Plots of Fitted and Projected

06-13-2022

FITTED

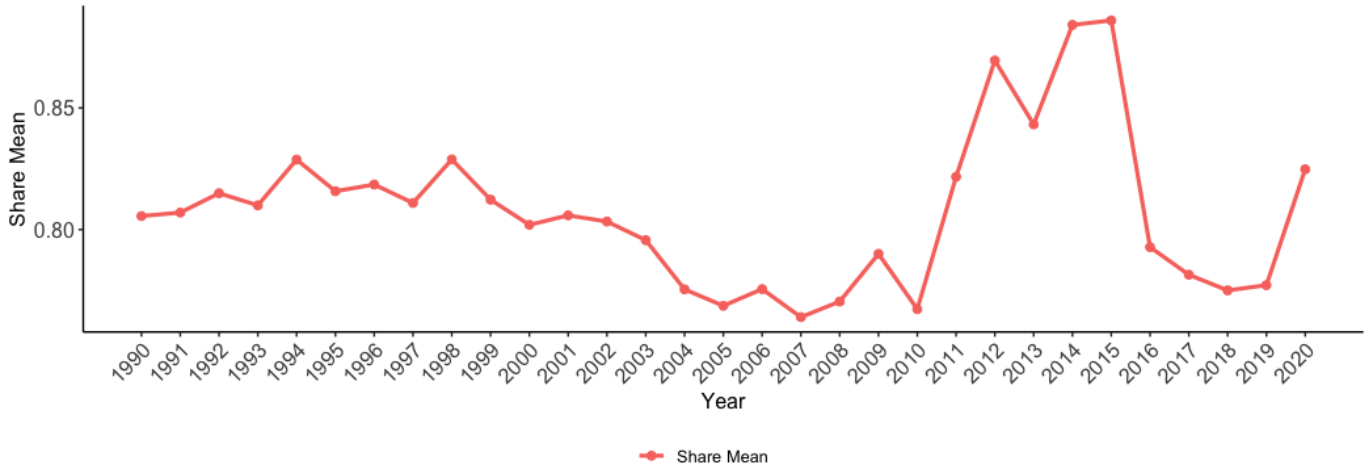

Figure 1: Mean of Fed Cattle Meat Share - Fitted

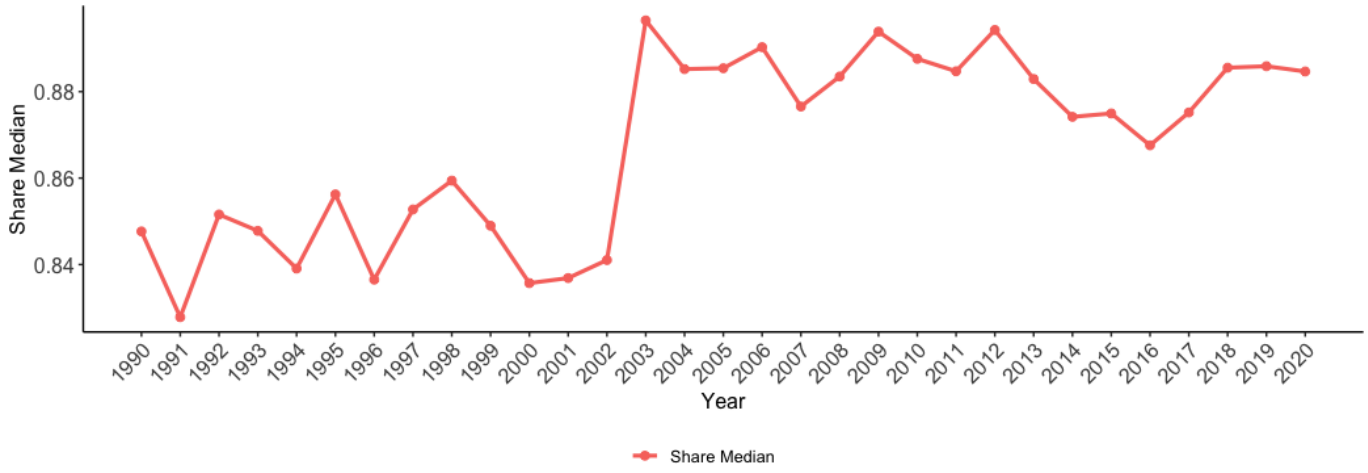

Figure 2: Median of Fed Cattle Meat Share - Fitted

Figure 3: Mean of MU - Fitted

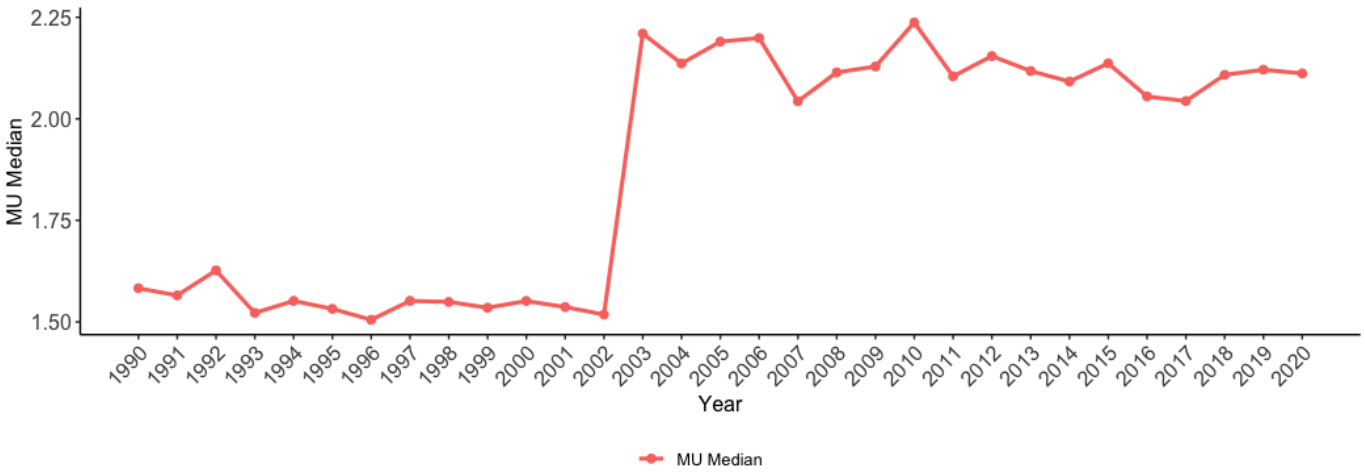

Figure 4: Median of MU - Fitted

PROJECTED

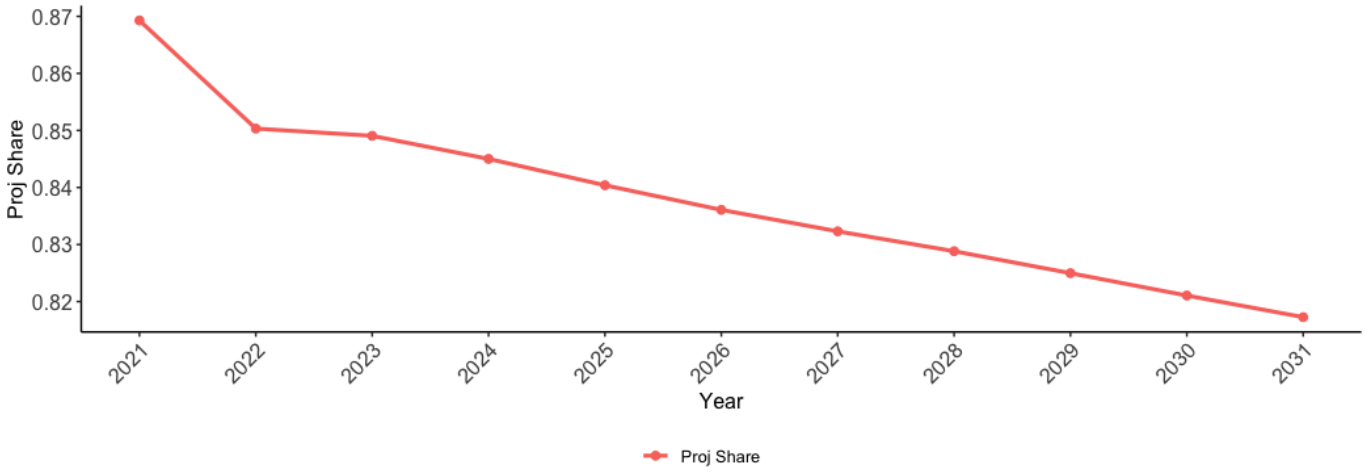

Figure 5: Fed Cattle Meat Share - Projected - In Prelims

The above is projected with a constant $\tilde{\mu} = 2.11$ and $\tilde{s} = 0.74$

After addition of storage model type estimation for supply and keeping track of age distribution

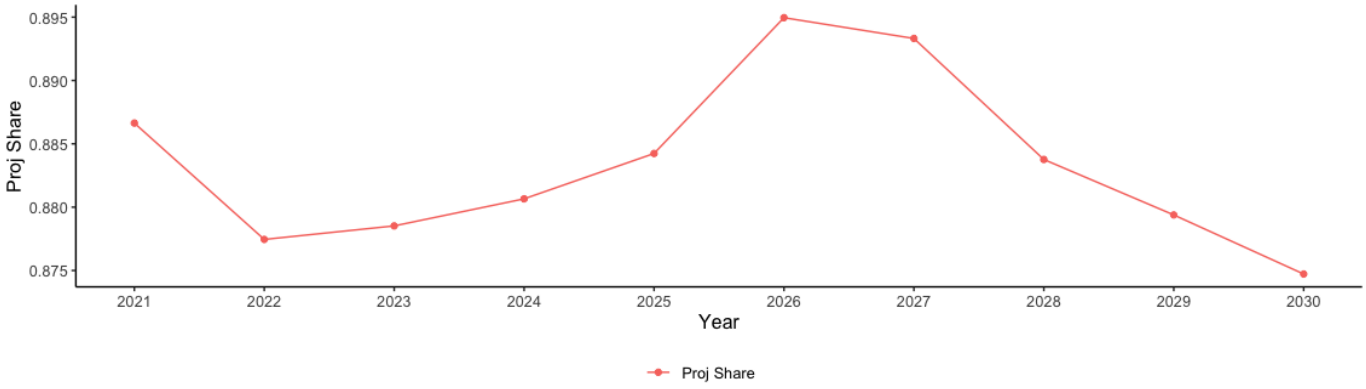

Figure 6: Fed Cattle Meat Share - Projected

The above is projected with a moving $\tilde{\mu}$ and $\tilde{s}$

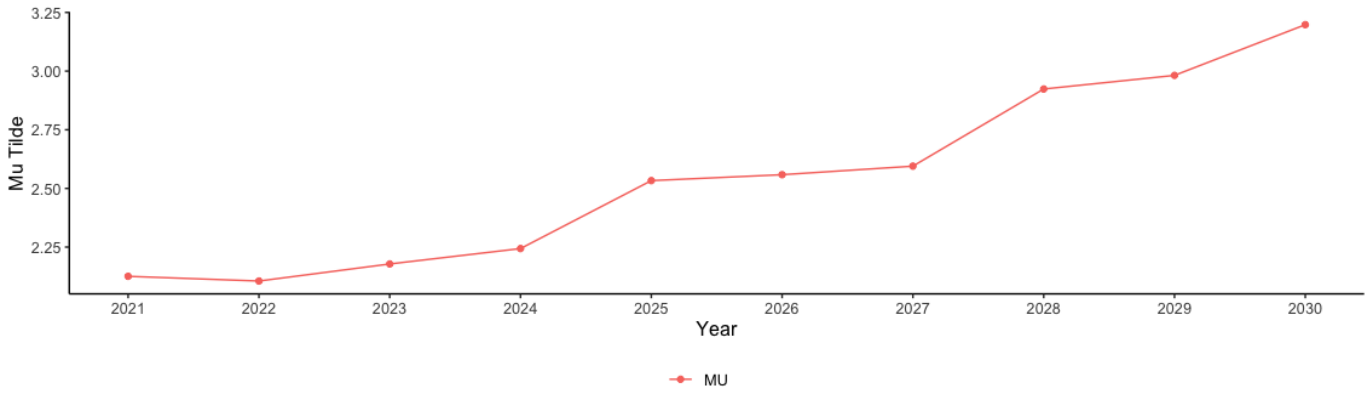

Figure 7: MU - Projected

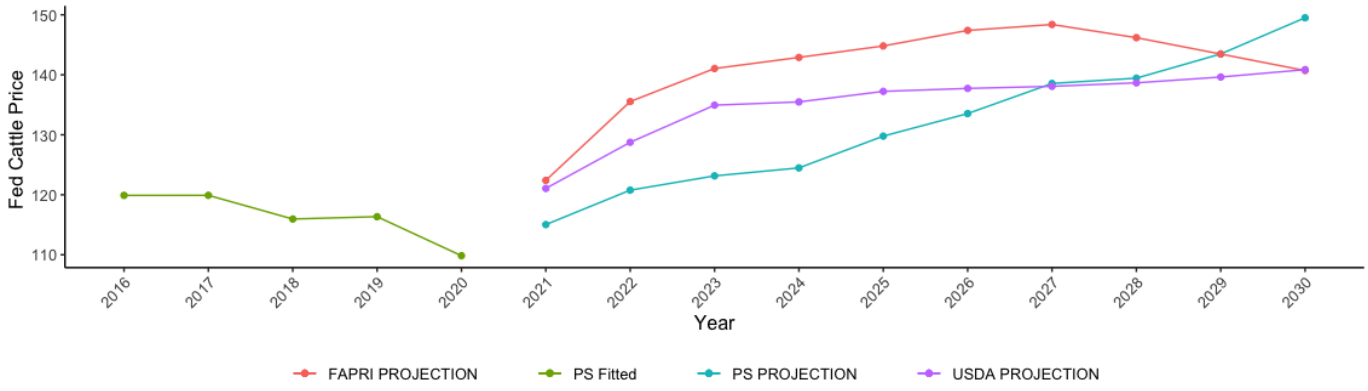

Figure 8: Fed Cattle Price - Projected with FAPRI USDA Comparisions

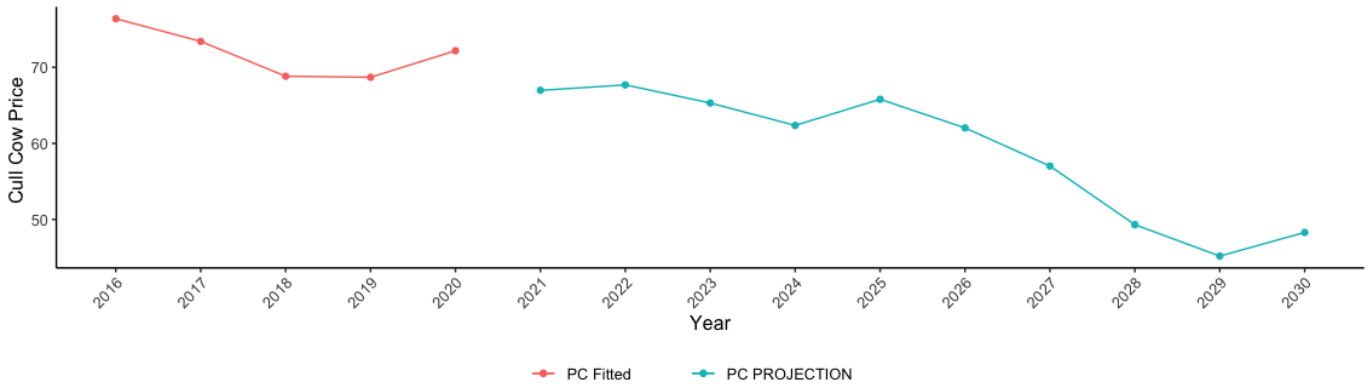

Figure 9: Cull Cow Price - Projected

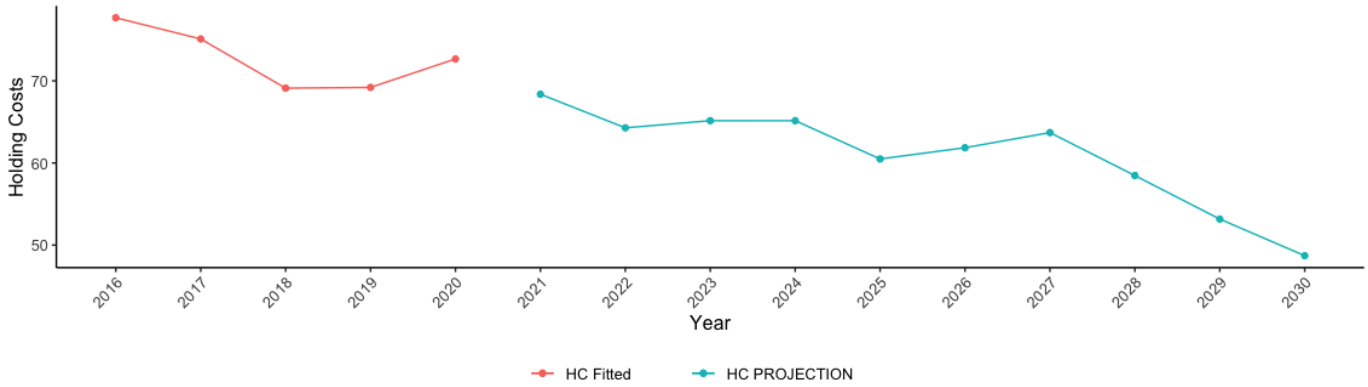

Figure 10: Holding Costs - Projected

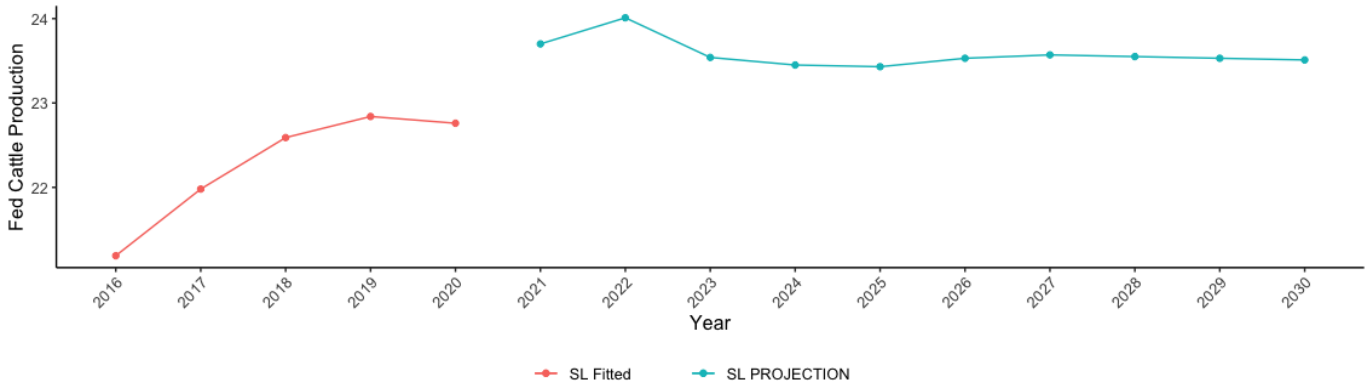

Figure 11: Fed Cattle Meat Production - Projected

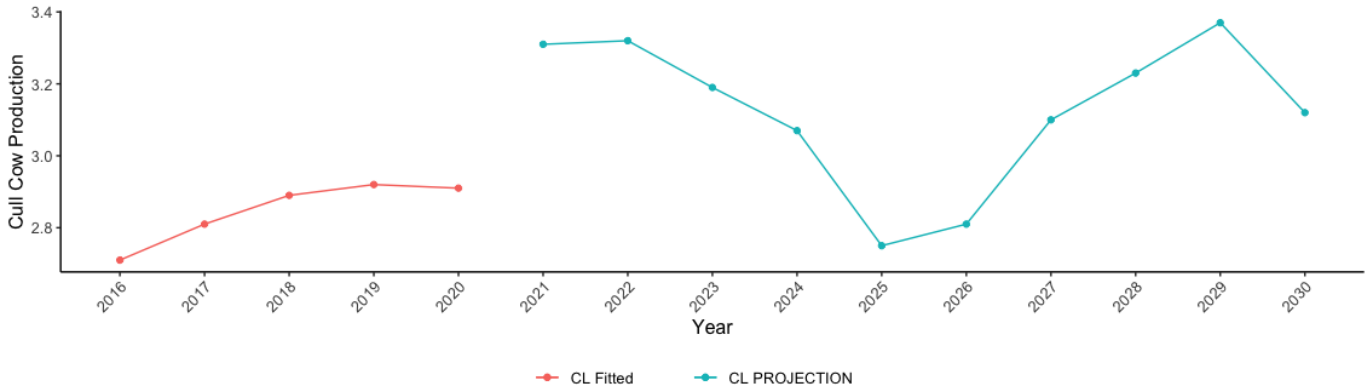

Figure 12: Cull Cow Meat Production - Projected

Table 1: Age Distribution

Year	K	k3	k4	k5	k6	k7	k8	k9	k10
2016	30163800	6086400	5278485	4899853	4527454	4182164	4211690	977754.1	0
2017	31170700	6335200	5782080	5014561	4654860	4301082	3973056	1109861.6	0
2018	31466200	6363200	6018440	5492976	4763833	4422117	4086028	319606.3	0
2019	31690700	6108200	6045040	5717518	5218327	4525641	4201011	0.0	0
2020	31338700	5884900	5802790	5742788	5431642	4957411	4299359	0.0	0
2021	31051044	5269757	5590655	5512650	5455649	5160060	0	0.0	0
2022	31063066	5384695	5006269	5311122	5237018	5182866	4902057	0.0	0
2023	31157824	5945207	5115460	4755956	5045566	4975167	4923723	0.0	0
2024	31209654	6178027	5647946	4859687	4518158	4793288	4726409	0.0	0
2025	31194386	6455054	5869126	5365549	4616703	4292250	4553623	0.0	0
2026	31159438	5973039	6132302	5575669	5097271	4385868	4077637	0.0	0
2027	31145681	5661790	5674387	5825687	5296886	4842408	4166574	0.0	0
2028	31154580	5822151	5378701	5390668	5534402	5032042	4600287	0.0	0
2029	31166811	5843665	5531044	5109766	5121134	5257682	4780440	0.0	0
2030	31169867	6254248	5551482	5254492	4854277	4865077	4994798	0.0	0

Table 2: Meat Production

Year	Fed Cattle Meat	Cull Cow Meat
2016	21.388	2.757
2017	21.544	3.199
2018	22.477	2.905
2019	22.986	2.412
2020	24.174	2.522
2021	23.700	3.310
2022	24.010	3.320
2023	23.540	3.190
2024	23.450	3.070
2025	23.430	2.750
2026	23.530	2.810
2027	23.570	3.100
2028	23.550	3.230
2029	23.530	3.370
2030	23.510	3.120

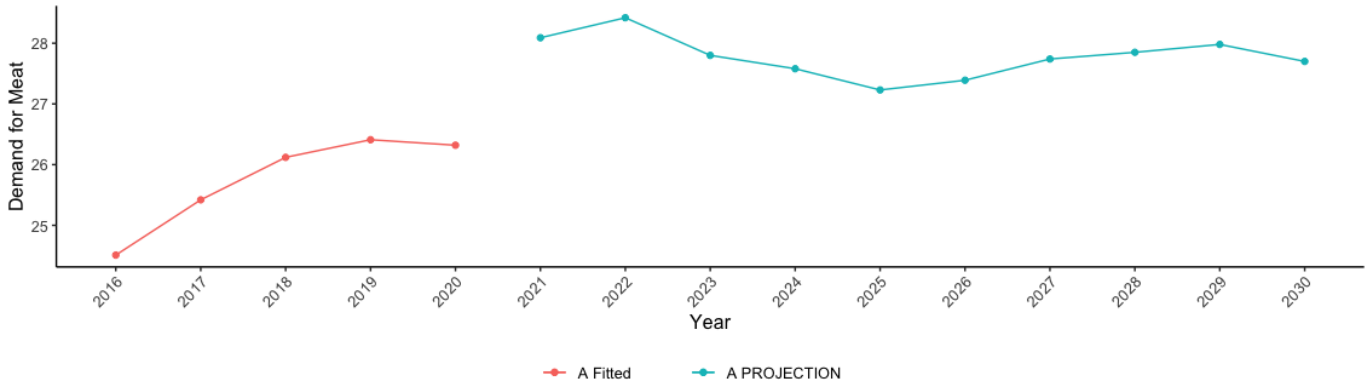

Figure 13: Demand for Meat - Projected

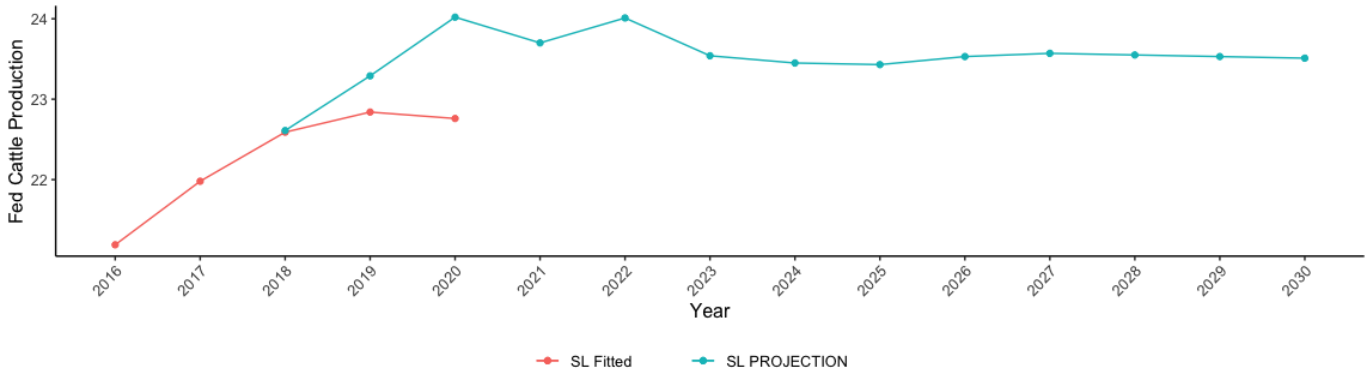

Figure 14: Fed Cattle Meat Production - Projected and Backcasted

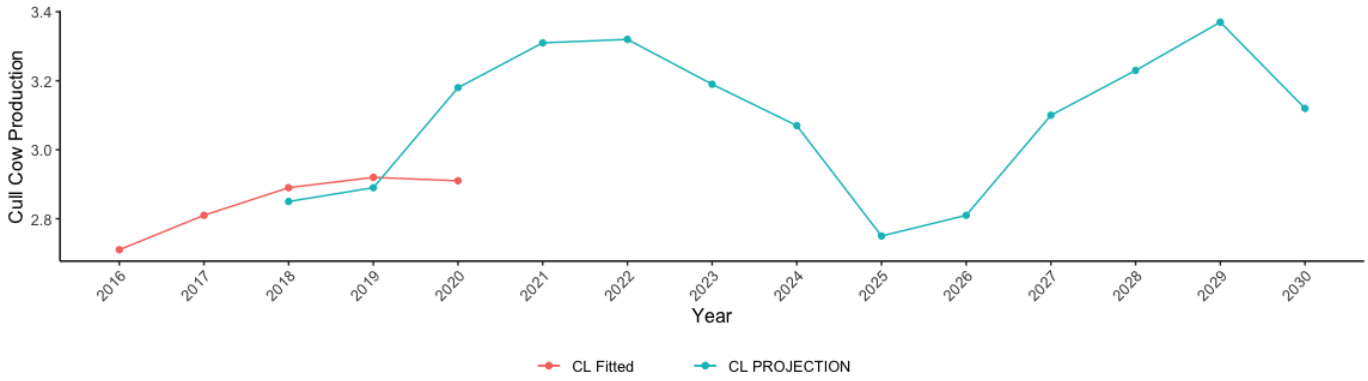

Figure 15: Cull Cow Meat Production - Projected and Backcasted

From the above plots it is apparent from back casting of the production, both fed cattle and cull cow meat production is over estimated in the year 2020. This back casting is purely related to age distribution. Note: Since I already have the age distribution determined. I may not have to use the prices in that specific years to get the production. However, I can and should be able to back cast with prices too. In an instance of using the prices to back cast, the age distribution might change. As the data is already observed I may not have to do that. When back casting the production, I am assuming the market is functioning properly. But as we know we did had a huge exogenous shock in 2019-2020. So this might be the case we see a bug jump in the supply of the meat.