$$(1-\beta_1)q_1^* = (1-\beta_2)q_2^*$$

which holds when

$$q_2^* = 1, \quad q_1^* = \frac{1-\beta_2}{1-\beta_1}.$$

In this case, (2.8b) is satisfied when

$$d_1 - (b_1 + d_1)(1-\beta_1)p^* = 0, \quad \text{i.e.} \quad p^* = \frac{d_1}{b_1 + d_1} \cdot \frac{1}{1-\beta_1}$$

and (2.8c) is satisfied provided

$$d_2 - (b_2 + d_2)(1-\beta_2)(1-p^*) > 0, \quad \text{i.e.} \quad p^* > 1 - \frac{d_2}{b_2 + d_2} \cdot \frac{1}{1-\beta_2},$$

which is fulfilled because of (2.12) and (2.13). The remaining cases are treated similarly. ∎

Now set $b_1 = b_2 = b$, and let b^* be defined by

$$\frac{d_1}{b^* + d_1} \cdot \frac{1}{1-\beta_1} + \frac{d_2}{b^* + d_2} \cdot \frac{1}{1-\beta_2} = 1. \tag{2.21}$$

This value is indicated in Figure A2, which shows how a properly chosen inspection scheme (which selects p within the "Cone of Deterrence" introduced in [10]) can deter both states. Note that a state's penalty for detected violation must be sufficiently severe (at least b^*) in order for this common deterrence to be effective. The greater the penalty, the wider the latitude in choosing inspection schemes to induce legal behaviour.

It is important to note the relationship of the condition for simultaneous deterrence of both states, (2.9), with (1.2). Condition (1.2) indicates that an inspection deters a state from violating if and only if an index is small enough. This index reflects not only technical aspects of inspection $(1-\beta)$, but also the state's political values $(d/(b+d))$. Condition (2.9) indicates that two states can be deterred by (the threat of) one inspection if the sum of each state's index falls below the same threshold. Note that in Problem 1 [condition (1.2)] the state knows that it will be inspected, whereas in Problem 2 [condition (2.9)] both states know that only one state will be inspected — but nonetheless the threat of inspection is sufficient to deter.

Of course an inspection must be quite effective to do "double duty" in this way, as illustrated by Figure 2 in the text. Here, enforcement effectiveness against state i is taken to be proportional to $1-\beta_i$; any inspection opportunity which could be used in either state then corresponds to a point in the two-dimensional space shown. An inspection that can be used only against state