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<sup>27</sup> Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds. *2009 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds* (May, 2009).

<sup>28</sup> See Ippolito (1997) for a detailed description of the literature.

<sup>29</sup> There is a third case, that of complete dependence, that is not used in this report. This case would approximately have  $x=1$  and  $y=0$ ; however,  $y$  will need to be greater than 0 in many cases to account for the fact that  $z$  is an increasing function of age.

<sup>30</sup> Job turnover rates were estimated from the 2004 Survey of Income and Program Participation (SIPP) Topical Module 7.

<sup>31</sup> Although all the cashout probabilities in this simulation model are based on VE plans, Hewitt Associates (2009) evaluates the behavior of 170,000 individuals who terminated from their employer between January 1, 2008 and September 30, 2008. They report that when the results were analyzed by the size of the balance accrued, there was no indication that automatic enrollees are any more apt to cash out than active enrollees.

<sup>32</sup> See Yakoboski and VanDerhei (1996); Choi, Laibson, Madrian, and Metrick (2005 and 2006); and Nessmith, Utkus, Young (2007).

<sup>33</sup> The baseline rates of return are 8.9 percent for equity and 6.3 percent for fixed income. The alternative rates of return in Figure 5 are 4.45 percent for equity and 3.8 percent for fixed income. For information on the standard deviation, correlation matrix, and rationale for choice of these assumptions, see Park (2009).

<sup>34</sup> In addition to the obvious impact of lower return assumptions, this result is influenced by the higher likelihood of a cashout for lower balances at job change as well as the differential asset allocation for participant direction for VE plans and the predominantly life-cycle asset allocation in AE plans.

<sup>35</sup> This result is far less dramatic than the differentials simulated in VanDerhei (2007a). However, in that case, all AE plans were assumed to follow the PPA safe harbor designs and any 401(k) participant with at least one year of tenure would have a positive difference of between 1 and 7 percent of compensation from changing from the "start over" to the "maintain contribution rate" scenario. In the current case, the process is much more complicated. The fact that there are different default contribution rates in the AE universe studied in this *Issue Brief* as well as only a fraction of which included automatic escalation of employee contributions would mitigate the impact of the simulated increase.

<sup>36</sup> Comparing the accumulations attributable to employer contributions for VE plans with the AE plans (see Figures 9 and 11) shows similar results.

<sup>37</sup> See VanDerhei (2006b) for additional detail on the level of additional employer contributions that would be required to defined contribution plans to financially indemnify defined benefit participants for plan freezes.

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