Model Performance Comparisons - Entity Embeddings from Hierarchical Categorical Feature (NAICS)

		no random injection		with random injection	
		test PR-AUC	holdout PR-AUC	test PR-AUC	holdout PR-AUC
1	baseline (no NAICS, unmodified data)	0.3382	0.3530	NA	NA
2	NAICS entity embeddings	0.3793	0.3464	0.3803	0.3529
3	NAICS +hierarchy entity embeddings	0.3801	0.3639	0.3798	0.3854
4	NAICS +hierarchy entity embeddings with hidden layer	0.3795	0.3728	0.3792	0.3865

Rows 1-3 from the table above are taken from Table 3 of "Data Disruptions to Elevate Entity Embeddings"
(https://medium.com/towards-data-science/data-disruptions-to-elevate-entity-embeddings-b1ddf86a3c95)
The fourth row shows results from a model similar to the third row, but with an extra hidden layer that combines inputs from the different levels of the NAICS hierarchy.
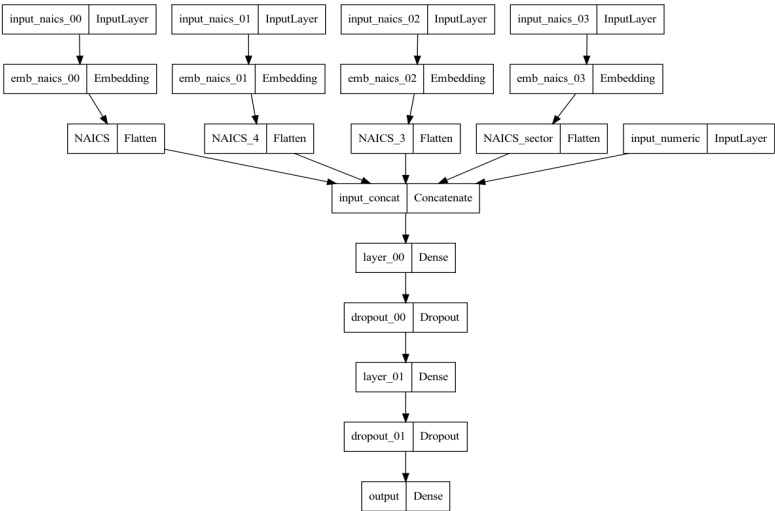**The extra layer does not much change the performance**

Model Diagrams
The diagrams below show the model architecture for rows 2-4

2) NAICS entity embeddings
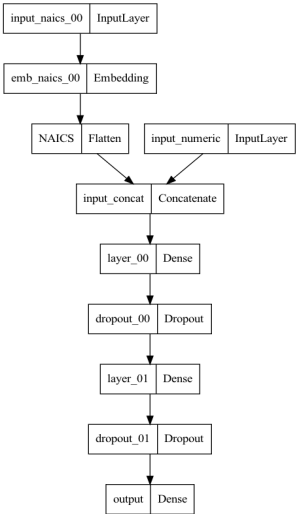
3) NAICS +hierarchy entity embeddings

4) NAICS +hierarchy entity embeddings with hidden layer