That there is, indeed, a considerable energy advantage to be gained from delocalization in ethylene is immediately suggested by the observed fact that the molecule is planar. Only planar ethylene can have the p orbital overlap necessary to form a delocalized $\pi$ bond. To examine the other extreme, no p overlap, and no $\pi$ bond, can be expected from a model of ethylene in which the planes of the two CH$_2$ groups, and hence the axes of the two p orbitals, are perpendicular to one another. In other words, in the $\sigma/\pi$ model the $\pi$ component of the $\sigma/\pi$ array is construed as preventing rotation about the carbon-carbon axis (at room temperature), because rotation about the carbon-carbon ($\sigma$) bond in ethylene can be expected to cost the price of the loss of delocalization — the $\pi$ overlap — of the $\pi$ bond:

In fact, this price has been measured to be about 65 kcal/mole, by observing the interconversion of cis- and trans-1,2-dideuteroethylene as the delocalization energy of the $\pi$ bond in ethylene in the $\sigma/\pi$ model.
the molecule) and trans-1,2-dideuterioethylene (deuterium atoms on opposite sides of the molecule), interconversion not being observed until there is an energy input of this magnitude. (The 1,2-dideuterioethylenes must be heated to approximately 500°C.) This experiment is interpreted to mean that 65 kcal/mole is the energy price paid to achieve the nonbonding, localized orthogonal transition state from the bonding, delocalized ethylenes, by breaking the $\pi$ bond in the $\sigma/\pi$ model. (It is a frequent source of concern to students that the necessary rotation about the $\sigma$ bond appears to lead to an antibonding $\pi^*$ state in the product. To understand why this is not actually the case, one should simply concentrate on the nonbonding situation at the top of the energy curve — the transition state — where the $p$ orbitals are orthogonal and there is no $\pi$ bond. At this point, one considers not the history of the orbital array, but its situation at a position of maximum energy. Now, in whichever direction one descends from this position, one moves to achieve a lower energy, that is, bonding situation.)