

Model Explanation

Variable	Name	Described
A	Year	Begins 1 year after copyright act enacted
B	Published works	This is an arbitrary number of works published. As I'm simply trying to model a difference, the absolute number isn't important.
C	% growth in publications	This is an arbitrary growth rate for publications. Each year adds this amount to total publications that year
D	% complying with formalities	This is an estimate of the percentage of published works that complied with formalities. Sprigman estimates 50% as high.
E	Copyrighted Works produced in	This is $(B * D)$ for year A
F	PD produced in I	This is $(B - E)$ for year A
G	Aggregated ©	This calculates the stock of work under copyright -- so it simply adds E for year A to G for year $(A-1)$
H	Aggregated PD	This is the same as G but for the public domain. Note that for both, further adjustments are made below.
I	Initial Term	This is the initial copyright term
J	Renewal Rate	This is the percentage of works that renew after the initial term. It is the renewal for works in year A, but the actual renewal won't occur until $A + I$.
K	Add to PD from failure to Renewal	This calculates the number of copyrighted works that pass into the public domain because of failure to renew. The formula is lagged based upon the renewal term. So this it uses renewal rate associated with the year of publication * copyrighted works from that year.
L	Agg PD from failure to Renewal	This converts K into an aggregate stock number, which will be subtracted from the aggregate copyright number.
M	Renewal Term	This specifies the length of the renewal term.
N	Add to PD from Expiration	This calculates the number of works passing into the PD in year A because of expiration of copyright. Note, the works expiring are works from $A - \text{total}$
O	Agg PD from Expiration	This converts N into an aggregate stock number, which will be subtracted from the aggregate copyright number.
P	% taking advantage of extension	Two times in the period considered Congress extended the term of existing copyrights. In 1831, it allowed works in their initial term to get the benefit of an addition 14 years for the initial term -- so long as they registered for the extension. In 1909, Congress permitted works in the second term to get the benefit of another 14 years, so long as they registered for it. This variable is the percentage of works eligible for the retrospective extension that actually took it. I've not basis for this estimate, and have guessed 50%.
Q	Add to PD from failure to extend	This calculates the number of works that pass into the public domain because the owner is eligible for a retrospective extension (what I call an "Eldred Extension") but doesn't take it.
R	Agg PD from failure to extend	This converts the annual figure into an aggregate stock figure.
S	Net ©	This is the number of works copyrighted in any year: $G - L - O - R$
T	Net PD	R