



THE RESEARCH CENTER

ECONOMIC IMPACT OF DISRUPTION TO ALL SECTORS FOR THE STATE OF TENNESSEE, THE NASHVILLE MSA AND THE CLARKSVILLE MSA


Based on unemployment claims information provided by sector from the State of Tennessee Department of Labor and Workforce Development which had over 328,000 unemployment claims for the six-week period beginning March 1, 2020 through April 11, 2020.

REMI is a dynamic modeling software which will allow us to see this impact over time. We are able to look at loss in revenue in part or whole, loss of employment in part or whole, and loss of output in part or whole as well as other intermediate inputs to determine a wholistic picture of the impact to the economy in terms of each data point's effect on employment, output, GDP, and personal income directly, indirectly (value chain) and in terms of induced (pertaining to resulting gain or loss of income) effect. Utilizing directly sourced data from the state to feed into the model gives us the most precise estimations of impact.

MAY 1 RESTART DATE

The Nashville Area Chamber of Commerce Research Center's Economic Impact Model creates projected unemployment impacts with a **restart date of May 1, 2020** with staggered and incremental industry growth estimations for each of the following sectors:

- Leisure and hospitality employment
- Health care and social assistance
- Professional and business services
- Retail trade
- Construction
- Mining
- Manufacturing
- Other Services
- Public Admin

Category	Units	All Regions 	Nashville MSA 	Clarksville MSA 	Rest of Tennessee 
Total Employment	Individuals (Jobs)	-64093	-24738	-1697	-37658
Private Non-Farm Employment	Individuals (Jobs)	-61828	-24000	-1622	-36206
Residence Adjusted Employment	Individuals	-61962	-24038	-1723	-36201
Population	Individuals	-19274	-7739	-601	-10934
Labor Force	Individuals	-17516	-6379	-548	-10589
Gross Domestic Product	Millions of Fixed (2012) Dollars	-4971	-2091	-120	-2759
Output	Millions of Fixed (2012) Dollars	-9120	-3753	-231	-5136
Value-Added	Millions of Fixed (2012) Dollars	-4971	-2091	-120	-2759
Personal Income	Millions of Current Dollars	-3434	-1606	-75	-1752
Disposable Personal Income	Millions of Current Dollars	-3073	-1451	-67	-1556

ECONOMIC IMPACT OF DISRUPTION TO THE STATE OF TENNESSEE

MAY 1 RESTART DATE

Year 1 (2020) for State of Tennessee

- Net loss of 64,093 jobs (equals 2%) of the labor force) – pushes annual unemployment level to 5.4% from peaks of 9.7% - 10.3%. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.
- Loss of \$5 Billion (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$9.1 Billion (2012 \$) of output.
- Loss of \$3.4 Billion in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).
- Loss of \$3.1 Billion in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).
- With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q2/Q3 2022.

Category	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Employment	Thousands (Jobs)	-64.093	-8.869	-1.998	-0.315	+0.615	+0.978	+1.004	+0.846	+0.606	+0.355	+0.126
Private Non-Farm Employment	Thousands (Jobs)	-61.828	-7.529	-1.222	+0.142	+0.883	+1.137	+1.104	+0.915	+0.663	+0.408	+0.181
Residence Adjusted Employment	Thousands	-61.962	-8.393	-2.043	-0.475	+0.406	+0.760	+0.799	+0.665	+0.454	+0.230	+0.027
Labor Force	Thousands	-17.516	-12.238	-8.469	-5.753	-3.843	-2.528	-1.649	-1.090	-0.748	-0.557	-0.461
Gross Domestic Product	Billions of Fixed (2012) \$	-4.971	-0.682	-0.172	-0.029	+0.053	+0.087	+0.090	+0.077	+0.056	+0.033	+0.011
Output	Billions of Fixed (2012) \$	-9.120	-1.179	-0.259	-0.026	+0.106	+0.159	+0.162	+0.138	+0.100	+0.060	+0.023
Value-Added	Billions of Fixed (2012) \$	-4.971	-0.682	-0.172	-0.029	+0.053	+0.087	+0.090	+0.077	+0.056	+0.033	+0.011
Personal Income	Billions of Current \$	-3.434	-0.791	-0.381	-0.214	-0.103	-0.039	-0.009	-0.001	-0.007	-0.021	-0.038
Disposable Personal Income	Billions of Current \$	-3.073	-0.715	-0.350	-0.200	-0.101	-0.044	-0.017	-0.009	-0.015	-0.027	-0.041

ECONOMIC IMPACT OF DISRUPTION TO THE NASHVILLE MSA MAY 1 RESTART DATE

Year 1 (2020) for Nashville MSA

- Net loss of 24,738 jobs (equals 2.4%) of the labor force) – pushes annual unemployment level to 5.0% from peaks of 9.8% - 12%. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.
- Loss of \$2.1 Billion (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$3.8 Billion (2012 \$) of output.
- Loss of \$1.6 Billion in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).
- Loss of \$1.5 Billion in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).
- With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q4 2021/Q1 2022.

Category	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Employment	Thousands (Jobs)	-24.738	-3.544	-0.883	-0.096	+0.351	+0.530	+0.545	+0.467	+0.345	+0.215	+0.096
Private Non-Farm Employment	Thousands (Jobs)	-24.000	-3.085	-0.607	+0.069	+0.445	+0.582	+0.572	+0.482	+0.355	+0.224	+0.107
Residence Adjusted Employment	Thousands	-24.038	-3.380	-0.863	-0.118	+0.308	+0.479	+0.495	+0.423	+0.309	+0.188	+0.077
Labor Force	Thousands	-6.379	-4.618	-3.284	-2.262	-1.514	-0.982	-0.619	-0.385	-0.236	-0.154	-0.115
Gross Domestic Product	Billions of Fixed (2012) \$	-2.091	-0.317	-0.094	-0.016	+0.031	+0.051	+0.054	+0.048	+0.036	+0.023	+0.010
Output	Billions of Fixed (2012) \$	-3.753	-0.541	-0.146	-0.018	+0.057	+0.090	+0.094	+0.082	+0.062	+0.039	+0.018
Value-Added	Billions of Fixed (2012) \$	-2.091	-0.317	-0.094	-0.016	+0.031	+0.051	+0.054	+0.048	+0.036	+0.023	+0.010
Personal Income	Billions of Current \$	-1.606	-0.375	-0.175	-0.086	-0.026	+0.009	+0.025	+0.029	+0.024	+0.014	+0.003
Disposable Personal Income	Billions of Current \$	-1.451	-0.341	-0.162	-0.081	-0.026	+0.005	+0.020	+0.023	+0.018	+0.010	+0.001

ECONOMIC IMPACT OF DISRUPTION TO THE CLARKSVILLE MSA MAY 1 RESTART DATE

Year 1 (2020) for Clarksville MSA





- Net loss of 1,697 jobs (equals 1.4%) of the labor force) – pushes annual unemployment level to 5.6% from peaks of from the labor force. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.
- Loss of \$2.1 Billion (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$3.8 Billion (2012 \$) of output.
- Loss of \$1.6 Billion in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).
- Loss of \$1.5 Billion in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).
- With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q4 2021/Q1 2022.
- Static employment activity lasting for 8 weeks for the manufacturing sector, with staggered returns for other sectors not exceeding 6 months (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q2/Q3 2021.

Category	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Employment	Thousands (Jobs)	-1.697	-0.249	-0.064	-0.029	-0.009	+0.001	+0.004	+0.004	+0.001	-0.002	-0.005
Private Non-Farm Employment	Thousands (Jobs)	-1.622	-0.204	-0.037	-0.013	+0.002	+0.008	+0.009	+0.008	+0.005	+0.001	-0.002
Residence Adjusted Employment	Thousands	-1.723	-0.262	-0.068	-0.030	-0.008	+0.002	+0.006	+0.005	+0.002	-0.002	-0.005
Labor Force	Thousands	-0.548	-0.391	-0.270	-0.188	-0.132	-0.093	-0.066	-0.048	-0.037	-0.030	-0.026
Gross Domestic Product	Billions of Fixed (2012) \$	-0.120	-0.018	-0.005	-0.003	-0.001	0.000	+0.000	+0.000	+0.000	0.000	0.000
Output	Billions of Fixed (2012) \$	-0.231	-0.032	-0.009	-0.004	-0.001	+0.000	+0.001	+0.001	+0.000	0.000	-0.001
Value-Added	Billions of Fixed (2012) \$	-0.120	-0.018	-0.005	-0.003	-0.001	0.000	+0.000	+0.000	+0.000	0.000	0.000
Personal Income	Billions of Current \$	-0.075	-0.022	-0.012	-0.008	-0.006	-0.004	-0.003	-0.003	-0.003	-0.003	-0.003
Disposable Personal Income	Billions of Current \$	-0.067	-0.019	-0.011	-0.007	-0.005	-0.004	-0.003	-0.003	-0.003	-0.003	-0.003

MAY 15 RESTART DATE

The Nashville Area Chamber of Commerce Research Center's Economic Impact Model creates projected unemployment impacts with a **restart date of May 15, 2020** with staggered and incremental industry growth estimations for each of the following sectors:

- Leisure and hospitality employment
- Health care and social assistance
- Professional and business services
- Retail trade
- Construction
- Mining
- Manufacturing
- Other Services
- Public Admin

Category	Units	All Regions 	Nashville MSA 	Clarksville MSA 	Rest of Tennessee 
Total Employment	Individuals (Jobs)	-70601	-27264	-1859	-41478
Private Non-Farm Employment	Individuals (Jobs)	-68093	-26447	-1776	-39870
Residence Adjusted Employment	Individuals	-68254	-26492	-1888	-39874
Population	Individuals	-21237	-8521	-659	-12056
Labor Force	Individuals	-19315	-7044	-601	-11669
Gross Domestic Product	Millions of Fixed (2012) Dollars	-5512	-2319	-133	-3060
Output	Millions of Fixed (2012) Dollars	-10131	-4169	-255	-5707
Value-Added	Millions of Fixed (2012) Dollars	-5512	-2319	-133	-3060
Personal Income	Millions of Current Dollars	-3805	-1779	-83	-1943
Disposable Personal Income	Millions of Current Dollars	-3406	-1607	-74	-1725

ECONOMIC IMPACT OF DISRUPTION TO THE STATE OF TENNESSEE

MAY 15 RESTART DATE

Year 1 (2020) for State of Tennessee

- Net loss of 70,601 jobs (equals 2.2%) of the labor force) – pushes annual unemployment level to 5.6% from peaks of 9.7% - 10.3%. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.
- Loss of \$5.5 Billion (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$10.1 Billion (2012 \$) of output.
- Loss of \$3.8 Billion in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).
- Loss of \$3.4 Billion in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).
- With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q2/Q3 2022.

Category	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Employment	Thousands (Jobs)	-70.601	-9.827	-2.21	-0.345	0.685	1.086	1.114	0.938	0.673	0.394	0.141
Private Non-Farm Employment	Thousands (Jobs)	-68.093	-8.343	-1.351	0.161	0.981	1.262	1.224	1.015	0.735	0.453	0.201
Residence Adjusted Employment	Thousands	-68.254	-9.298	-2.259	-0.522	0.454	0.845	0.888	0.739	0.505	0.257	0.031
Labor Force	Thousands	-19.315	-13.5	-9.341	-6.345	-4.238	-2.787	-1.816	-1.2	-0.824	-0.613	-0.507
Gross Domestic Product	Billions of Fixed (2012) \$	-5.512	-0.755	-0.19	-0.032	0.059	0.096	0.1	0.086	0.062	0.036	0.012
Output	Billions of Fixed (2012) \$	-10.131	-1.306	-0.286	-0.027	0.119	0.177	0.18	0.153	0.111	0.067	0.026
Value-Added	Billions of Fixed (2012) \$	-5.512	-0.755	-0.19	-0.032	0.059	0.096	0.1	0.086	0.062	0.036	0.012
Personal Income	Billions of Current \$	-3.805	-0.875	-0.421	-0.236	-0.114	-0.043	-0.01	-0.001	-0.008	-0.023	-0.042
Disposable Personal Income	Billions of Current \$	-3.406	-0.791	-0.386	-0.221	-0.111	-0.048	-0.018	-0.01	-0.016	-0.029	-0.045

ECONOMIC IMPACT OF DISRUPTION TO THE NASHVILLE MSA MAY 15 RESTART DATE

Year 1 (2020) for Nashville MSA

- Net loss of 27,264 jobs (equals 2.6%) of the labor force) – pushes annual unemployment level to 5.2% from peaks of 9.8% - 12%. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.
- Loss of \$2.3 Billion (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$4.2 Billion (2012 \$) of output.
- Loss of \$1.8 Billion in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).
- Loss of \$1.6 Billion in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).
- With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q4 2021/Q1 2022.

Category	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Employment	Thousands (Jobs)	-27.264	-3.924	-0.975	-0.104	+0.391	+0.589	+0.605	+0.518	+0.383	+0.239	+0.107
Private Non-Farm Employment	Thousands (Jobs)	-26.447	-3.417	-0.670	+0.078	+0.495	+0.646	+0.635	+0.534	+0.393	+0.249	+0.119
Residence Adjusted Employment	Thousands	-26.492	-3.742	-0.952	-0.128	+0.343	+0.533	+0.550	+0.469	+0.343	+0.209	+0.086
Labor Force	Thousands	-7.044	-5.095	-3.620	-2.493	-1.668	-1.081	-0.680	-0.423	-0.259	-0.168	-0.125
Gross Domestic Product	Billions of Fixed (2012) \$	-2.319	-0.351	-0.104	-0.017	+0.034	+0.057	+0.060	+0.053	+0.040	+0.025	+0.011
Output	Billions of Fixed (2012) \$	-4.169	-0.599	-0.162	-0.019	+0.064	+0.100	+0.104	+0.091	+0.068	+0.044	+0.020
Value-Added	Billions of Fixed (2012) \$	-2.319	-0.351	-0.104	-0.017	+0.034	+0.057	+0.060	+0.053	+0.040	+0.025	+0.011
Personal Income	Billions of Current \$	-1.779	-0.414	-0.194	-0.095	-0.028	+0.010	+0.028	+0.032	+0.026	+0.016	+0.004
Disposable Personal Income	Billions of Current \$	-1.607	-0.377	-0.178	-0.089	-0.029	+0.006	+0.022	+0.025	+0.021	+0.012	+0.001

ECONOMIC IMPACT OF DISRUPTION TO THE CLARKSVILLE MSA MAY 15 RESTART DATE

Year 1 (2020) for Clarksville MSA




- Net loss of 1,859 jobs (equals 1.6%) of the labor force) – pushes annual unemployment level to 5.8%. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.
- Loss of \$133Million (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$255 Million (2012 \$) of output.
- Loss of \$83 Million in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).
- Loss of \$74 Million in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).
- With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q3/Q4 2021

Category	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Employment	Thousands (Jobs)	-1.859	-0.276	-0.071	-0.032	-0.010	+0.001	+0.005	+0.004	+0.001	-0.002	-0.005
Private Non-Farm Employment	Thousands (Jobs)	-1.776	-0.226	-0.041	-0.014	+0.002	+0.009	+0.010	+0.009	+0.005	+0.002	-0.002
Residence Adjusted Employment	Thousands	-1.888	-0.290	-0.075	-0.033	-0.009	+0.003	+0.006	+0.005	+0.002	-0.002	-0.006
Labor Force	Thousands	-0.601	-0.430	-0.297	-0.207	-0.145	-0.102	-0.073	-0.053	-0.041	-0.033	-0.028
Gross Domestic Product	Billions of Fixed (2012) \$	-0.133	-0.020	-0.006	-0.003	-0.001	0.000	+0.000	+0.000	+0.000	0.000	0.000
Output	Billions of Fixed (2012) \$	-0.255	-0.035	-0.009	-0.004	-0.001	+0.000	+0.001	+0.001	+0.000	0.000	-0.001
Value-Added	Billions of Fixed (2012) \$	-0.133	-0.020	-0.006	-0.003	-0.001	0.000	+0.000	+0.000	+0.000	0.000	0.000
Personal Income	Billions of Current \$	-0.083	-0.024	-0.013	-0.009	-0.006	-0.004	-0.003	-0.003	-0.003	-0.003	-0.003
Disposable Personal Income	Billions of Current \$	-0.074	-0.021	-0.012	-0.008	-0.006	-0.004	-0.003	-0.003	-0.003	-0.003	-0.003

JUNE 1 RESTART DATE

The Nashville Area Chamber of Commerce Research Center's Economic Impact Model creates projected unemployment impacts with a **restart date of June 1, 2020** with staggered and incremental industry growth estimations for each of the following sectors:

- Leisure and hospitality employment
- Health care and social assistance
- Professional and business services
- Retail trade
- Construction
- Mining
- Manufacturing
- Other Services
- Public Admin

Category	Units	All Regions 	Nashville MSA 	Clarksville MSA 	Rest of Tennessee 
Total Employment	Individuals (Jobs)	-71767	-27731	-1887	-42149
Private Non-Farm Employment	Individuals (Jobs)	-69212	-26899	-1802	-40511
Residence Adjusted Employment	Individuals	-69381	-26946	-1916	-40519
Population	Individuals	-21589	-8666	-670	-12253
Labor Force	Individuals	-19637	-7168	-611	-11859
Gross Domestic Product	Millions of Fixed (2012) Dollars	-5618	-2365	-135	-3118
Output	Millions of Fixed (2012) Dollars	-10349	-4260	-261	-5828
Value-Added	Millions of Fixed (2012) Dollars	-5618	-2365	-135	-3118
Personal Income	Millions of Current Dollars	-3877	-1813	-85	-1979
Disposable Personal Income	Millions of Current Dollars	-3470	-1638	-75	-1756

ECONOMIC IMPACT OF DISRUPTION TO THE STATE OF TENNESSEE

JUNE 1 RESTART DATE

Year 1 (2020) for State of Tennessee

- Net loss of 71,767 jobs (equals 2.2%) of the labor force) – pushes annual unemployment level to 5.6% from peaks of 9.7% - 10.3%. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.
- Loss of \$5.6 Billion (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$10.3 Billion (2012 \$) of output.
- Loss of \$3.9 Billion in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).
- Loss of \$3.5 Billion in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).
- With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q2/Q3 2022.

Category	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Employment	Thousands (Jobs)	-71.767	-9.886	-2.244	-0.346	+0.699	+1.107	+1.134	+0.955	+0.685	+0.401	+0.143
Private Non-Farm Employment	Thousands (Jobs)	-69.212	-8.379	-1.372	+0.167	+1.000	+1.285	+1.246	+1.032	+0.748	+0.461	+0.204
Residence Adjusted Employment	Thousands	-69.381	-9.352	-2.294	-0.527	+0.465	+0.861	+0.904	+0.752	+0.514	+0.261	+0.032
Labor Force	Thousands	-19.637	-13.695	-9.479	-6.438	-4.300	-2.827	-1.842	-1.216	-0.835	-0.621	-0.514
Gross Domestic Product	Billions of Fixed (2012) \$	-5.618	-0.760	-0.193	-0.032	+0.060	+0.098	+0.102	+0.087	+0.063	+0.037	+0.012
Output	Billions of Fixed (2012) \$	-10.349	-1.314	-0.290	-0.027	+0.121	+0.180	+0.183	+0.156	+0.113	+0.068	+0.026
Value-Added	Billions of Fixed (2012) \$	-5.618	-0.760	-0.193	-0.032	+0.060	+0.098	+0.102	+0.087	+0.063	+0.037	+0.012
Personal Income	Billions of Current \$	-3.877	-0.884	-0.427	-0.240	-0.115	-0.043	-0.009	0.000	-0.008	-0.023	-0.042
Disposable Personal Income	Billions of Current \$	-3.470	-0.799	-0.392	-0.224	-0.112	-0.048	-0.018	-0.010	-0.016	-0.029	-0.046

ECONOMIC IMPACT OF DISRUPTION TO THE NASHVILLE MSA

JUNE 1 RESTART DATE

Year 1 (2020) for Nashville MSA

- Net loss of 27,731 jobs (equals 2.7%) of the labor force) – pushes annual unemployment level to 5.3% from peaks of 9.8% - 12%. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.
- Loss of \$2.4 Billion (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$4.3 Billion (2012 \$) of output.
- Loss of \$1.8 Billion in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).
- Loss of \$1.6 Billion in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).
- With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q2 2022.

Category	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Employment	Thousands (Jobs)	-27.731	-3.949	-0.990	-0.103	+0.399	+0.600	+0.616	+0.527	+0.390	+0.243	+0.109
Private Non-Farm Employment	Thousands (Jobs)	-26.899	-3.434	-0.680	+0.081	+0.505	+0.657	+0.646	+0.543	+0.400	+0.253	+0.121
Residence Adjusted Employment	Thousands	-26.946	-3.766	-0.967	-0.128	+0.350	+0.543	+0.560	+0.478	+0.349	+0.212	+0.088
Labor Force	Thousands	-7.168	-5.172	-3.675	-2.531	-1.692	-1.097	-0.690	-0.428	-0.263	-0.170	-0.127
Gross Domestic Product	Billions of Fixed (2012) \$	-2.365	-0.353	-0.105	-0.017	+0.035	+0.058	+0.061	+0.054	+0.041	+0.026	+0.012
Output	Billions of Fixed (2012) \$	-4.260	-0.604	-0.164	-0.019	+0.065	+0.101	+0.106	+0.093	+0.070	+0.044	+0.021
Value-Added	Billions of Fixed (2012) \$	-2.365	-0.353	-0.105	-0.017	+0.035	+0.058	+0.061	+0.054	+0.041	+0.026	+0.012
Personal Income	Billions of Current \$	-1.813	-0.419	-0.197	-0.096	-0.028	+0.010	+0.029	+0.032	+0.027	+0.016	+0.004
Disposable Personal Income	Billions of Current \$	-1.638	-0.381	-0.181	-0.090	-0.029	+0.006	+0.022	+0.026	+0.021	+0.012	+0.001

ECONOMIC IMPACT OF DISRUPTION TO THE CLARKSVILLE MSA

JUNE 1 RESTART DATE

Year 1 (2020) for Clarksville MSA

- Net loss of 1,887 jobs (equals 1.6%) of the labor force) – pushes annual unemployment level to 5.8%. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.
- Loss of \$135 Million (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$261 Million (2012 \$) of output.
- Loss of \$85 Million in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).
- Loss of \$75 Million in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).
- With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q4 2021/ Q1 2022

Category	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Employment	Thousands (Jobs)	-1.887	-0.278	-0.072	-0.033	-0.010	+0.001	+0.005	+0.004	+0.002	-0.002	-0.005
Private Non-Farm Employment	Thousands (Jobs)	-1.802	-0.227	-0.042	-0.014	+0.002	+0.009	+0.011	+0.009	+0.005	+0.002	-0.002
Residence Adjusted Employment	Thousands	-1.916	-0.292	-0.076	-0.034	-0.009	+0.003	+0.007	+0.006	+0.002	-0.002	-0.006
Labor Force	Thousands	-0.611	-0.436	-0.301	-0.210	-0.147	-0.103	-0.074	-0.054	-0.041	-0.034	-0.029
Gross Domestic Product	Billions of Fixed (2012) \$	-0.135	-0.020	-0.006	-0.003	-0.001	0.000	+0.000	+0.000	+0.000	0.000	0.000
Output	Billions of Fixed (2012) \$	-0.261	-0.035	-0.010	-0.004	-0.001	+0.000	+0.001	+0.001	+0.000	0.000	-0.001
Value-Added	Billions of Fixed (2012) \$	-0.135	-0.020	-0.006	-0.003	-0.001	0.000	+0.000	+0.000	+0.000	0.000	0.000
Personal Income	Billions of Current \$	-0.085	-0.024	-0.013	-0.009	-0.006	-0.004	-0.003	-0.003	-0.003	-0.003	-0.003
Disposable Personal Income	Billions of Current \$	-0.075	-0.022	-0.012	-0.008	-0.006	-0.004	-0.003	-0.003	-0.003	-0.003	-0.003

**Rupa DeLoach,
Nashville Area Chamber of
Commerce**

OVERVIEW OF THE
ECONOMIC IMPACT OF
COVID-19

April 23, 2020
Presentation by Rupa DeLoach
VP of The Research Center
Nashville Area Chamber of Commerce

WHERE WE STARTED



The “Everything Bubble”: high asset prices in almost every asset class – stocks, bonds, real estate



Record low unemployment



A consumption – led economy (access to credit; the “wealth” effect; strong job market)



Relative weakness in investment – business investment, public investment (infrastructure)

COVID-19 EFFECT

Significant health impacts

- 2.7M+ confirmed cases worldwide; 185K deaths; **366K recovered**
- 849K cases in US; 47.7K deaths; **84.1K recovered**
- 7,842 cases in Tennessee; 166 deaths; **3,828 recovered**

Sudden stop recession, policy response

- 3/26 UI report: 3.3 million seasonally adjusted claims
- February TN claims report 32K
- Both supply and demand-side impacts
- Fed intervenes aggressively (cuts FF rate to 0%, expands balance sheet)

Stimulus package

- Cash assistance to individuals
- UI expansion
- Aid for businesses

What business leaders should look for in coming weeks

There are three questions business leaders are asking, and a small number of indicators that can give clues

Depth of disruption



How deep are the demand reductions?

Indicators to monitor

- Time to implement social distancing after community transmission confirmed
- Number of cases – absolute (expect surge as testing expands)
- Geographic distribution of cases relative to economic contribution

Cuts in spending on durable goods (e.g., cars, appliances)

- Extent of behavior shift (e.g., restaurant spend, gym activity)
- Extent of travel reduction (% flight cancellations, travel bans)

Length of disruption



How long could the disruption last?

Indicators to monitor

- Rate of change of cases
- Evidence of virus seasonality
- Test count per million people
- % of cases treated at home
- % utilization of hospital beds (overstretched system recovers slower)
- Availability of therapies
- Case fatality ratio vs. other countries

Late payments/credit defaults

- Stock market & volatility indexes
- Purchasing managers index
- Initial claims for unemployment

Shape of recovery



What shape could recovery take?

Indicators to monitor

- Effective integration of public health measures with economic activity (e.g. rapid testing as pre-requisite for flying)
- Potential for different disease characteristics over time (e.g. mutation, reinfection)

Bounce-back in economic activity in countries that were exposed early in pandemic

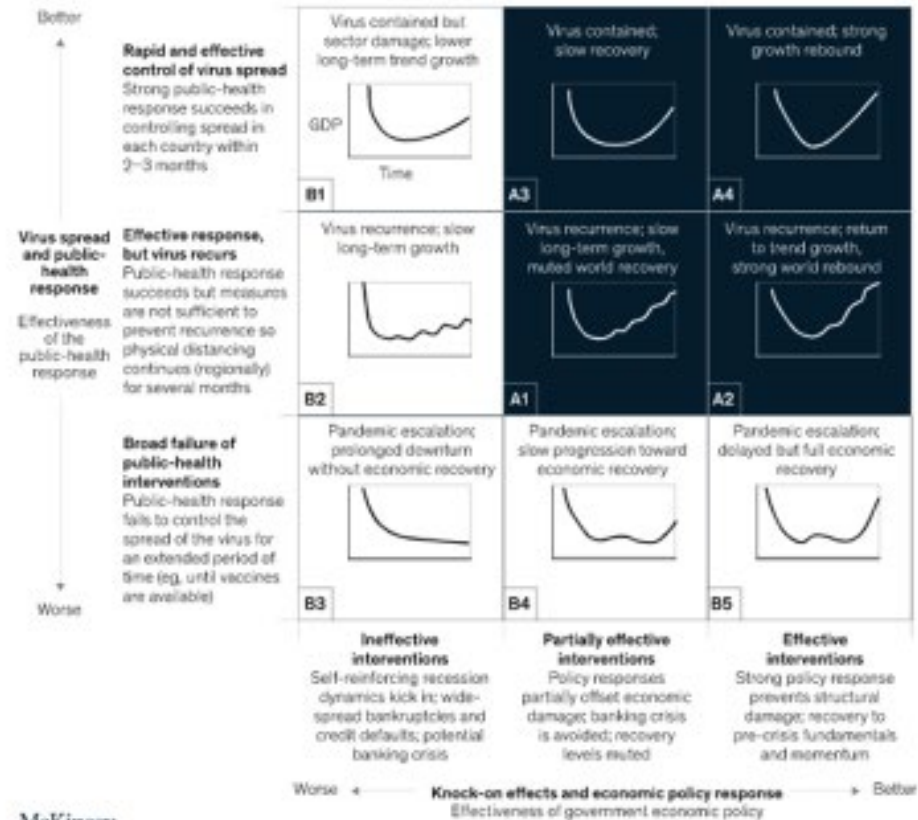
- Early private and public sector actions during the pandemic to ensure economic restart

Epidemiological indicator

Economic indicator

Scenarios for the economic impact of the COVID-19 crisis.

GDP impact of COVID-19 spread, public-health response, and economic policies



McKinsey & Company

GROSS REGIONAL PRODUCT

Nashville GDP (regional)

- **\$132.2B (2018)**
- **6.1% Annual Growth Rate**
- **2.1% U.S. Average**
- **#34 out of 384 U.S. Metros**

Source: U.S. Bureau of Economic Analysis, September 2018



ECONOMIC MODELING – State of Tennessee – May 1 Restart

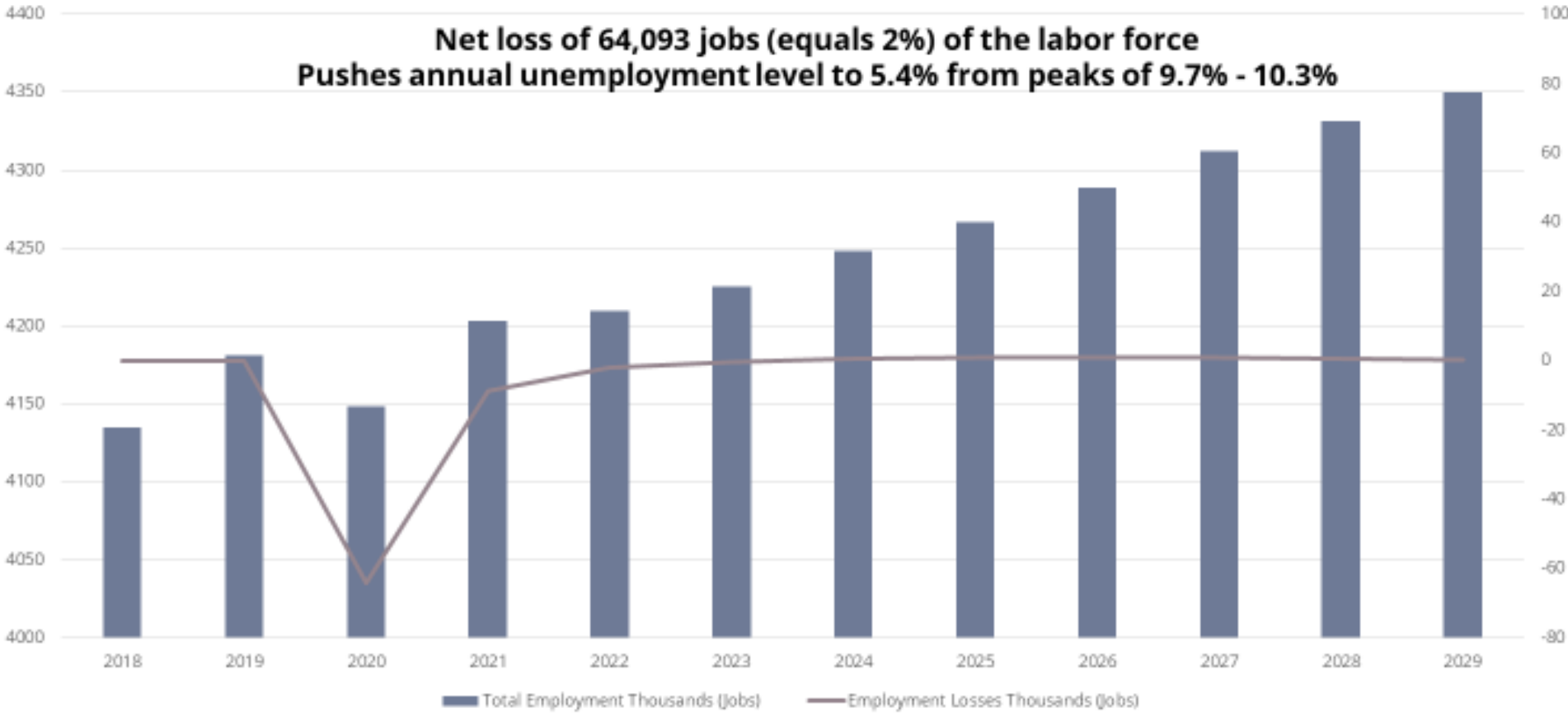
Year 1 (2020) for State of TN:

- **Net loss of 64,093 jobs (equals 2%) of the labor force) – pushes annual unemployment level to 5.4% from peaks of 9.7% - 10.3%. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.**
- **Loss of \$5 Billion (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$9.1 Billion (2012 \$) of output.**
- **Loss of \$3.4 Billion in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).**
- **Loss of \$3.1 Billion in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).**
- **With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q2/Q3 2022.**

Source: Research Center of Nashville Area Chamber of Commerce, REMI, Tennessee Department of Labor & Workforce Development

TENNESSEE EMPLOYMENT - MAY 1 RESTART

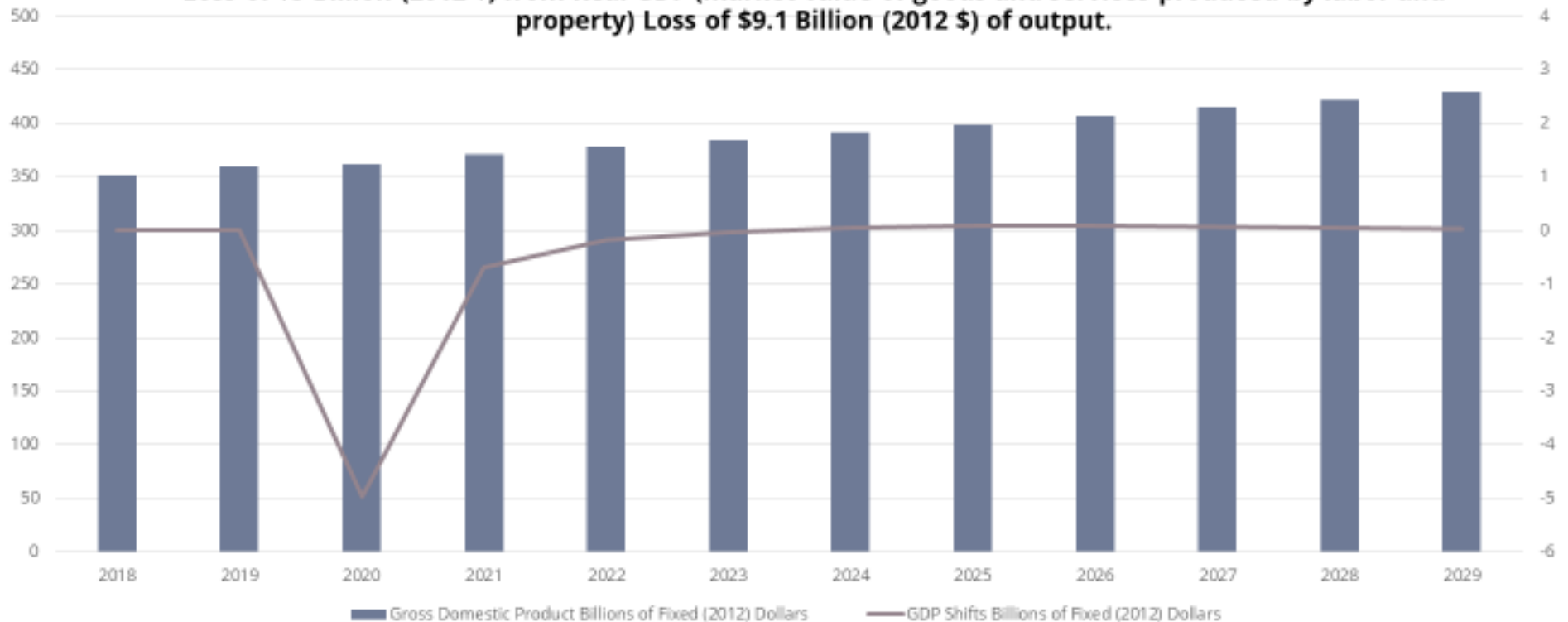
**Net loss of 64,093 jobs (equals 2%) of the labor force
Pushes annual unemployment level to 5.4% from peaks of 9.7% - 10.3%**



Source: Research Center of Nashville Area Chamber of Commerce, REMI, Tennessee Department of Labor & Workforce Development

TENNESSEE GDP - MAY 1 RESTART

Loss of \$5 Billion (2012 \$) from Real GDP (market value of goods and services produced by labor and property) Loss of \$9.1 Billion (2012 \$) of output.



Source: Research Center of Nashville Area Chamber of Commerce, REMI, Tennessee Department of Labor & Workforce Development

ECONOMIC MODELING – State of Tennessee – June 1 Restart

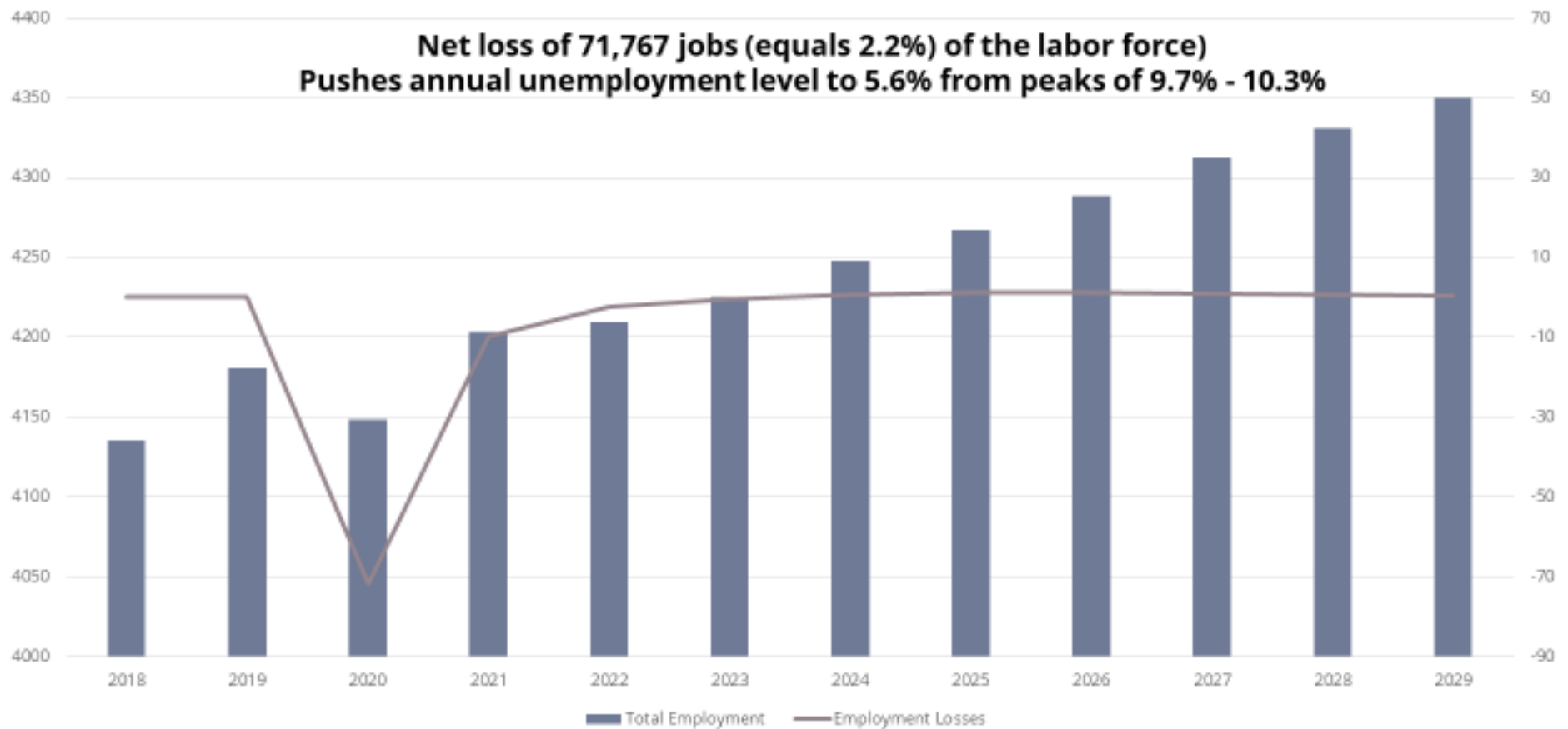
Year 1 (2020) for State of TN:

- **Net loss of 71,767 jobs (equals 2.2% of the labor force) – pushes annual unemployment level to 5.6% from peaks of 9.7% - 10.3%. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.**
- **Loss of \$5.6 Billion (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$10.3 Billion (2012 \$) of output.**
- **Loss of \$3.9 Billion in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).**
- **Loss of \$3.5 Billion in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).**
- **With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q2/Q3 2022.**

Source: Research Center of Nashville Area Chamber of Commerce, REMI, Tennessee Department of Labor & Workforce Development

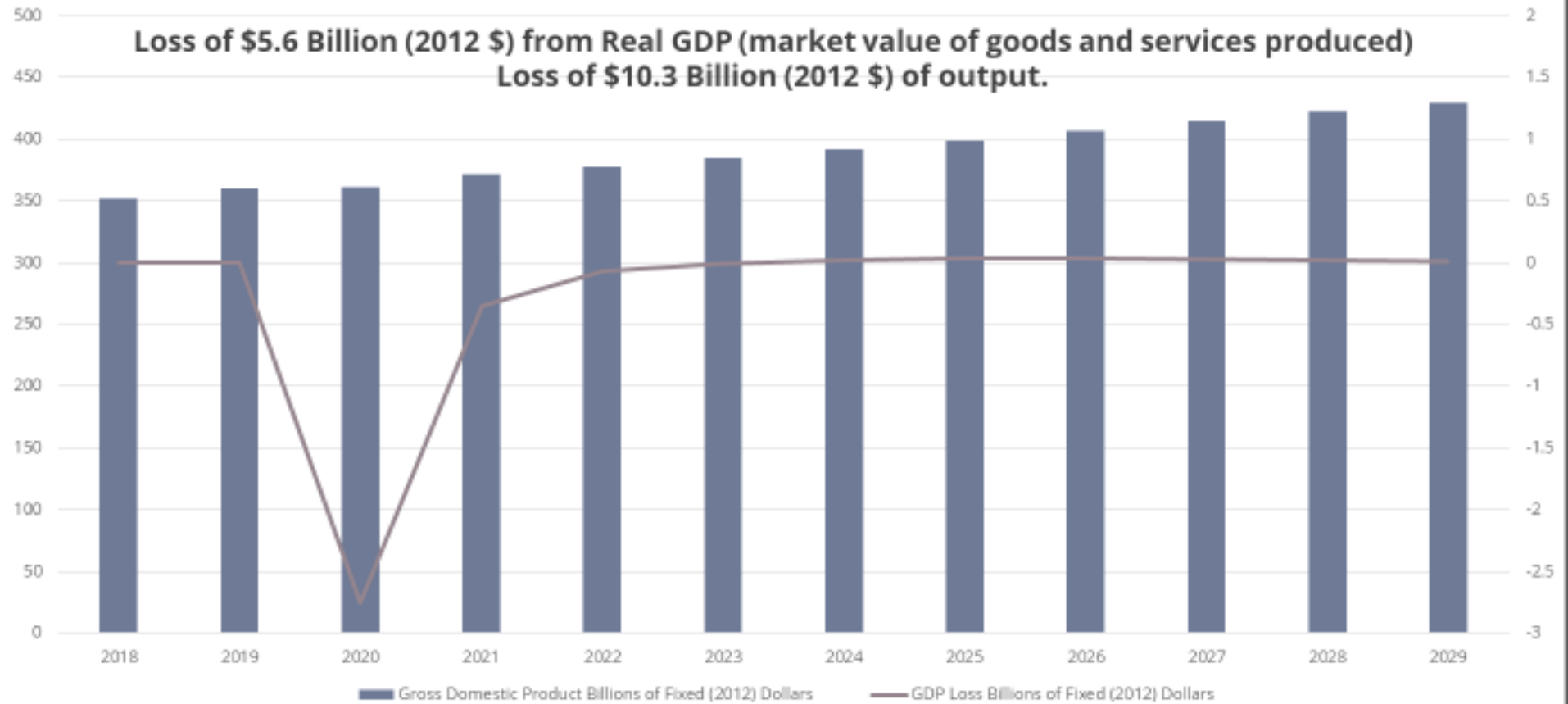
TENNESSEE EMPLOYMENT - JUNE 1 RESTART

**Net loss of 71,767 jobs (equals 2.2%) of the labor force)
Pushes annual unemployment level to 5.6% from peaks of 9.7% - 10.3%**



Source: Research Center of Nashville Area Chamber of Commerce, REMI, Tennessee Department of Labor & Workforce Development

TENNESSEE GDP - JUNE 1 RESTART



Source: Research Center of Nashville Area Chamber of Commerce, REMI, Tennessee Department of Labor & Workforce Development

ECONOMIC MODELING – Nashville MSA – May 1 Restart

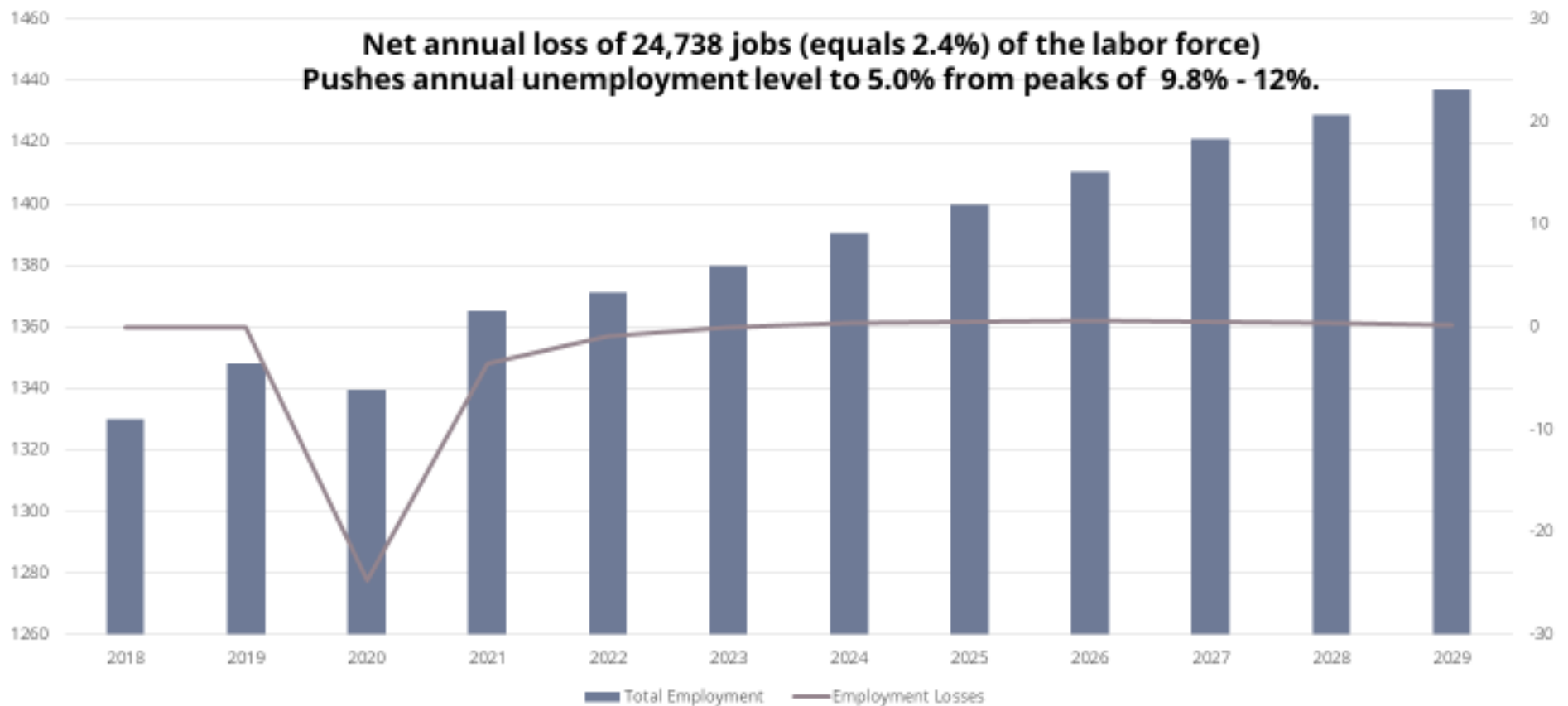
Year 1 (2020):

- **Net loss of 24,738 jobs (equals 2.4% of the labor force) – pushes annual unemployment level to 5.0% from peaks of 9.8% - 12%. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.**
- **Loss of \$2.1 Billion (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$3.8 Billion (2012 \$) of output.**
- **Loss of \$1.6 Billion in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).**
- **Loss of \$1.5 Billion in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).**
- **With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q4 2021/Q1 2022.**

Source: Research Center of Nashville Area Chamber of Commerce, REMI, Tennessee Department of Labor & Workforce Development

NASHVILLE MSA EMPLOYMENT - MAY 1 RESTART

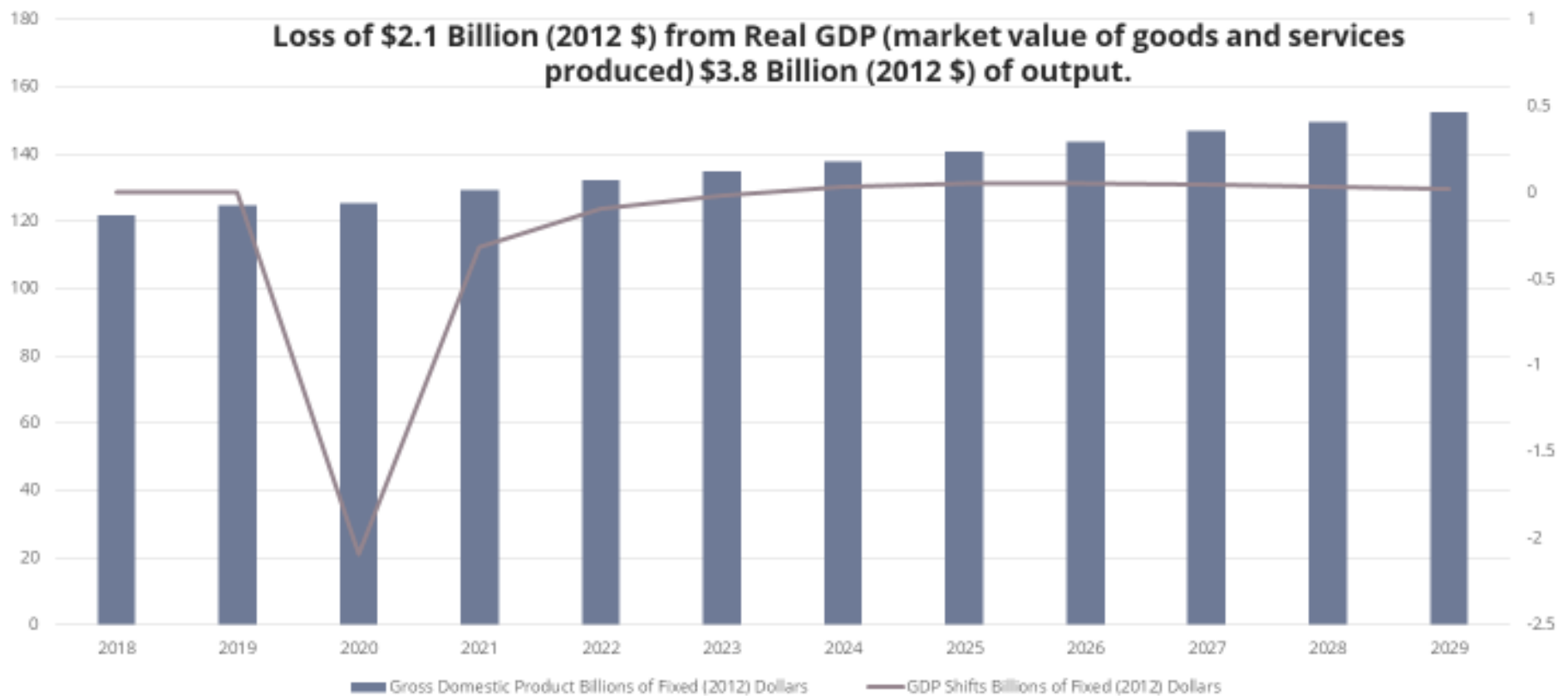
**Net annual loss of 24,738 jobs (equals 2.4%) of the labor force)
Pushes annual unemployment level to 5.0% from peaks of 9.8% - 12%.**



Source: Research Center of Nashville Area Chamber of Commerce, REMI, Tennessee Department of Labor & Workforce Development

NASHVILLE MSA GDP - MAY 1 RESTART

Loss of \$2.1 Billion (2012 \$) from Real GDP (market value of goods and services produced) \$3.8 Billion (2012 \$) of output.



Source: Research Center of Nashville Area Chamber of Commerce, REMI, Tennessee Department of Labor & Workforce Development

ECONOMIC MODELING – Nashville MSA – June 1 Restart

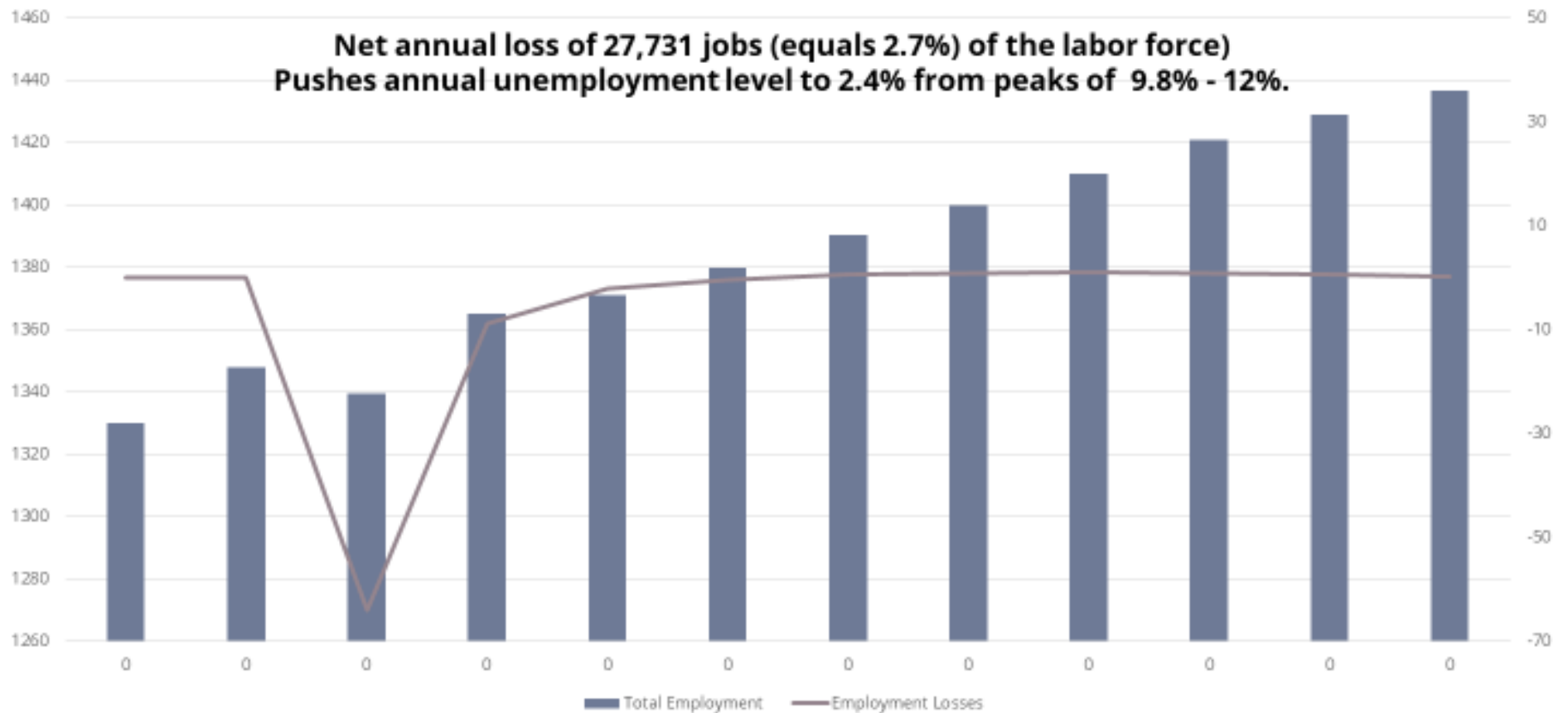
Year 1 (2020):

- **Net loss of 27,731 jobs (equals 2.7% of the labor force) – pushes annual unemployment level to 5.3% from peaks of 9.8% - 12%. This is an annualized impact to employment that indicates net impact as economic activity resumes, provided there is no resurgence of infection.**
- **Loss of \$2.4 Billion (2012 \$) from Real GDP (market value of goods and services produced by labor and property) of the region and \$4.3 Billion (2012 \$) of output.**
- **Loss of \$1.8 Billion in Personal Income (income received from all sources; it includes income received from participation in production as well as from government and business transfer payments).**
- **Loss of \$1.6 Billion in Disposable Personal Income (total after-tax income; it is the income available to persons for spending or saving).**
- **With staggered returns for most sectors (except for hospitality & leisure) expect return to pre-Covid-19 economic activity by Q2 2022.**

Source: Research Center of Nashville Area Chamber of Commerce, REMI, Tennessee Department of Labor & Workforce Development

NASHVILLE MSA EMPLOYMENT - JUNE 1 RESTART

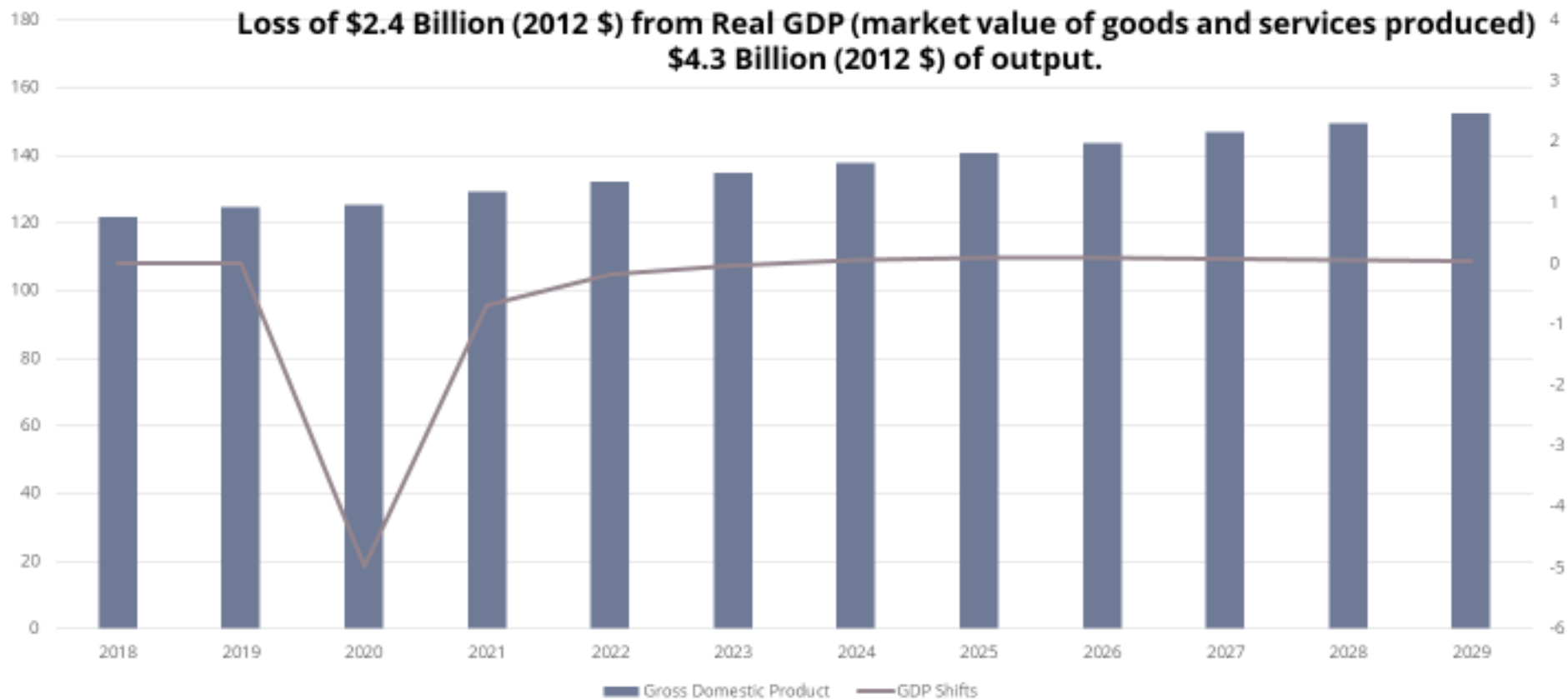
**Net annual loss of 27,731 jobs (equals 2.7%) of the labor force)
Pushes annual unemployment level to 2.4% from peaks of 9.8% - 12%.**



Source: Research Center of Nashville Area Chamber of Commerce, REMI, Tennessee Department of Labor & Workforce Development

NASHVILLE MSA GDP - JUNE 1 RESTART

**Loss of \$2.4 Billion (2012 \$) from Real GDP (market value of goods and services produced)
\$4.3 Billion (2012 \$) of output.**

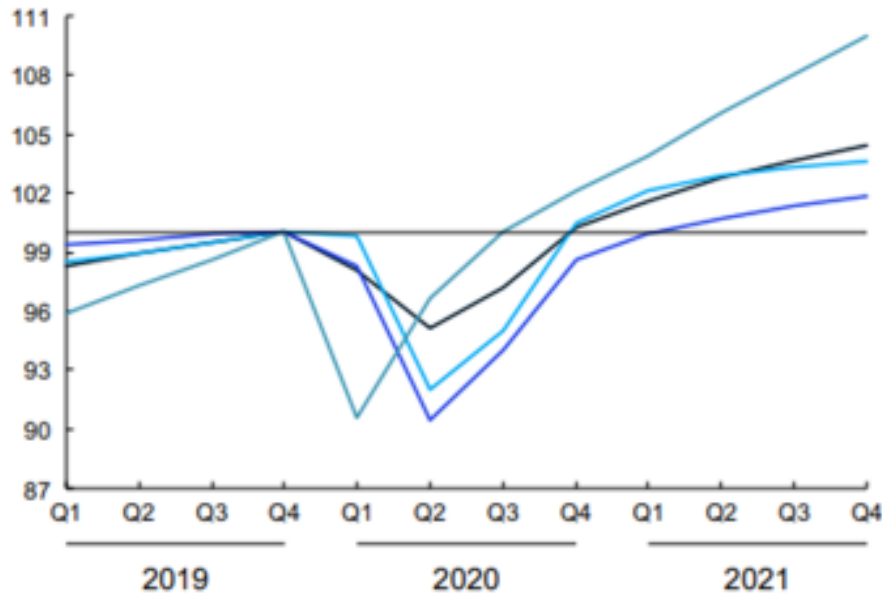


Source: Research Center of Nashville Area Chamber of Commerce, REMI, Tennessee Department of Labor & Workforce Development

Scenario A3 Virus contained

Real GDP, Local Currency Indexed

Real GDP Growth – COVID-19 Crisis
Local Currency Units Indexed, 2019 Q4=100



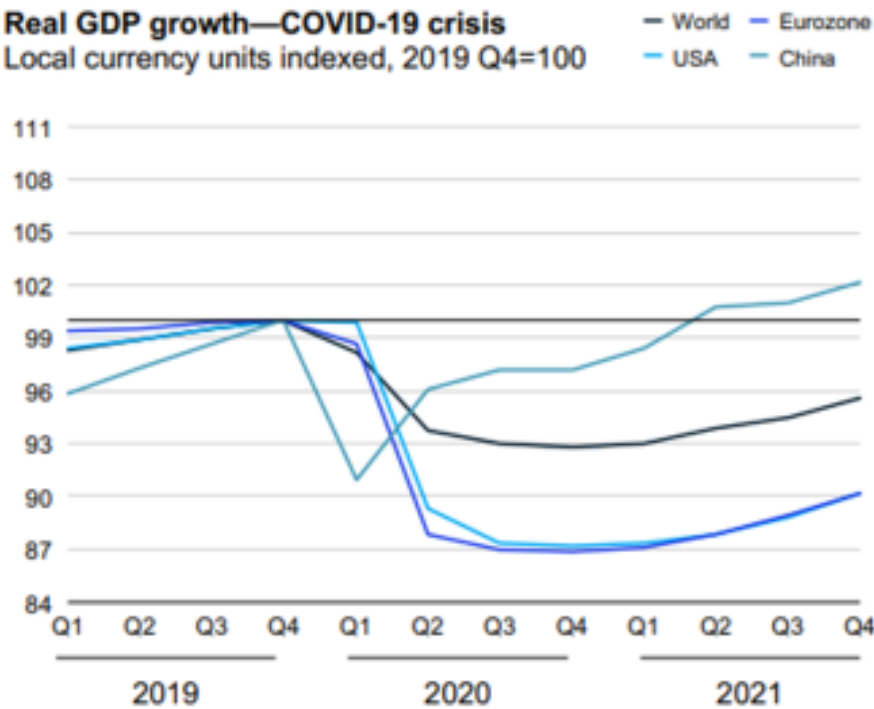
1. Seasonally adjusted by Oxford Economics

	Real GDP Drop 2019 Q4-2020 Q2 % Change	2020 GDP Growth % Change	Time to Return to Pre-Crisis Quarter
China	-3.3%	-0.4%	Q4 – 2020
USA	-8.0%	-2.4%	Q3 – 2020
World	-4.9%	-1.5%	Q2 – 2020
Eurozone	-9.5%	-4.4%	Q1 – 2021

Scenario A1 muted recovery

Real GDP, local currency indexed

Real GDP growth—COVID-19 crisis
Local currency units indexed, 2019 Q4=100



1. Seasonally adjusted by Oxford Economics

	Real GDP drop 2019 Q4–2020 Q2 % change	2020 GDP growth % change	Time to return to pre-crisis Quarter
China	-3.9%	-2.7%	Q2 – 2021
USA	-10.6%	-8.4%	Q1 – 2023
World	-6.2%	-4.7%	Q3 – 2022
Eurozone	-12.2%	-9.7%	Q3 – 2023

Companies need to think and act across five horizons.

The five horizons



1 Resolve

Address the immediate challenges that COVID-19 represents to institution's workforce, customers, technology, and business partners



2 Resilience

Address near-term cash-management challenges and broader resiliency issues during virus-related shutdowns and economic knock-on effects



3 Return

Create detailed plan to return business to scale quickly as COVID-19 situation evolves and knock-on effects become clearer



4 Reimagination

Reimagine the next normal: what a discontinuous shift looks like and implications for how institutions should reinvent



5 Reform

Be clear about how regulatory and competitive environments in industry may shift