

Figure 2 – Time-to-Event Analysis - States with two or more 1135 Waiver Experiences (Binary Variable)

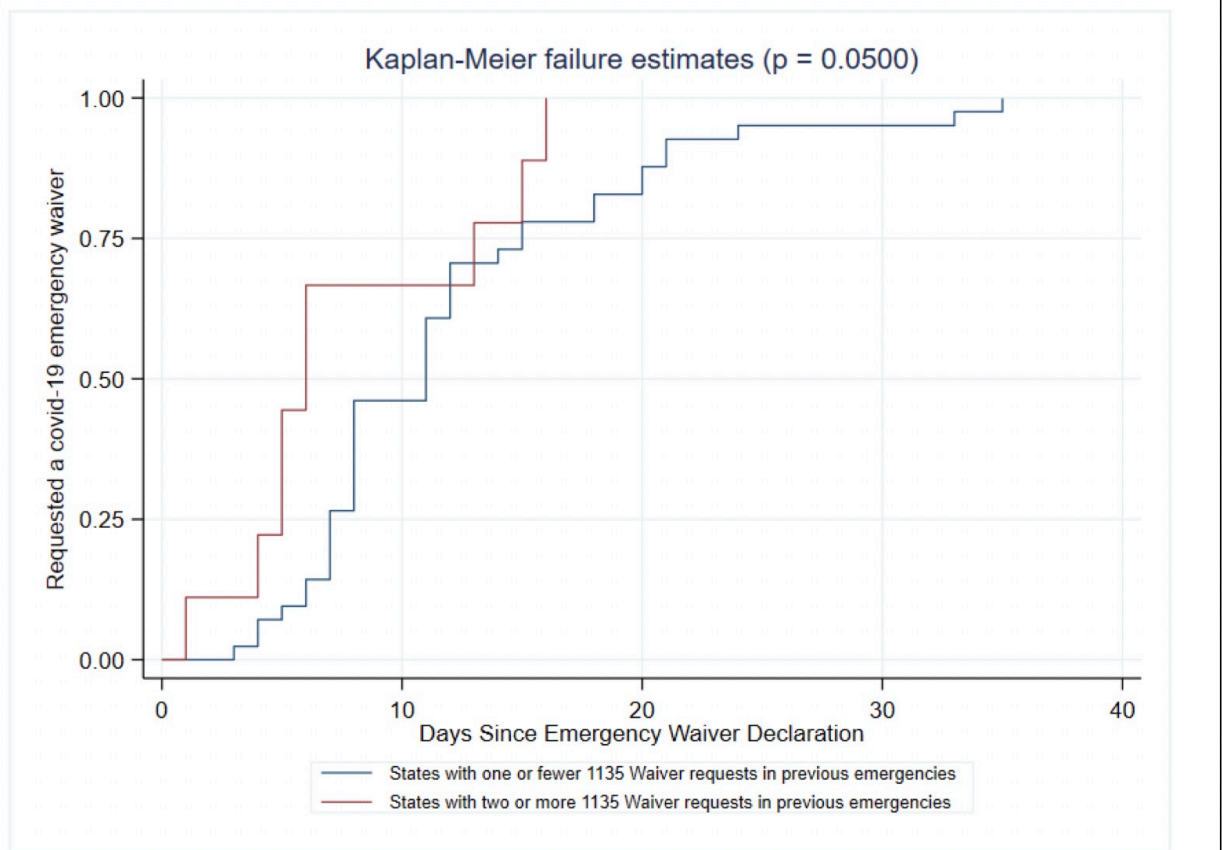


Figure 2 shows the Kaplan-Meier estimates for the probability of requesting a Section 1135 Waiver, conditional on not having already requested a waiver. States with two or more 1135 Waiver experiences, lead to significant differences in time-to-request. This figure shows the difference between states which have requested at least two 1135 Waivers in previous emergencies (vs. states which have not).

Figure 1 – Time-to-Event Analysis - States with a history of 1135 Waiver activity (Binary Variable)

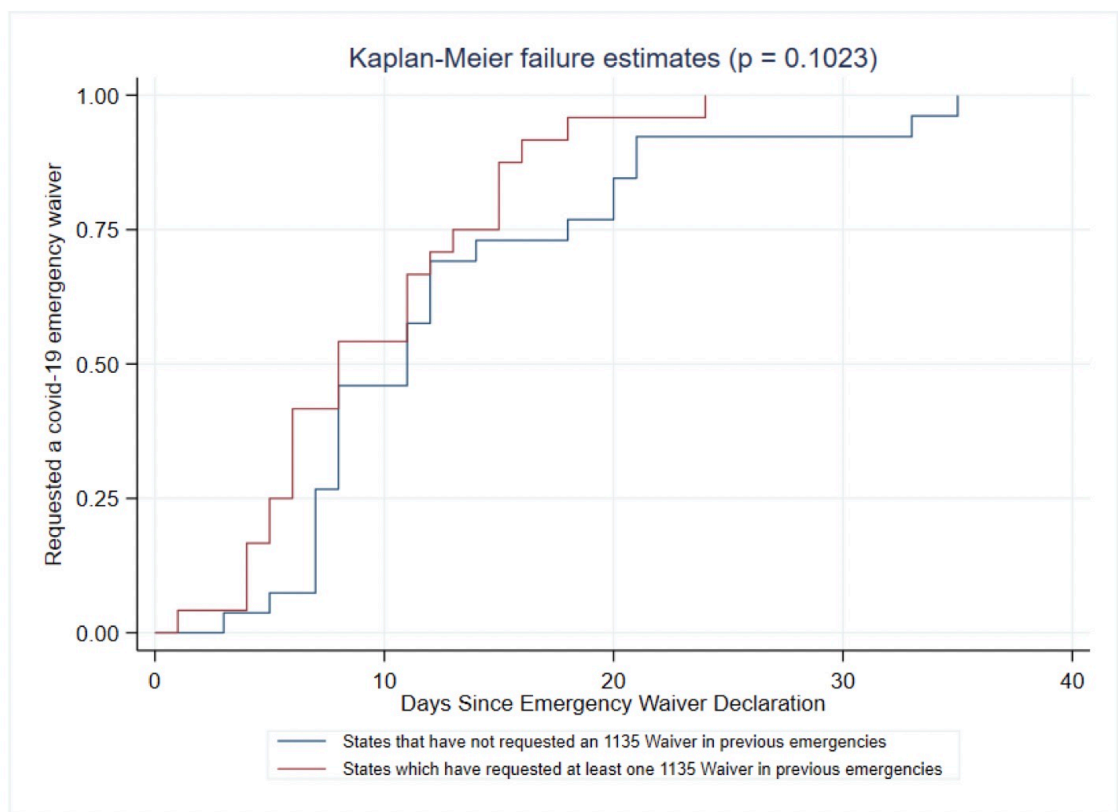


Figure 1 shows the Kaplan-Meier estimates of requesting a Section 1135 Waiver, conditional on not having already requested a waiver. States with 1135 Waiver experience, lead to insignificant differences in time-to-request. The model tests for any differences between states which have requested an 1135 Waiver in a previous emergency (vs. states which have not).

Table 2 – Time-to-Event Analyses (unadjusted models)

	Cox Proportional Hazard Estimates			Parametric (Gamma) Estimates	
	Hazard Ratio	Proportional Hazards Test	Model $p > Chi2$	Time Ratio	Model $p > Chi2$
States with a history of 1135 Waiver Activity	1.5605	0.977	0.1315	0.7522*	0.0896
States with two or more 1135 Waiver experiences	1.9855*	0.6722	0.0913	0.6254*	0.0728

Table 2 reports the estimates of a Cox Proportional Hazard Model, which estimates the “risk” of a state requesting a Section 1135 Waiver at any given time. A hazard ratio above one indicates that the risk of requesting a waiver is higher for states with 1135 precedence. The PH Test values show that all models hold the Cox Assumption, that the risk does not vary between groups over time. Table 2 also shows the parametric estimates using a Gamma distribution. The Gamma distribution provides a general form to allow the hazards to vary overtime. Converse to the Cox estimates, the Gamma estimates a “Time Ratio” by exponentiating the coefficient of interest. A time ratio less than one indicates that states with a waiver history request a covid-19 waiver sooner than states without any history. \*  $p < 0.1$  \*\*

		Cox Proportional Hazard Model						Parametric (Gamma) Model							
Model p>chi2		Contextual	Administrative	Institutional	Political	External	Integrated	Contextual	Administrative	Institutional	Political	External	Integrated		
PH Test		0.926	0.386	0.879	0.557	<0.0001	<0.00001	0.877	0.149	0.610	0.049	<0.0001	<0.0001		
		0.814	0.832	0.688	0.623	0.1152	0.9953								
		Hazard Ratio Estimates						Time Ratio Estimates							
History of 1135 Waiver								2.5473**							0.7248***
<b>Demand</b>	% Pop Over Age 65	0.9849					0.8386	0.9796					1.0089		
	% Pop w/ Chronic Disease	1.0235					1.0887	0.9889					0.9658*		
	% Pop on Medicaid	1.0123					1.0608	1.0018					1.0011		
<b>Supply</b>	ICU Beds per 100,000	0.9746					0.9708	1.0090					1.0108		
	Total Hospitals per 100,000	1.2166					1.3563	0.9740					0.9682		
<b>Agency Capacity</b>	Medicaid Spending (Millions)	0.9999						0.9999	1.0000*					1.0000	
	Current 1115 Waiver	1.0572						0.7835	0.9202					0.9816	
	Health Expenditures (Millions)	1.0007*						1.002***	0.9996**					0.9994****	
<b>Legislative Capacity</b>	Hospital Expenditures (Millions)	1.0000						0.9998	1.0000					1.0000**	
	Legislative Salaries			0.9959					0.9989			1.0030			0.9998
	Legislative Expenditures			1.0004					0.9989*			0.9997*			1.0001
<b>Executive Capacity</b>	Governor Salary			0.9999					1.0000			1.000			1.0000
	Governor Staff			1.0010					1.0071			0.9989			0.9965
	Line Item Veto Power			1.0655					0.3755			.9516			1.4450*
<b>Ideology</b>	Executive Emergency Powers			1.0569					0.6779			0.9307			1.0547
	Democratic Governor				0.8391			5.6225***				1.8513			0.6794**
	% of Democrats in Senate				4.219			0.5727				0.3692***			0.9526
<b>External</b>	% of Liberal Citizens				0.9954			0.9846				1.0050			1.0064*
	Covid Cases per 100,000					0.9594**	0.9075****						1.0114	1.0230****	
	Covid Deaths per 100,000					0.7309	1.2688						1.1221	0.7969	
New 1135 Waiver in Region						1.5156*	1.9865**					0.8731**	0.8424****		

Table 3 reports the results of the tests identifying determinants of the timing of a state's 1135 Waiver request. The top row reports the model's fit (lower p-values suggest the model has stronger explanatory power). The second row tests the proportional hazard assumption (Cox Model only), that the "risk" of requesting an emergency waiver do not differ over time between the two groups. The first set of tests were completed using the Cox Proportional Hazard analysis. This semi-parametric approach does not rely on the underlying distribution of our data and is therefore less sensitive to model specification. The best model fit was obtained using the "Integrated" Model. A hazard ratio above one indicates a greater likelihood of requesting an 1135 Waiver at any given time. The second set of models used the Weibull Accelerated Failure Time (AFT). This model requires the assumption that the data follows a Weibull distribution. The trade-off, however, is that this parametric model allows the risks to 1) vary over time (AFT) in the presence of covariates and 2) vary by state to account for unobserved factors which may be influencing the timing of a state's 1135 request. Again, the "Integrated" Model has the best fit and reports similar results as the Cox model. Here, time ratio estimates less than one indicates a shorter time to request an 1135 Waiver. In both "Integrated" models, there are significant associations between a shorter time-to-waiver request and at least one prior experience with a 1135 Waiver, a state's health expenditures, a democratic governor, and a new 1135 waiver in the region. The only significant negative association with an early 1135 waiver was the state's covid-19 cases per capita. \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01, \*\*\*\* p < 0.001