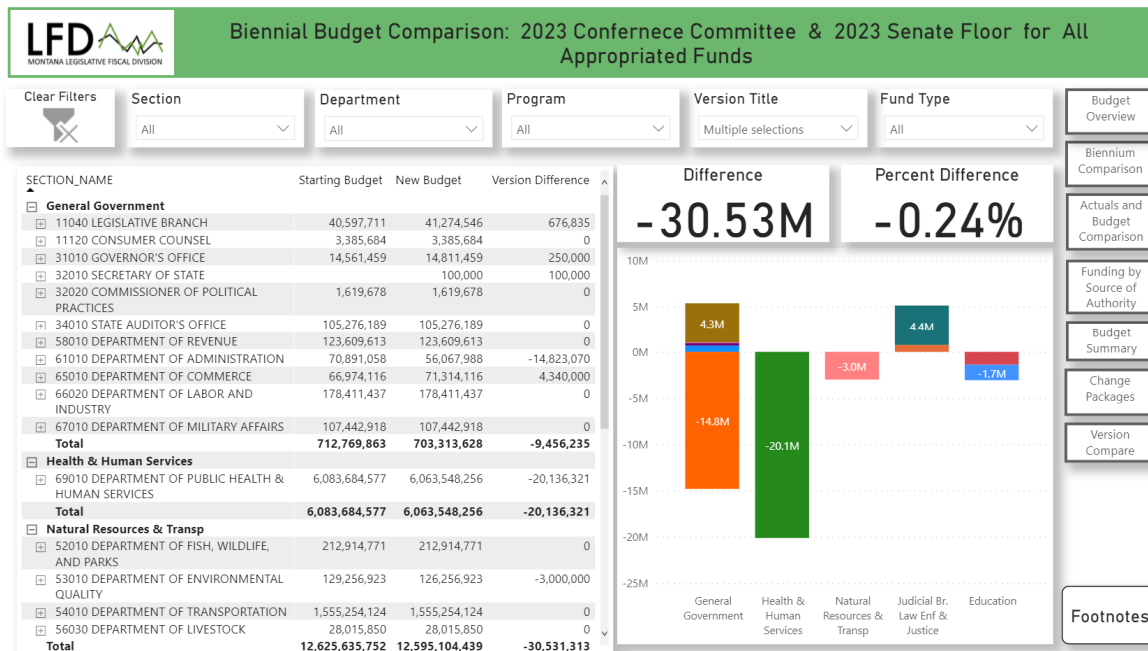
3. Publish interactive products (Communication)
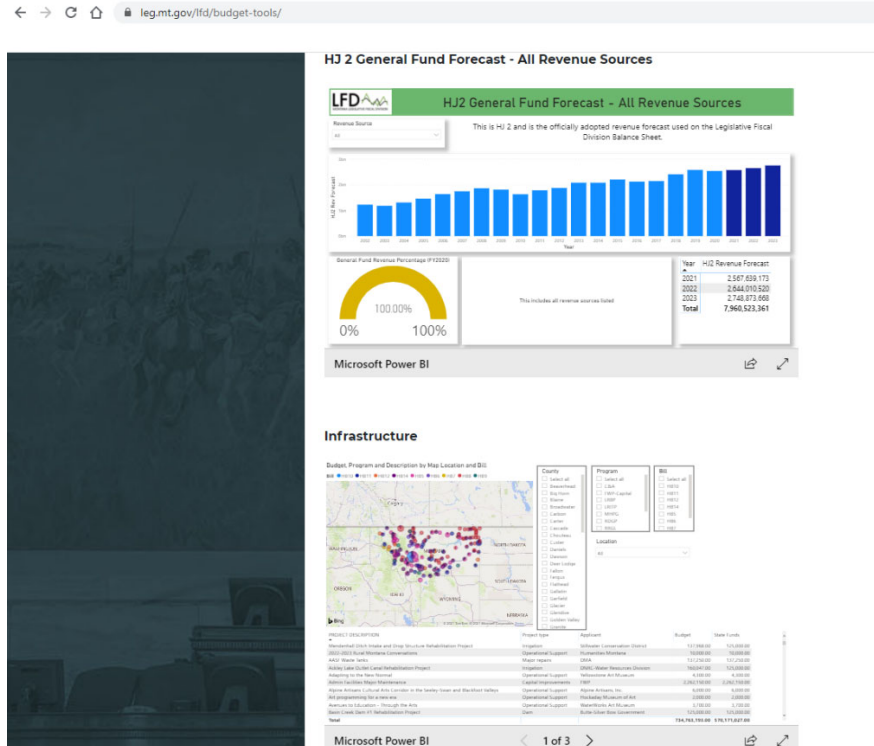
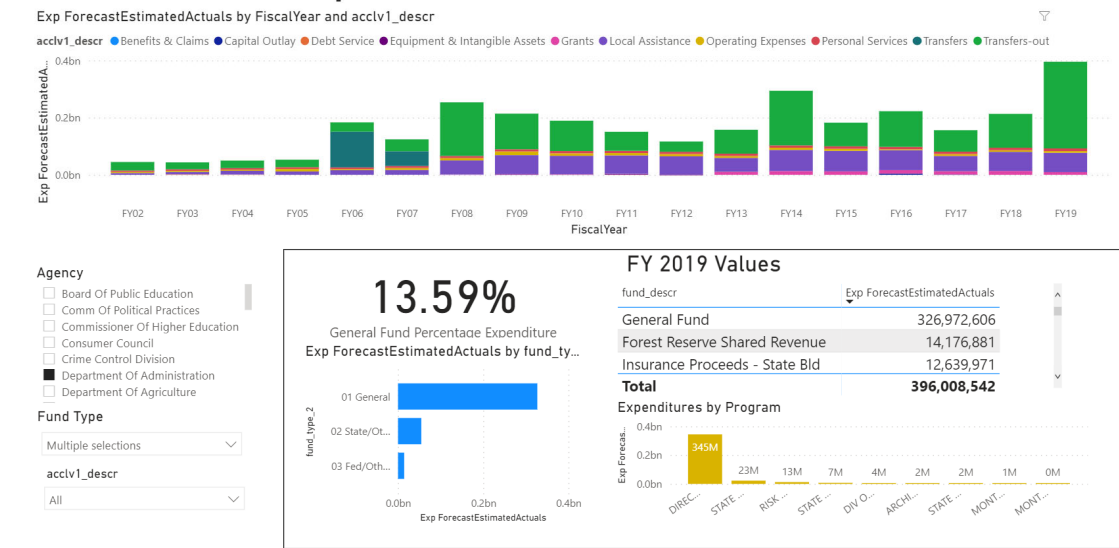## Current Projects

- Budgetary
  - IBARS based
  - Most recent example
  - Utilized during session

- Financials
  - SABHRS based
  - Primary MARA model from last session
  - Needs work to rebuild to be more effective at analysis and estimating

Department Of Administration

Exp ForecastEstimatedActuals by FiscalYear and acclv1_descr

acclv1_descr ● Benefits & Claims ● Capital Outlay ● Debt Service ● Equipment & Intangible Assets ● Grants ● Local Assistance ● Operating Expenses ● Personal Services ● Transfers ● Transfers-out

FY 2019 Values

13.59%
General Fund Percentage Expenditure
Exp ForecastEstimatedActuals by fund_ty...

fund_descr	Exp ForecastEstimatedActuals
General Fund	326,972,606
Forest Reserve Shared Revenue	14,176,881
Insurance Proceeds - State Bld	12,639,971
Total	**396,008,542**

Expenditures by Program

- Human Resources (HR)
  - SABHRS based
  - Starting point is DP1 work from last two sessions
  - This research does a deep dive into state agency human resource expenditures and serves as a tool for expenditure analysts to get a better understanding of state agencies' personal service expenditures. Additionally, this research can provide useful information to legislators including wage trends and agency vacancies.
  - Previous work: Models have been developed and used in the Legislative Fiscal Division's budget analysis and fiscal reports as well as to answer additional personal service questions. The table below is an example of what information this model produces.

	Personal Services Present Law			
	DP 1 - FY 2022			
Program	Expected Changes	Management Decisions	Budget Modification	DP 1 SWPL
Legislative Services	60,352	111,441	-	171,793
Legislative Committees & Activities	88,536	-	-	88,536
Fiscal Analysis & Review	13,243	80,110	-	93,353
Audit & Examination	81,484	202,107	-	283,591
Agency Total	$ 243,615	$ 393,658	$ -	$637,273

  - Information/data we have: SABHRS data includes details on each FTE position including job title, salary, benefits, and vacancy status. This data allows us to split personal service expenditure changes into more detailed categories including expected changes (changes approved by the legislature such as the pay plan or longevity increases), management decisions (wage changes approved by management of that department), and budget modifications (Operating plans and House Adjustments).
- Options: for additional analysis for legislative questions

# SECTION 4: ADDITIONAL RESEARCH OR DATA PROJECTS

Several ideas have been suggested for additional research by legislators and staff. More ideas are expected to be considered by MARA at the June 3 meeting.

E - E-commerce Sales

Background:

E-commerce sales have been steadily rising over the past 20 years and continue to make up a larger percentage of total retail sales in the United States. The U.S. Census Bureau tracks monthly and quarterly retail trade, as well as, retail e-commerce sales in the U.S.

The first graph to the right shows the e-commerce percentage of total retail sales. The second graph shows the year over year percentage change in total retail sales and total e-commerce sales.
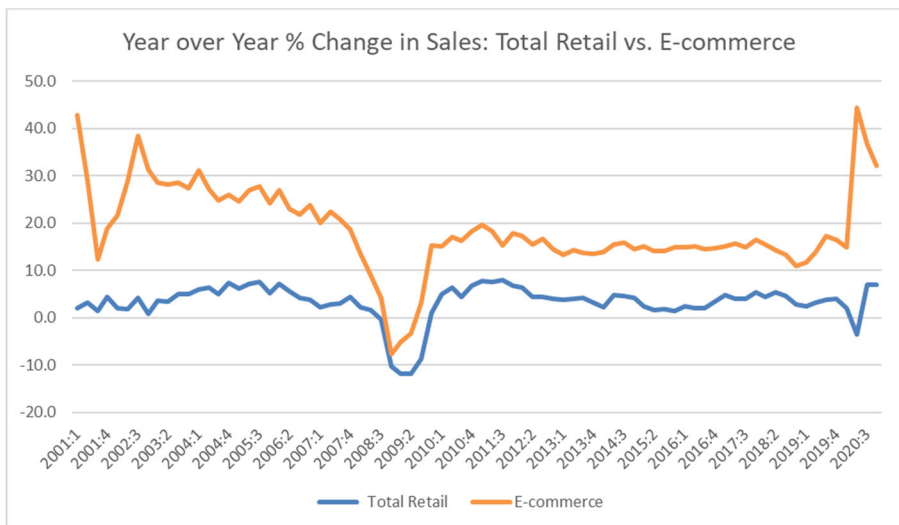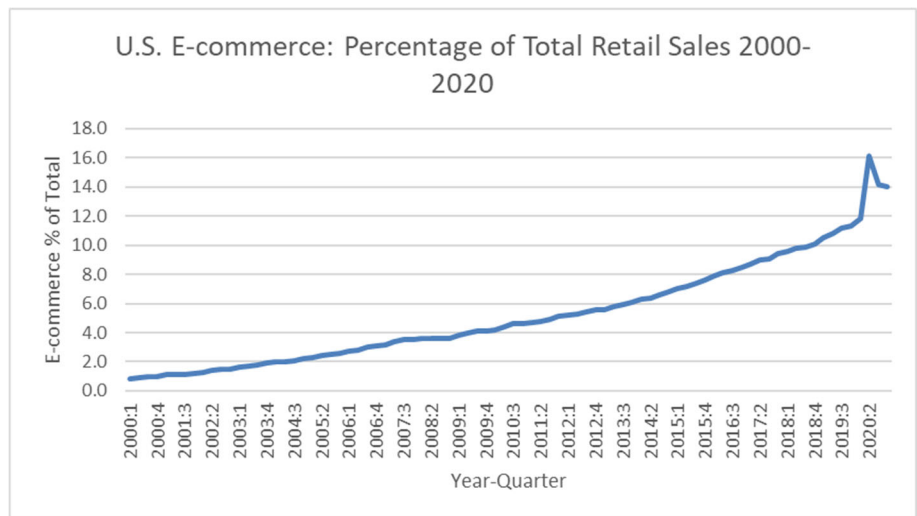
Data on e-commerce sales in Montana are currently unavailable, however, IHS has historical and forecast retail sales for Montana, so rough estimates for state level e-commerce sales can be made using Census and IHS data.

Future Analysis Options

- Search for further data sources on e-commerce. This could include e-commerce sales data at a state by state level or examination of Montana corporate income tax data.
- Research if and how other states have attempted to target e-commerce sales through tax policy changes, or if other research has been done elsewhere.

F - LABOR MODEL

Background:

This research will focus on the labor industry, which will include analysis on unemployment benefits, labor force participation, and wage trends for each industry in Montana. This model will build on the existing information that the Department of Labor provides to answer questions regarding Montana's economy and specific workforce questions as the state recovers from the Covid-19 pandemic. This model will be used to address questions on the impact of the unemployment benefit programs and the return-to-work bonus program.

What information/data do we have

1. Information Handling Services (IHS) Markit data
   a. Provides actuals and forecasting employment and wage data at the state-level
2. Bureau of Labor Statistics
   a. Quarterly, county-level Census Employment and Wages (QCEW) data
   b. Monthly, county-level workforce statistics including total labor force, total unemployed, and unemployment rates
3. U.S Department of Labor Employment and Training Administration Data
   a. Unemployment insurance data at the state level
4. Internal Revenue Service (IRS)
   a. Annual, county-level income tax data

Future Analysis Options

A. What influences did the pandemic have on wages?
B. What impact did the federal unemployment benefits have on labor?
C. What impact did the employment incentive have on labor?
   - What is the re-employment rate compared to other states?
   - Whether federal unemployment programs or a decreased labor force is driving employers to not find workers?

G - Future Economic Impact of Conservation Easements

Background

After discussions with a conservation easement appraiser and academic law professor staff learned that Montana was an early state for developing conservation easements. They have been completed in Montana since the 1970s. Many lands have traded in Montana with conservation easements established prior to the sale. Donations and sales of conservation easements have been and continue to be a mechanism for farms, ranches, and other lands to both get an immediate financial benefit and a long-term commitment to land management practices that provide for open space and conservation of land resources.

These experts indicated that nationally, there is significant concern with how conservations easements have been used primarily by syndication facilitators and hundreds of court cases regarding these syndicated easements are in process. The IRS has been aggressively challenging syndicated conservation easement donation transactions, which typically involve inflated appraised values for the easements. The experts do not feel that questionable practices like syndications are taking place in Montana and that Montana's laws are somewhat tighter which minimize the opportunity for abuse. The IRS has been challenging questionable conservation easement donations for decades but currently the agency is taking a special interest in the syndications, which are primarily in the southeast, due to the vast increase in their use and the billions of dollars involved.

Future Analysis Options

MARA could choose to research the past and current trends in conservation easements in Montana. Including but not limited to:

1) Understanding the economic, tax, and social underpinnings of why conservation easements (donated and purchased) are occurring.
2) Gathering change in ownership data to evaluate trends
3) Demonstrating to the committee the mapping of all conservation easements across the state over time (http://svc.mt.gov/msl/mtcadastral/)
4) Working with a Montana appraiser to develop an economic study of conservation easement data

Compendium of articles related to conservation easements.

Legislative Staff Items:
Topic Primer https://leg.mt.gov/content/Bills/Primers/Land%20Issues/Conservation%20easements.pdf
20 Things Everyone Should Know
https://leg.mt.gov/content/Publications/Environmental/2010easementsbrochure.pdf
HJ 57 Study https://webprod.legmt.gov/content/Publications/Environmental/2008trustland.pdf
2007 Audit Summary
https://leg.mt.gov/content/Committees/Interim/2007_2008/environmental_quality_council/staffmemos/auditsummary.pdf
Audit https://leg.mt.gov/content/Publications/Audit/Report/06P-01.pdf

Outside group Items
Brookings https://www.brookings.edu/blog/up-front/2017/12/20/estimating-the-rising-cost-of-a-surprising-tax-shelter-the-syndicated-conservation-easement/
Senate Committee on Finance https://www.finance.senate.gov/chairmans-news/finance-committee-releases-report-on-syndicated-conservation-easement-transactions
IRS https://www.irs.gov/statistics/soi-tax-stats-individual-noncash-charitable-contributions

H - Energy Data

Background

LFD uses and tracks energy data for both revenue forecasting and informational purposes. The following list breaks out the currently available public data by source.

Oil & Natural Gas:

- DNRC Board of Oil & Gas Conservation. Well production data, which is used in our revenue forecasting model.
- Baker Hughes North America Rotary Rig Count. https://bakerhughesrigcount.gcs-web.com/na-rig-count?c=79687&p=irol-reportsother
- EIA (Energy Information Administration) – Production and price information. https://www.eia.gov/petroleum/data.php
- MT Department of Revenue County Oil & Gas Distribution Reports – County and school district oil distributions. https://mtrevenue.gov/publications/oil-gas-distribution-reports/

Coal:

EIA Coal Data Browser. Production, price, labor force and consumption data. https://www.eia.gov/coal/data/browser/

Electric Energy (Hydro, Wind, Solar, Etc.): EIA Electricity Data Browser. Generation and consumption by source, prices. https://www.eia.gov/electricity/data/browser/

U.S. Mineral Royalties: Department of Interior Federal Revenue and Production Data. https://revenuedata.doi.gov/

IHS Markit: IHS provides forecasts for U.S. Oil, Natural Gas and Coal prices. These price forecasts are used in LFD revenue forecasting models.

Additional Data Sources:

- MT DEQ: provides a variety of workbooks with statistics on Natural Gas, Oil, Electricity and Coal in Montana.
- EIA: large amount of state and national level energy data in all sectors.
- BLM: Federal Oil and Gas Statistics. https://www.blm.gov/programs-energy-and-minerals-oil-and-gas-oil-and-gas-statistics

Future Analysis Options

- Gather and potentially compile data in Power BI database
- Possible comparison of Montana energy sectors to other states
- Continue looking for additional data sources and use the data to be able to provide useful research and analysis.

I - Criminal Justice and Public Safety Data

Background:

Most of the existing work performed by the legislative fiscal division (LFD) in criminal justice centered around the Department of Corrections populations model developed by a previous analyst but not maintained. The model needs to be reworked/recreated to include continuous data updates from the Department of Corrections "Quarterly Adult Daily Population (ADP) and Age worksheets". These data include adult census data for both males and females under the direction of the Department of Corrections (DOC) by facility (state prisons, contracted facilities, and jail holds).

The LFD does not have direct access to any data systems utilized by section D agencies, neither does the LAD. Corrections data is contained in the Operations Management Information Center (OMIS), and is assumed to include both adults and juvenile offenders. This system contains data on all persons under the direction of the DOC, including inmates and parolees. The LFD has not received direct information on parolees any time during the last two sessions.

HB 693, the section D companion bill, has several reporting requirements for The Office of the Public Defender (OPD) during the 2021 interim. These include both financial and non-financial information. OPD utilizes at least two different data systems, one for case management and another for billing. The last known system for case management was called Justware, according to LAD they may be using something newer. OPD uses the Customer Relations Management (CRM) system for contracting/billing.

The LFD has not tracked data, nor does it have access to data systems at the judicial branch (court loads, outcomes, drug courts, water courts, etc.). In addition, the LFD has not tracked data, nor does it have access to data systems at the Department of Justice. DOJ programs include the offender registry, sexual assault kits, human trafficking, Rx Drug Abuse, Montana Missing Indigenous Persons (MMIP) task force, and the Office of the Child and Family Ombudsman (OCFM) (responsible for protecting the rights of children and families).

Future Analysis Options

There is a limited amount of knowledge about criminal justice data systems in the Legislative Branch. This is evident by the passage of HJ 31 which requests an interim study of the collection and dissemination of criminal justice data in Montana. The Law and Justice Interim Committee (LJIC) staffer, Rachel Weiss, has expressed a willingness to include something in her study plan regarding using LFD analysts to help the LJIC understand what data and data formats would be needed to make modeling possible.

Section D Interim Budget Committee (IBC) - The LFD could work with the Section D IBC to better define what data may be helpful to the subcommittee in budget analysis.

The Criminal Justice Oversight legislation mentions that they may receive staff support from the LFD for data needs. The LFD will monitor the Criminal Justice Oversight Committee to determine if the LFD can be helpful to the mission of the committee.

Currently the ADP data provided by corrections is the only identified area in which LFD could immediately begin to conduct some form of modeled analysis.

J - Other DPHHS Data

Background

The Department of Health and Human Services has created a relatively new data warehouse called MPATH that the LFD has statutory access to as follows:

5-12-303. Fiscal analysis information from state agencies. ...
  (4) (a) The department of public health and human services shall provide the legislative fiscal analyst direct access to the department's secure data warehouse as the phases of the secure data warehouse project are implemented.
  (b) The department of public health and human services shall consult with the legislative fiscal analyst and shall establish user requirements to ensure the legislative fiscal analyst does not have access to direct identifiers stored on the secure data warehouse. The department of public health and human services shall consult with the legislative fiscal analyst and shall establish requirements to ensure the legislative fiscal analyst does not have access to direct identifiers stored in other data systems where the data is not available through the secure data warehouse after the phases of the secure data warehouse project are implemented.
  (c) The data must be made available to the legislative fiscal analyst in a format that complies with the regulations of the respective federal programs.
  (d) The department of public health and human services shall submit quarterly reports in an electronic format to the legislative finance committee and the children, families, health, and human services interim committee on the following:
  (i) the implementation of the phases of the secure data warehouse project;
  (ii) the user requirements established by the department and the legislative fiscal analyst; and
  (iii) the status of the legislative fiscal analyst's access to the secure data warehouse.
  ...

The MPATH data warehouse houses a variety of datasets related to Medicaid and other DPHHS programs. As this is a new and still-under-development system LFD analysts have not yet fully explored it and currently are not familiar with all of the datasets that are available in this data warehouse.

Future Analysis Options

- Gain understanding of the data available in the warehouse at present
- Determine the data that will become available in the data warehouse as the MPATH project proceeds
- Determine what data is most valuable to legislative understanding and analysis and secure access to such
- Use the data to answer legislative questions such as:
    - Trends in child welfare victimization and foster care placement rates
    - Medicaid enrollment and expenditure patterns
    - Medicaid waiver waitlist trend

K - LFD Medicaid Model

The LFD Medicaid model uses monthly Medicaid claims data, going back to 2004, to predict traditional Medicaid expenditures over future years. It is used during the budget analysis and session process as a comparison point for DPHHS Medicaid caseload adjustments and resulting budget requests.

Background

- LFD Medicaid model built in ~2014
- Model is maintained and analyzed in the "R" statistics software package
- The model analyzes monthly Medicaid paid claims by provider type (PT)
- About 25% of Medicaid expenditures are not collected in monthly paid claims data; in that case LFD uses DPHHS estimates
- Only covers the traditional Medicaid population, not Medicaid expansion/HELP Act
- ARIMA (autoregressive integrated moving average) model is very sensitive to recent changes in claims: can require manual adjustment in the case of policy changes
- The model predicts total expenditures; LFD analysts manually calculate the funding by fund type

Future Analysis Options

- Parallel model to estimate Medicaid expansion/HELP Act population
- Develop a predictive model for the 25% of Medicaid expenditures are not collected in monthly paid claims data
- Potentially shift away from using "R" to Microsoft Power BI
- Expand predictive variables beyond claims paid history
- Adapt to changing DPHHS reporting format as the MPATH project proceeds