Appendix: Derivation of paternalist's optimal quantity of good X.

Due to irrationality, it will always be the case that $X_B < X_D$, so the recipient will reallocate as much of good Y as they can, subject to their pre-transfer budget constraint and the flypaper effect, and locate at a bundle I will denote as $\widetilde{D}$. If, for any given transferred bundle, (X_T, Y_T) it is the case that, $Y_C > \lambda Y_T$ the flypaper effect will be non-binding, and the recipient will allocate all of their pre-transfer budget to good X, consuming $X_{\widetilde{D}} = X_C + Y_C + X_T = M_0 + X_T$, their entire pre-transfer budget plus the transferred quantity of X. Otherwise, the flypaper effect will be binding, and they will reallocate as much as the flypaper effect will allow, $\lambda Y_T = \lambda(T - X_T)$, and will consume $X_{\widetilde{D}} = X_C + \lambda(T - X_T) + X_T = X_C + \lambda T + (1 - \lambda)X_T$. In other words, they will consume their pre-transfer X, plus the transferred quantity of X, plus a portion of their pre-transfer Y. Thus, depending on whether or not the flypaper effect is binding, they will consume $X_{\widetilde{D}} \equiv \min\{M_0 + X_T, X_C + \lambda T + (1 - \lambda)X_T\}$. The paternalist's problem is to choose X_T so that $X_{\widetilde{D}} = X_B$.

There are again two possibilities. The first is $\lambda T < Y_C$, the flypaper effect is binding when the transfer contains no X, in which case it will be binding for any quantity of X transferred, because if $\lambda T < Y_C$ then $X_C + \lambda T + (1 - \lambda)X_T < M_0 + X_T \;\; \forall\, X_T$. In other words, if the individual cannot reallocate all of their pre-transfer Y when the paternalist gives only Y, the recipient certainly won't be able to do so when the paternalist gives less than all Y.[22] Thus, the paternalist will choose X_T such that $X_B = X_C + \lambda T + (1 - \lambda)X_T$ which is $X_T = \frac{1}{(1-\lambda)}(X_B - X_C) - \frac{\lambda}{(1-\lambda)}T$.

If, instead, $\lambda T > Y_C$ (the flypaper is not binding at $X_T = 0$) there will be some X_T at which it will become binding, because as X_T increases, $X_C + \lambda T + (1 - \lambda)X_T$ increases more slowly than $M_0 + X_T$. In other words, as the quantity of Y transferred gets smaller, the flypaper effect will be more and more likely to be binding, because the amount the recipient will be able to reallocate will get smaller. Thus, in order to

[22] Because $M_0 + X_T = X_C + Y_C + X_T$, $\lambda Y_T < \lambda T < Y_C$, and $(1 - \lambda)X_T < X_T$.

determine X_T, the paternalist must first determine if the flypaper effect will be binding for $X_T = X_B - M_0$, the quantity necessary to get the recipient to point B in the absence of the flypaper effect. In other words, the paternalist will need to know if they can get the recipient to point B without the flypaper effect becoming binding. It is binding whenever $X_C + \lambda T + (1-\lambda)X_T < M_0 + X_T \Rightarrow X_T > T - \frac{1}{\lambda}Y_C$, so, rearranging, it will be binding at point B if $X_B > T + M_0 - \frac{1}{\lambda}Y_C$. If so, the paternalist's choice is the same as above, give enough so that the recipient can reach point B even with the flypaper effect limiting their reallocation: $X_T = \frac{1}{(1-\lambda)}(X_B - X_C) - \frac{\lambda}{(1-\lambda)}T$. If not, the paternalist will give $X_T = X_B - M_0$, enough to allow the recipient to reach point B after reallocating their entire pre-transfer consumption of Y to X.