



SDI Review Form 1.6

Journal Name:	Advances in Research
Manuscript Number:	2014_AIR_14195
Title of the Manuscript:	Two Approaches for Solving Non-Linear Bi-level Programming problem
Type of the Article	Original Research Article

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<u>Compulsory</u> REVISION comments	<p>In this paper, the nonlinear bi-level optimization problem is reformulated as a standard optimization problem (6) by using the KKT conditions and smoothing functions. The reviewer has two major concerns regarding the proposed method.</p> <p>1. In the HA method, the one-dimensional search is used to solve (6), which can be solved by many existing methods, such as the interior point method. Does the proposed HA method outperform existing methods when the problem involves more decision variables?</p> <p>2. In the TA method, problem (6) is approximated by its linearized version (15) in each iteration. The feasibility of t^1 is guaranteed in step 1. The problem is, the optimal solution t^k in step k is quite unlikely to be a feasible solution of the original problem (6), because H and G are equality constraints. Does the TA method have a theoretical guarantee that it must converge to a (local) optimal solution of problem (6)?</p>	<p>HA method in this paper is a hybrid method which uses penalty functions to convert the single problem to an unconstrained problem at first then it uses line search method to solve that. Also in line 101 we can see that x and d are two vectors in this method. However maybe it will be used interior point or other methods for solving bi-level programming problem.</p> <p>We improved the last Step of TA method and proposed theorems which prove that TA is convergent. (Line: 170-194 have been added now in revised paper)</p>
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		