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Optimal Allocation and Consumption with Guaranteed Minimum Death Benefits with Labor Income and Term Life Insurance

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Because human capital is often the largest asset an investor possesses when he is young, protecting human capital from potential risks should be considered as a part of overall investment advice. The risk of the loss of the policyholder's human capital - the mortality risk - to the household can be partially hedged by a term life insurance policy. Guaranteed Minimum Death Benefits (GMDB) in Variable Annuities (VA) can also help policyholders hedge the risk of the loss of human capital. Therefore, GMDB options and term life insurance can be considered as substitute goods. However, they are not perfect substitutes as GMDB and term life have their own properties: Term life insurance has no correlation with equity markets, and it is regarded purely as a protection for human capital; the variable annuity products follow the performance of equity markets, and the GMDB is a protection against downside risks on equity markets as well as human capital. We implement a lifetime utility model including both GMDB options and term life insurance and allowing the policyholder to optimize both consumption and fund allocation decisions. We find that fairly priced GMDB options fail to add value to a VA contract if a term life policy is available.